

### Emergency Surgery

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#### What is Reliable CT Scan for Diagnosing Splenosis under Conditions of Emergency

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**Introduction:** Splenosis is a condition in which the spleen is present in a non anatomical position for autotransplantation after splenic trauma or surgery. These splenic implants can mimic a neoplasm. Specific diagnostic tests (US, CT, MR) are helpful but these exams are not specific. Only the use of particular contrast (<sup>99m</sup>Tc, <sup>111</sup>In, ferumoxide) permit a specific diagnosis of intra-abdominal splenosis, but all these exams can not be planned in emergency.

**Material and Methods:** We report a case of a 23-year-old male patient with a history of surgical splenectomy in the childhood after a trauma that was admitted to the emergency department with acute bowel obstruction. Abdomen CT scan revealed small bowel obstruction and two solid masses located in the rectovesical pouch without solution of macroscopic contiguity, lymphadenopathy or invasion signs.

**Results:** The quantitative analysis of the different density values (ROIs) demonstrated that these masses were isodense to liver, in pre-contrast phase (range between 55 and 60 Hounsfield Unit), and highly vascularized (92 HU and 97 HU respectively), in post-contrast phase. The hypothesis of an ectopic spleen mass was made after accurate evaluation of CT images and the clinical history. The smallest mass, adherent to the rectum, was removed. Histopathologic examination confirmed the benign nature of the lesion which consisted of splenic tissue.

**Conclusion:** Splenosis can be confused with other causes of intra-abdominal masses. This report emphasizes the importance of contrast-enhanced CT, with ROIs analysis, as a reliable and fast tool in emergency in that reduce significantly the differential diagnosis.

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#### Angiodysplasia of the Gastrointestinal Tract: About 23 Cases

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**Introduction:** Angiodysplasia (AD) is an arteriovenous malformation which can reach the entire gastrointestinal tract, especially the colon. Its management is often difficult.

It's a retrospective study to identify patient characteristics, methods of diagnosis and current management of patients with a suspected AD at the hospital admission.

**Materials and Methods:** We considered 23 cases collected over past 7 years in a DEA.

**Results:** The mean age was 72.3 years; 79.1% were males; patient characteristics included: documented coagulopathy or anticoagulation therapy in 15 of 23 patients; proctorrage (16 of 23 cases) or melena as the main symptoms; all patient undergone endoscopy; 3 patient undergone video-enteroscopy; 65% of AD located in right colon; co-existing diverticulosis or polyps in 20 patients; angiography in 15 patients; 2 patients treated by embolization and 1 developed post-embolization ischemia; 13 patients admitted to surgery: 12 right hemicolectomies (2 with ileal resection), 1 electrocoagulation in jejunum and stomach; 19 of 23 patients (13 submitted to surgery) required hemotransfusion (mean number of blood units: 4.7).

**Conclusion:** AD is a common etiology of acute intestinal bleeding in elderly patients that are anticoagulated and having co-existing cardiac disease. Endoscopy usually establishes the diagnosis and represents the primary treatment; angiography is the best diagnostic technique, but superselective embolization is not always indicated. The main indications for operative are: continuing or recurrent digestive hemorrhage in patient anticoagulated or with high comorbidity, inefficient endoscopic and angiographic hemostasis or multiple localizations.

### Penetrating Abdominal Injuries in Modern War

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**Introduction:** The aim of study was to evaluate the frequency and difficulty of abdominal injuries in modern war.

**Material and Methods:** Work is based on series of 8123 wounded in Sarajevo battlefield in period 1992.-1996 and threated in Hospital "Zica", Sarajevo. Work analyse cause, mechanism of injuries, number, associated injuries, injuries of individual organs, surgical treatment, complications, mortality.

There were 1996 (24.6%) wounded with abdominal injuries. From all of wounded 1249 (62.6%) were with penetrating abdominal injuries and 812 (65%) were patients with associated injuries.

**Results:** The most frequent isolated abdominal injury was injury of small intestine, than liver, large intestine. At 354 (28.3%) wounded with injuries of small intestine, 389 sutures and 98 resections with TT anostomosis were done. Complications appeared in 9 cases (2.54%). At 241 patients with liver injuries, surgical treatment was suture in 227 cases (94.2%), and atypical resection in 14 cases (5.8%). Complications appeared in 8 cases (3.3%). From 201 (16.1%) wounded with injuries of large intestines, at 169 (84%) patients who were treathed with surgical treatment protective stoma was done, and complications were in 3 cases (1.49%). At patients who had only operating treatment without protective stoma, complications were in 8 cases (25%).

Mortality rate was 29 (2.32%).

**Conclusions:** At patients with injuries of large intestines, protective stoma is necessary, and injuries of small intestines don't require protective stoma. In liver injuries our results showed that the simple suture when possible is enough for healing without resection of the liver.

### Penetrating Thoracic War Injuries

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**Introduction:** The aim of the study is to emphasise the enlarge number of thoracic injuries, isolated and associated injuries, as well as the significance of specific surgical treatment in war conditions.

**Materials and Methods:** Work is based on the series of 978 thoracic injuries within the Sarajevo battlefield during the period from 1992.-1996. From that number 559 (57.76%) were penetrating thoracic injuries. The number of explosive thoracic injuries was 476 (48.67%) and there were 502 (51.33%) sclopetary

wounds. Penetrating thoracic injuries were associated with other organ injuries approximately in 68.1% (381 patients).

All of this patients were threated at the only hospital in that part of the battlefield, at front line Hospital Zica in Ilidza, Sarajevo.

In the work were analysed cause and mechanism of injuries, associated injuries, surgical treatment, complications and mortality.

**Results:** The most frequent way of surgical treatment for penetrating thoracic injuries was thoracocentesis in 525 patients (93.9%). On the other hand thoracotomy was necessary in 34 patients or 6.08%. Complications as residual haematothorax, empyema or desention appeared in 18 patients or 1.84%.

Intrahospital mortality was 9 patients (0.92%).

**Conclusions:** Thoracic injuries in modern war are very frequent, after injuries of extremities (4110 or 50.6%) and abdominal injuries (1996 or 24.6%).

The optimal surgical treatment for penetrating thoracic injuries is thoracocentesis (93.9%).

### Evaluation of Patients' Questionnaires Concerning Socioeconomic Status After Finger Replantation

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**Introduction:** Our Department of Plastic and Aesthetic Surgery is a replantation centre with 31 years history and with over 2000 finger replantations for total finger amputation. Results of our research could help us to modify our attitude to replantation indications. We asked ourselves, if patients are satisfied with a post-op finger function and sensibility and if they had not preferred an amputation to replantation.

**Patients and Methods:** All patients were operated between 2001 and 2007. They suffered total amputations of 1 to 5 fingers with at least 1 replantation. The questionnaire was composed of 15 yes/no questions concerning 3 topics. One part consisted of subjective feelings of the patient and we asked about patients' satisfaction. The next part concerned patients' current socioeconomic status, their former and current occupation. The last part asked about clinical appearance. We distributed 250 questionnaires and received 109 back (43.6%).

**Results:** Eight patients (7.3%) have considered a reamputation. Eighty-nine patients (81.65%) find their hands sufficient for activities of daily living. Only 1 patient thinks he could have had a better job if replantation had not been done. The worst subjectively perceived symptom is freezing in 77 patients (70.64%). Twenty-two patients (20.18%) find total numbness; fifteen (13.76%) partial numbness and 72 patients feel their fingers sufficiently.

**Conclusions:** We have moved our indication scheme on behalf of replantation. Only 1 patient out of 110 questionnaires was not satisfied with the result and that is very encouraging.

Moreover 107 patients (98.17%) would recommend replantation to a relative.

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## General Surgery

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### Is Biliary Decompression Useful in the Treatment of Pancreatic Cancer?

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**Introduction:** Pancreatic cancer is the 4th cause of tumor related deaths in the Western Countries as of today, a radical resection offers the best chance of cure, but only about 25% of the patients are eligible to surgery. Jaundice is a common sign of alarm and frequently the sole symptom. A severe jaundice is frequently considered an indication to endoscopic or percutaneous drainage. This study evaluates the effect of biliary drainage in a consecutive series of patients at a single institution.

**Materials and Methods:** Between 2003 and 2008 83 patients underwent a standard workup for pancreatic tumor, followed by a surgical procedure. This report evaluates: preoperative stenting or drainage, postoperative complications, perioperative mortality, survivals. Data were evaluated by multivariate analysis and survivals by Kaplan-Meier's method. A p value <0.05 was considered significant.

**Results and Conclusions:** Theoretically, a preoperative biliary drainage could improve the patient's status. However our findings demonstrate that, even when the jaundice is severe, it actually improves the postoperative risk of complications (p<0.05). Survival curves (stratification: percutaneous drainage, endoscopic drainage, no drainage) prove a shorter overall survival in drained patients. While this is a retrospective study, preoperative drainage should not be used in pancreatic cancers.

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### Hepato-Biliary Surgery at the "Annunziata" Hospital of Cosenza: A Review

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**Introduction:** Since 2007 November at the "Annunziata" Hospital of Cosenza, a Hepato-Bilio-Pancreatic Surgery and Organ Transplant Unit was activated, aim of our study is to report our experience in these surgical fields.

**Patients and Methods:** Between 2008 January up to 2009 March, we performed 1103 general elective surgery interventions, included plastic surgery, mammary surgery and coloproctologic surgery. In total 225 patients underwent hepato-biliary operations. The mean age resulted of 52 yrs (range 23-81 yrs). Particularly, we performed 170 laparoscopic cholecistectomies, 26 laparotomic cholecistectomies, 14 bilio-digiunostomies on Roux's ansa due to obstructive jaundice, 80 hepatic resections. The main indication to the hepatic resection was neoplastic disease and particularly 17 HCC, 8 cholecistic neoplasia, 34 metastasis, 7 of whom synchronous. The remaining 21 cases were benign lesions.

**Results:** In the field of major hepato-biliary surgery, the most numerous patients were those underwent an hepatic resection. Among the pts with oncologic tumours we observed 2 postoperative mortality, after extended liver surgery for neoplasia infiltrating the vena cava in one case, and cholangiocarcinoma in the other one, due to cardiac complications. No severe post-operative complications were observed, except in one case of biliary leakage after left hepatectomy due to Caroli.

**Conclusions:** The Hepato-Biliary Surgery in Calabria represents already, since one year, a certainty completely satisfying activity, in treating patients affected by hepato-biliary diseases requiring surgical intervention. Our hope is to continue our growth, encouraged by the target completed, and to further improve our practice by adding the liver transplant program at already current kidney transplant activity.

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### Pancreatic Surgery: Initial Experience at the "Annunziata" Hospital of Cosenza

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**Introduction:** We report our initial experience on pancreatic surgery at "Annunziata" Hospital.

**Patients and Methods:** Between January 2008 to February 2009, 27 patients (17M, 10F, with age averaging 58yrs, ranging 37-79), affected by pancreatic tumors, were admitted in our Hepato-Bilio-Pancreatic Unit; in 17 of these pts we performed oncologic radical operation. In 10pts the operation was not performed due to the disease extension. In 2 pts we performed a double derivation and multiple biopsies to obtain a definitive diagnosis (8 pts). 17 pts underwent surgical operation (8 due cefalopancreatic neoplasia, 4 Vater papilla tumor, one of whom with metastasis from renal cancer, 2 distal biliary duct neoplasia, 1 chronic pancreatitis, 1 body-caudal tumor and 1uncinate process tumor). In 15pts we performed DCP. In 2 pts we performed a total pancreatectomy with a "wedge" resection of 6<sup>th</sup> hepatic segment, and a distal pancreatectomy with resection of left diaphragmatic pilaster and "wedge" resection of 3<sup>rd</sup> hepatic segment.

**Results:** No postoperative mortality was observed. The postoperative complications were 2 pancreatic fistulas and 2 biliary fistulas treated conservatively, 1 ischemic stenosis of the biliodigestive anastomosis treated by percutaneous dilatation. The disease-free survival was 82.35% at 1 year.

**Conclusions:** The resective pancreatic surgery for neoplasia have strict indications due the severity of the pathology already at the moment of diagnosis and then should be encourage to perform it only at specialized units. However, in our experience, the results in terms of disease-free survival and post-operative complications, were comparables with the literature data and encourage us to go on, by careful patient selection with the oncologic radical intent.

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### Totally Extraperitoneal Repair of Groin Hernia: Our Experience

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**Introduction:** Low post-operative pain, early return to usual activities and excellent cosmetic results represent the main advantages of TEP. TEP joins the advantages of open techniques avoiding the complications of the laparoscopic approach: peritoneum is not violated, incisions are small and the mesh positioning allows to cover every orifice.

**Materials and Methods:** From 01/07/07 to 31/03/07 in our Unit we have performed 98 procedures for inguinal hernia: 52 TEP (38 monolateral and 14 bilateral), 3 TAPP, 42 Lichtenstein procedures and 1 Stoppa.

**Results:** Mean operating time was 45 minutes (range 20-90) in monolateral hernias and 65 minutes (range 50-90) in bilateral ones. Post-operative complications were inguinal haematomas (3), scrotal haematomas (5), seroma (3), persistent inguinal pain (1). Mean hospital stay was 1,5 days for monolateral TEP (1-11) and 1,7 days in bilateral TEP (1-4). There were two conversions from TEP to TAPP.

**Discussion:** TEP has become in our experience the gold standard for treatment of inguinal hernia. This procedure, after a good training, presents no particular difficulty. Early post-operative complications were low (none related to laparoscopy).

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### Hyperthermic Intraperitoneal Chemotherapy (HIPEC): Our Experience

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**Introduction:** Peritoneal carcinomatosis represents a frequent condition in patients affected by malignancies arising from the colon, appendix, stomach, ovary, pseudomyxoma peritonei and peritoneal mesothelioma. The idea that peritoneal disease is a regional disease rather than systemic malignancy has led to the development of a novel strategy of complex surgery to achieve macroscopic complete tumor excision (cytoreduction), combined with HIPEC to treat microscopic disease.

**Materials and Methods:** In our Department we have performed five cases of cytoreductive surgery combined with HIPEC for peritoneal carcinomatosis. The patients were three females (median age 47) and two males (median age 51). In three cases the primitive tumor had a gastric origin, in one case it had an appendiceal origin, and in the last one, it had a colic origin. In two cases patients have had previous surgery and were submitted to adjuvant chemotherapy. Two patients underwent neoadjuvant chemotherapy. In all cases patients have had an R0 Surgery in association to HIPEC with open technique sec. Sugarbaker with Mitomicin C 35 mg/sqm for 90 min with max Temperature of 42°C. All patients were submitted to adjuvant systemic chemotherapy after HIPEC.

**Results:** During the post-operative period we have had only haematological toxicity. There was one peri-operative death due to pulmonary disease. The median hospitalization was 15 days. The median survival was 1 year.

**Conclusions:** These are preliminary results of an initial experience and the follow up is still in progress. On the basis of the literature's review we considerer HIPEC a fundamental weapon against peritoneal carcinomatosis.

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### Necrotizing Fascitis by Clostridium Perfringens and Streptococcus Equinus in a Cancer Patient

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Clinical trials have demonstrated that bevacizumab enhance the effectiveness of chemotherapy for the treatment of metastatic colorectal cancer, as antiangiogenetic factor. Postsurgical wound healing complications have been described following treatment with bevacizumab; only two-case reports discussed delayed presentation of an anastomotic complication.

We describe a fatal case of polymicrobial necrotizing fasciitis in a patient with rectal cancer treated with bevacizumab, caused by *Clostridium perfringens* and *Streptococcus equinus*. This last is a new hitherto-not described pathogen in necrotizing fasciitis, while *C. perfringens* is now a rare cause of necrotizing fasciitis;

Necrotizing fasciitis is a highly severity infection, which involves local damage in the soft tissues but may also cause systemic injuries in several organs. In the case reported here, necrotizing fasciitis raised in perianal region and moved to the left lower extremity.

This report shows that the treatment with bevacizumab could promote the development of rare opportunist infections, that if are not early discovered and treated could cause serious complications for the patients and take him to death.

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### Gastrointestinal Complications After Cardiac Surgery

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**Introduction:** GI complications occur after cardiovascular surgery and lead to increased morbidity, mortality, length of stay, and hospital costs.

**Methods:** This is a multicentric retrospective study of 1377 patients submitted to elective cardiac surgery, that evaluate the relationship between GI complications and hospital stay. EuroSCORE was calculated preoperatively for each patient.

**Results:** We observed 39 GI complications: 5 acute GI bleeding, 3 prolonged postoperative ileus, 6 acute diarrhea, 7 intestinal ischemia, 17 serum AST and ALT and bilirubin elevation. 8 patients required surgical treatment of GI complication (6 with intestinal ischemia, 1 with acute bleeding due to duodenal ulcer and 1 with perforated diverticulum of colon). Mortality in these group was 57.1% with a mean EuroSCORE >15.

**Conclusions:** GI complications are rare but their impact on outcome and hospital stay length is often dramatic. In the group of patients with GI complications, patients with severe GI complications (bleeding, bowel ischemia) and prolonged postoperative ileus had a longer stay in ICU, while patients with mild complications (diarrhea, jaundice and AST/ALT elevation) had a short stay in ICU and subintensive care unit (as uncomplicated patients) and a longer stay in the ward. Severe complications are more frequent in patients with a high preoperative EuroSCORE.

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### Usefulness of Ultrasounds in the Diagnosis of Breast Phyllodes Tumors

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**Introduction:** Breast phyllodes tumor (PT) are uncommon fibroepithelial lesions having potential malignant features in 25% of cases. These tumors have characteristic features, like pleomorphism, mitoses and overgrowth of the stroma with eventual infiltrative margins. The clinical behavior could be unpredictable, since the relatively high recurrence rates, despite correct surgical resections. Conventional diagnostic examinations (mammography and ultrasonography), show high sensibility and specificity, but cannot demonstrate the differences between benign and malignant PT. MRI doesn't seem to be more effective.

**Materials and Methods:** 16 female patients affected by breast phyllodes tumor have been surgically treated. All patients underwent mammography and ultrasonography as preoperative diagnostic examinations. US scan was performed through a real-time multifrequency probe, 7.5-10 Mhz, evaluating eventual intralesional features, like echogenicity, posterior enhancement or acoustic attenuation of the echoes, and studying the intralesional vascularization through the use of color Doppler.

**Results:** In 13 patients, ultrasound was effective in preoperative diagnosis of phyllodes tumor, showing the presence of a solid, round shaped mass with regular smooth margins, posterior acoustic enhancement and remarkable dimensions. Mammography was ineffective in detecting breast lesions in 5 cases, while in 11 cases mammographic findings presented a round opacity with moderate tissue density and well defined wall with benign features.

**Conclusions:** Ultrasonography remains the most useful radiologic test in identifying breast phyllodes tumors. However, there is still no test effective in diagnosing malignancy of a PT, present in a low percentage of cases. In case of suspicion of malignancy, it would be suggested to perform a needle biopsy.

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### Local Anaesthesia for Inguinal Hernia Repair: How, When and Why

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**Introduction:** Several retrospective and randomised controlled trials have shown that local anaesthesia provides the best clinical and economic benefits to patients. The surgeon has to train in the use of local anaesthesia (about anaesthetic mixture, the timing and the way of administration), adopt a gently handling of tis-

sues and of course be expert in inguinal hernia repair techniques. The aim of this work is to show step by step this procedure.

**Material and Methods:** We proposed inguinal hernia repair under local anaesthesia (LA) for the first time in 1988 and nowadays, after more than 3000 hernia repairs, we adopt it routinely and most of repairs of defect of abdominal wall are performed with this technique (82,8%). The identification and selective anaesthesia of the nerves of the region (external femoro-cutaneous, ileo-hypogastric, ileo-inguinal and genital branch of genitor-femoral nerve) and a gentle handling of tissues are key points for local anaesthesia surgery as the knowledge of “forbidden” points to touch.

**Results:** This technique enables hernia repair with a minimally invasive surgery, with a low recurrence rate and complication rate.

**Conclusion:** If the surgeon has practice in surgery under LA, inguinal hernia repair is a procedure followed by a high degree of patient satisfaction.

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### Stapled Anorectal Surgery 2006-2008: Our Experience

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**Introduction:** Procedure for prolapsing hemorrhoids (PPH) and stapled transanal rectal resection (STARR) are affected by rare complications which are difficult to manage such as rectovaginal fistula, chronic proctalgia, rectal obliteration, rectal wall hematoma, perforation with pelvic sepsis and more common ones such as rectal bleeding and fecal incontinence.

**Materials and Methods:** We report our series of 303 patients (male 134; female 169) treated from 2006 to 2008 for prolapsing hemorrhoids and for obstructed defecation syndrome. Patients were usually followed up at one, three months and one year. Adverse events after PPH and STARR such as bleeding occurred in 4 cases and required a resolute intervention; temporary fecal incontinence recorded in 1 case improved with dietetic recommendations; postoperative proctalgia was treated and solved in all cases with FANS except for 1 patient actually under observation (90 days from operation). 2 rectal wall hematoma were observed: 1 evolved in pelvic hematoma solved by transanal drainage and diverting stoma, the other one followed up by CT spontaneously drained during evacuation after 12 days

**Results:** As reported in Literature, bleeding is the most frequent complication common to the manual conventional surgery; not usual complications seem to be the effect of surgeon learning curve.

**Conclusion:** We advise the necessity of further studies in order to improve the management of short and long term postoperative complications in stapled anorectal surgery.

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### Dunbar's Syndrome: A Case Report

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**Introduction:** Median arcuate ligament syndrome (MALS) is a rare and often misunderstood condition characterized by compression of the proximal portion of the celiac artery by the median arcuate ligament. On the basis of the literature's review and of our own observation we conclude that Dunbar's Syndrome is a real clinical entity.

**Materials and Methods:** A male patient of 22 years old came to our attention with a clinical presentation characterized by abdominal pain, nausea and with diagnosis of Dunbar's syndrome after having performed angio-CT. The patient was operated to remove the pericoeliac tissue in laparoscopic surgery. He was discharged in POD 2 in good health without symptoms.

**Results:** The CT scan made three months after surgery demonstrated the presence of collateral circulation from the superior mesenteric artery, but the patient was totally asymptomatic.

**Conclusions:** The existence of MALS, also called “Dunbar syndrome,” has been questioned since compression of the celiac artery is often demonstrated on aortography in asymptomatic patients. Additionally, isolated stenosis of the celiac artery can be compensated by collateral circulation from the superior mesenteric artery. Despite these dissenting arguments, there are many cases whose symptoms have been relieved by surgical division of the MA ligament. The section of the arcuate ligament and the subadventitial removal of the pericoeliac tissue, or, whenever indicated, an aorto-coeliac by-pass, seems to be the “gold standard” in the surgical treatment.

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### Is Mechanical Bowel Preparation Useful in Colorectal Surgery?

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**Introduction:** Mechanical bowel preparation (MBP) is frequently used for preparing patients before elective colorectal surgery. MBP has long been considered necessary for the prevention of complications, like infections and anastomotic leakages. There is little scientific evidence demonstrating the efficiency of this practice in reducing the rate of complications. We present our experience in colorectal surgery with and without MBP.

**Materials and Methods:** Our prospective unrandomized study analyzed 86 patients which underwent colorectal surgery during the last years divided into two groups (47 with and 39 without MBP) finished with mechanical or manual anastomosis.

**Results:** Anastomotic fistulas rate was 4.2% (2 cases) in the group with MBP and 2.6% (1 case) in the one without MBP. There was a single intraperitoneal abscess in each group. The parietal suppuration appeared in 6.4% (3 cases) of the patients with MBP and in 5.1% (2 cases) of those without MBP.

**Conclusion:** Our study is in agreement with other recent randomised clinical studies which are unable to show the benefits and the effects of MBP in elective colorectal surgery compared with the operations without preparation. Colorectal surgery without MBP can be safely performed having the same or even better results than the one with MBP.

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### **Eosinophilic Gastroenteritis Presenting as Small Bowel Obstruction: A Case Report**

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**Introduction:** The eosinophilic gastroenteritis is a rare pathological condition that it can be manifested under several shapes. The epidemiology and the etiopathogenesis aren't clear.

**Materials and Methods:** A woman of 62 comes to the hospital for emesis and abdominal distension. The patient present a splenic agenesis, in anamnesis cholecistectomy and two Caesarean parts.

At the examination the abdomen is extended, meteoric and it's present metallic stamp. The RX direct abdomen shows a distension of the digiunal handles with signes of obstruction while the echography sees ascites. We make a paracentesis obtaining yellowish liquid that it comes for chemical-physicist examination, cytological and culture. The worsening of the clinical, radiological condition (almost complete mechanical ileus) and ematochimic (neutrophilic that eosinophilic leucocytosis) induces us to the surgical exploration. At the laparotomy we see a thickening of a ileal handle with reactive lymphadenitis, we decide to postpone to the resection for the uncertainty of the pathology, and we capture some meso-ileal nodes. The post-operative passed is complicated from episodes of hyperpyrexia and recurrent ascitis.

**Results:** After testing the negativity of cultivation (emoculture, coproculture and peritoneal payment with the presence of many neutrophils cells) and node's hystologic examination negative for lymphoma but with an evidence of neutrophilic infiltration we decide to undertake corticotherapy which allows a resolution of sub-occlusive condition, ascitis and hyperpyrexia.

**Conclusion:** The eosinophilic enteritis is a very rare medical condition whose treatment is purely medical (therapy corticotherapy) but can lead to a clinical-radiological occlusion of the intestinal track.

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### **Vascular Complication in Videolaparoscopic Cholecystectomy: Our Experience**

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**Introduction:** Videolaparoscopic cholecystectomy (VLC) is considered the gold standard in the treatment of cholelithiasis owing to better post-operative outcome. However complication may occur and vascular ones must be very serious.

**Materials and Methods:** We retrospectively evaluated 234 VLCs performed in the last 5 years, between January 2004 to December 2008 performed in elective and emergency setting.

**Results:** There were 11 vascular complication (4.6%) of which 7 intraoperative and 4 post-operative bleedings. About the intraoperative bleedings we see: 3 bleedings from hepatic bed treated with laparoscopic emostasis and transfusion, 2 bleedings from cystic artery which need conversion, 2 parietal bleedings from the introduction site of trocars. About the post-operative bleedings we see: an omental bleeding which required laparotomy 24 hours after surgery, two bleedings from hepatic bed one treated by transfusion and one treated by laparotomy, a bleeding from cystic artery treated by laparotomy immediately after laparoscopy. Mortality was 0.

**Conclusion:** Hemorrhagic complication during VLC are rare and can generally be treated by laparoscopy. Conversion, when necessary, mustn't be considered a defeat.

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### **Patient Safety: "Prevention of Accidental Burns in Laparoscopic Surgery"**

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**Background:** The aim of the project is to reduce the risk of burns that occurs accidentally in laparoscopic surgery due of an unexpected transmission of electric current. The incidence of burns during laparoscopy is between 2.3 and 4 cases on 1000. The conventional theory supports the occurrence of direct burn's injury by the tip of the instruments, our study demonstrates an additional source of burns due to the contact of the intact sheath and the surrounded anatomic parts in a ionic humid ambient.

**Material and Methods:** We implemented several mathematic algorithms based on morphological operations to analyze the shape of the laparoscopic instruments and to identify micro-ruptures of the sheath. A thermograph was used to check the results obtained with the previous tests controlling the heat dispersion through the sheath of the instrument.

**Results:** Our measurements demonstrated that the instrument had no micro and macro damage at any part.

The thermographic analysis demonstrated a dispersion of heat along the instrument; this result guided our research to studying blood and biological liquid composition in regard of electrical conduction. We developed a special filter made out of adsorbing material able to attract to its surface molecules and ions, reducing the electric conduction.

**Conclusions:** The presence of the special filter on instrument's surface reduces the transfer of electric current to the near tissues and burn injuries.

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### **Chromoendoscopy Improves Endoscopic Performances in Evaluation of Early Gastric Cancer**

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**Introduction:** Incidence of Early Gastric Cancer (EGC) is 4 times bigger in Japan than in Italy. This difference is due only to genetic and environmental factors or also to different diagnostic techniques? Aim of this study is to evaluate the role of chromoendoscopy as diagnostic tool in detection of EGC.

**Patients and Methods:** We evaluated 200 consecutive patients by esophago gastro duodenoscopy (EGD). Inclusion criteria: age > 30 y.o., good health status, ASA I/II risk. Exclusion criteria: ASA III/IV risk, previous diagnosis of gastric cancer, previous PPI, H2 antagonistic or anti HP therapy. The patients were randomized in two groups: in group A the patients underwent to chromoendoscopy with mucolysis (by acetylcysteine 10%), proteolysis (by Pronas) and stain (by indigo carmine 0.4%); in group B the patients underwent to standard EGD.

The identified lesion were classified according Paris classification and treated with endoscopic mucosal resection (EMR).

**Results:** In group A were detected 8 ulcerated, 5 granular, and 11 aphta-like lesions and, moreover, 7 IIa, 2 IIb and 2 IIc lesions. In group B were detected 6 ulcerated, 2 granular and 9 aphta like lesions and 3 II a lesions and 1 vegetant lesion.

**Conclusions:** In group A was detected a larger number of lesions than in group B. Chromoendoscopy improves diagnostic results of endoscopic performances in detection of EGC.

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### **Crossectomy with Foam Sclerotherapy in the Treatment of Varicose Veins**

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**Aim:** The crossectomy is the interruption of all collateral vessels that flow in the saphenou-femoral junction. Sclerotherapy with foam uses the injection of sclerosing medication with irritative effects. The aim of this study is to present our results in the medium term by combining the use of these two techniques.

**Methods:** From December 2007 to December 2008, at the Department of General Surgery of AOUP of Naples Federico II, were performed 124 interventions of crossectomy associated with sclerotherapy. The average age of patients was 55 years (range: 30-75). The sclerosing foam was obtained with Polidocanol 1% subjected to alternating pressure air into the syringe with a double way. All patients were kept under the hospital for 24 hours. The follow-up was both clinical and ultrasound scanning in all patients with re-evaluation after 3 weeks and after 1, 3, 6, 12 months after surgery.

**Results:** The technical success post-operative (occlusion) was found in 99.2% of patients at 30 days, with the complete remission of symptoms by IVC in 96.8% of patients at 3 months. These results were associated with an improvement in the immediate post-operative course than standard ablative techniques such as saphenous stripping. The absence of clinical symptoms was 95.6% for 6 months and 100% at 12 months, despite events of segmental or complete recanalization of the saphenous in 23.1% of the subsequent 12 months. Adverse events: 3,2% for TVS, 0,8% for DVT, 1,6% for allergic reactions by sclerosing.

**Conclusions:** The use of crossectomy associated with sclerotherapy is an excellent alternative to stripping of VGS, with better immediate results and short-term and medium-term results from considerarsi equivalent.

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### **Diagnosis and Treatment of Breast Cancer in Ectopic Tissue**

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**Introduction:** The presence of ectopic breast tissue is reported in 2–6% of the general population with most cases being located in the axillary region.

Because an overlying accessory areola or nipple is often missing and because of a general lack of awareness among physicians and patients concerning these unsuspecting nodules, clinical diagnosis is frequently delayed.



**Materials and Methods:** From June 2004 to July 2007 we have seen three patients with breast cancer located in ectopic breast tissue. Two patients had carcinoma located in axillary region and third one had carcinoma in parasternal region.

**Case 1.** Female, 31 years, with nodule without pain in right axillary region. Ultrasound examination showed an ipervascular nodule (3x2 cm in diameter) with irregular margins. Mammography examination showed nothing.

**Case 2.** Menopausal female, 65 years with nodule in the right region axillar. Mammographic examination showed the nodule internal microcalcification. Ultrasound examination of the nodule (1.5x3 cm in diameter) had hyperechogenic ecostruttura.

**Case 3.** Menopausal female, 56 years with nodule in the left region parasternale. The nodule, located on the abnormal, was not visible at mammography while pointing to the ultrasound examination and CT.

**Results:** All patients have undergone surgery with removal of tumor and axillary linfadenectomy and postoperative chemotherapy too. Only two (case 2 and case 3) was treated with estrogenic therapy too. In follow-up, from 3 to 5 years, have not been documented occasions of diseases.

**Conclusion:** Regardless of the location and instrumental methods used for diagnosis, therapeutic strategy can not ignore the wide excision with axillary linfectomia.

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### Laparoscopic Approach to Incisional Hernia

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**Background:** Incisional hernia is the most common complication after abdominal surgery. With this retrospective study we want to evaluate the efficacy and safety of laparoscopic incisional hernia repair (LIHR) according to our experiences.

**Patients and Methods:** We retrospectively reviewed our 7 patients who underwent laparoscopic surgery from december 2005 to may 2008. This approach was done by fixing a prosthetic mesh behind the posterior fascia of the rectus mucle.

**Discussion:** There was no recurrence or death. The only omplication was a seroma in 2 patients, managed by observation.

**Conclusion:** Laparoscopic suturing of the defect and the reinforcement with mesh provides all the benefits of minimally invasive surgery; moreover recurrence and complication rate are lower than those reported for conventional repair of incisional hernia.

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### "Natural Orifice Transluminal Endoscopic Surgery (NOTES): Cholecystectomy with Transgastric Approach in Anesthetized Pigs"

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**Introduction:** NOTES is the most innovative technique about minimally invasive surgery. Our intent is to assess the feasibility of this surgical approach and describe our experience on the porcine model.

**Materials and Methods:** Transgastric cholecystectomies were performed in 7 anesthetized pigs using a double-channel gastroduodenoscope. It was passed into the stomach through an overtube via the esophagus and, after incision of the gastric wall, penetrated into peritoneal cavity. Gallbladder was isolated, the cystic duct and the cystic artery were clipped, the gallbladder were dissected from the liver bed and then pulled through the mouth. After 2 weeks pigs were sacrificed to make a post-mortem examination.

**Results:** All cholecystectomy were performed successfully. There were no complications such as hemorrhage, lacerations, infection or bile leakages. Operating time was about 120 minutes. None of our animals developed intra-abdominal sepsis or demonstrated signs of infection at the necropsy. Moreover the site of gastrotomy appeared cicatrized.

**Conclusion:** This study demonstrated the technical feasibility and safety of transgastric cholecystectomy and provides a positive report on a survival porcine model. Transgastric cholecystectomy is not far from application to humans but with planning an appropriated instrumentation.

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### Pelvic Recurrence After Radical Surgery for Primary Rectal Carcinoma

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**Introduction:** In our study we analyze the risk factors of pelvic recurrence after radical surgery for primary rectal carcinoma and results from different therapeutic procedures in the recurring patients.

**Material and Methods:** From April 1997 to March 2003 103 (86%) were submitted to radical surgery. Of these 43 patients (46.6%) received adjuvant radiotherapy (31 preoperatively and 12 postoperatively). From 1990 the total mesorectal excision (TME) was always performed. The Multivariate Regression Analysis (MRA) using the Cox Proportional Hazards model identified the factors affecting pelvic recurrence.

**Results:** In 103 rectal cancer patients submitted to radical surgery 12 (11,1%) had pelvic recurrence. Stratifying all series by adjuvant radiotherapy the pelvic recurrence rate was 7% for subgroup treated with surgery + XRT vs 16,5 % after surgery alone ( $p=0,01$ ). The preoperative XRT provided a better 5 years local recurrence-free survival (LRFS) than the postoperative XRT (97,7% vs 81,7%  $p=0,01$ ).

**Discussion and Conclusion:** In our experience association of preoperative chemoradiation and radical surgery including TME provided the best results. In conclusion, a more severe selection criteria for patients to be addressed to a multimodality therapeutic approach on the basis of prognostic tumor factors permit the progressively lower incidence of "frozen pelvis" and effectiveness of palliative treatments.

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### The Impact of Obesity on Perioperative Morbidity and Mortality in the Context of Colorectal Surgery

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**Introduction:** Obesity is a major public health problem in developed countries. Body mass index (BMI) of 30 kg/m<sup>2</sup> or greater is considered obese. BMI is a widely used measure that accounts for the relationship between weight and height.

**Materials and Methods:** MEDLINE, PUBMED, and the Cochrane library were searched by using the terms "obesity", "body weight", "ileal pouch", and "surgery". The same database were searched for the terms "obesity", "outcomes", and "colorectal". We evidenced well-designed randomized, controlled trials (RCT) when available.

**Results:** Obese patients undergoing laparoscopic colorectal surgery are at increased risk of conversion to an open procedure. Obesity may increase the risk of wound dehiscence, incisional site herniation, and stoma complications.

**Conclusion:** Obesity has a negative impact on outcome after colorectal surgery, but it is recommended that future studies examine grades of obesity.

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### The Prognostic Significance of Plasma Vascular Endothelial Growth Factor in Gastric Carcinoma Patients

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**Introduction:** Tumour vasculature has been reported to be a significant prognostic and haematogenous metastatic predictor in gastric cancer and VEGF expression has been recognised in these tumours. Vascular endothelial growth factor (VEGF) is a glycosylated dimeric polypeptide which is abundantly expressed and secreted by most human tumours and increases the permeability of microvessels to circulating macromolecules, with hyperpermeability of tumour blood vessel. The aim of this study is to investigate the clinical significance of VEGF in gastric carcinoma patients.

**Material and Methods:** VEGF was measured in gastric cancer patients using an enzyme-linked immunosorbent assay (ELISA). Preoperative serum and plasma samples were collected from 137 patients with gastric carcinoma, 51 patients with benign gastroduodenal disease and as the "healthy" control group 46 patients with inguinal hernia and with no other pathology.

**Results:** Plasma VEGF levels of the gastric carcinoma group were significantly higher than those of the benign gastroduodenal disease group ( $p=0,07$ ) and had a tendency to increase when compared to those of the control group ( $p=0,064$ ) whereas there was no significant difference between the benign gastroduodenal disease and the control group. An extremely high plasma concentration of VEGF was seen in some cancer patients with metastasis. To discriminate these patients, a cut-off level was determined. This cut-off value was 99 pg/ml and most cancer patients without metastases had VEGF levels below the cut-off value. Survival was also analysed in the patients with metastasis and was significantly longer in the patients with low VEGF levels below the cut off than in those with high VEGF levels ( $p=0,041$ ). Moreover, in patients treated with systemic chemotherapy, the response to chemotherapy was significantly higher in patients with low VEGF levels (< 99 pg/ml), than in those with high VEGF levels ( $p=0,043$ ).

**Conclusion:** Plasma VEGF is a useful marker for tumour metastasis and patient survival. Moreover, it is a possible predictive factor for the response of patients with gastrointestinal cancer to chemotherapy.

## COLA – A New Approach For Laparoscopic Cholecystectomy

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**Introduction:** Laparoscopic surgery has reduced the operative trauma and hospitalization in cholecystectomy by avoiding a large incision. In recent years there have been a numerous attempts to improve the aesthetic outcome. As one part of this development NOTES is emerging where the most common approach is trans vaginal.

**Methods:** To improve the functional and aesthetic outcome the surgical technique of COLA (covered laparoscopic access) cholecystectomy was invented and tested in a selected group of patients. From 07/2007 to 04/2009 26 patients were operated. The approach uses 3 trocars (2 of 5 mm and one 10 mm). One is placed at the umbilical level (5 mm), and two at suprapubic level symmetrically. We use a 5 mm, 30 degree optic located on the left suprapubic trocar. The instruments are positioned on the right (10mm) trocar, where the extraction of organ is performed, and in the umbilical trocar

**Results:** The operated patients did not present complications and were discharged within 2 days after post operative check-ups.

**Conclusions:** We can say that this technique, in the hands of experienced surgeons and in selected groups of patients (no history of cholecystitis), represents a valid alternative to conventional laparoscopic cholecystectomy with a better aesthetic result, less hernia and feasible also in men.

## Malignant Diverticulitis of the Left Colon Complicating Heart Transplantation

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**Introduction:** Acute complicated diverticulitis, particularly with colon fistulas, is a rare but severe condition in transplant recipients with high morbidity and mortality. The term malignant diverticulitis has been employed to describe an extreme form of colon diverticulitis that is characterized by an extensive phlegmon and inflammatory reaction. In view of their known predisposition to infection, immunocompromised patients with diverticulitis are at particular risk.

**Case-report:** A 57-year-old man, who received heart transplantation 1 month ago, presented with vague abdominal pain and lower gastrointestinal bleeding. Physical examination was normal. Blood tests revealed leukocytosis. Abdominal X-ray didn't show air-fluid levels while CT demonstrated a reminiscent process of

Crohn disease with an extensive inflammation and a fluid abdominal collection due to left colon diverticulitis. At laparotomy, there was a colon-enteric fistula and diffuse purulent peritonitis. Left emicolectomy, ileostomy and jejunostomy were performed. Histopathology confirmed perforated acute left colon diverticulitis. The jejunostomy was taken down and patient was discharged on the 18th postoperative day after an uneventful postoperative course.

**Conclusion:** This is the first report of malignant diverticulitis resulting in colon perforation in a heart transplanted patient. Clinical presentation, may be atypical due to the masking effects of immunosuppression. A high index of suspicion, urgent aggressive diagnostic investigation of even vague abdominal symptoms, adjustment of immunosuppression, broad-spectrum antibiotics, and surgical treatment are critical. Corticosteroid intake causes a number of significant problems, such as thinning of the colonic wall, lessening of the physical findings with diverticulitis, and an attenuated inflammatory response. Clinical presentation, even in peritonitis, may be atypical in the immunosuppressed transplant recipient due to the masking effects of the immunosuppression, particularly steroid medication on symptoms and signs.

## Sarcomatoid Carcinoma of the Duodenum: Diagnostic Problems Raised by an Unusual Tumor. A Case Report and Review of the Literature

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**Introduction:** Sarcomatoid carcinoma of the small intestine is rare and associated with poor prognosis; 19 cases have been reported in literature. This report underlines the potential diagnostic problems raised by this unusual type of carcinoma and emphasizes the role of immunohistochemistry in the diagnosis.

**Material and Methods:** We present the case of a 64-year-old man presented with a GI bleeding due to an ulcerative lesion of 6 cm of the duodenum associated to a mass of the head of the pancreas. The patient underwent an haemostatic duodenocephalopansectomy. The tumor was a 10-cm mass of the duodenal wall penetrating and extensively infiltrating the head of the pancreas. On microscopic examination, the neoplasm was composed of spindle shaped, anaplastic cells, presenting numerous mitoses and nuclear atypia. Immunohistochemical examination showed that tumor cells coexpressed vimentin and epithelial markers (cytokeratins:CK-CAM5.2). No staining for Actine, EMA, Melan-A, Mesotelioma Ag, and CD117 was found.

**Results:** The patient deceased with metastatic disease after 5 months of follow-up.

**Conclusion:** This case should be classified as sarcomatoid carcinoma of the small intestine. Review of the literature confirmed that these tumors are much more aggressive than other

small intestinal tumors, and the determinant role of immunohistochemistry for a correct diagnosis.

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### Duodenal Exclusion: What Surgical Options? Our Experience and Literature Review

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**Introduction:** Significant controversy exists regarding duodenal exclusion. The aims of this study is to report a series of eight consecutive cases of duodenal exclusion and to describe complications or improvements in clinical outcomes among considered patients.

**Material and Methods:** Data on eight consecutive patients with duodenal involvement in different diseases who underwent duodenal exclusion over a 3 year period were collected and analyzed.

**Results:** The causes of duodenal involvement included: benign and malignant duodeno-colic fistulae, complicated ulcer of the second part of the duodenum, ischemic and iatrogenic lesions. The treatment was different in all patients and tailored to the cause of duodenal involvement. In all patients duodenal exclusion was always associated to bile diversion and to drainage of pancreatic secretion with a duodenostomy. In these patients we had long hospital stay (> 50 days) and high morbidity rate. One patients died from septic complications.

**Conclusion:** Over time the indications for duodenal exclusion have gradually been expanded to include management of actual or anticipated duodenal fistulas arising from operative injury or as a complication of inflammatory or neoplastic diseases. In our opinion the surgical technique to obtain duodenal exclusion must be selected according to surgeon's experience and severity of disease.

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### The "Boarding Card": Instrument for Improving Surgical Patient Safety

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**Introduction:** Surgical care has been an essential component of health care. Therefore improve the safety of surgical care as become a primary objective of worldwide health system. In this

paper we present how we implement in our Hospital safety of surgical patients introducing the "boarding card".

**Materials and Methods:** A working groups of experts, reviewed the literature to identify a simple set of surgical safety standards applicable in all countries and settings and compiled in a checklist for use in operating rooms. This checklist, called "boarding card", follow the surgical patients in all the surgical settings.

**Results:** The introduction of the "boarding card" determined: application in all the hospital of the same standard of safety care in surgical practice; no incident report in the contest of safety in surgical patients; no increasing of mean time of perioperative procedures.

**Conclusion:** Every operating room team can improve the safety and efficacy of care delivered to surgical patients. The checklist outlines essential standards of surgical care and is designed to be simple, widely applicable and address common and potentially disastrous lapses, helping to identify gaps in perioperative practice and establishing or confirming adherence to proven standards of care that can improve surgical results and decrease deaths and complications.

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### Predictors of Liver Failure After Extended Liver Resection in Swine

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**Introduction:** To evaluate factors predicting early onset of liver failure after extended liver resection in a large animal model.

**Patient and Methods:** 20 pigs weighting from 13 to 27 kg (mean 19±4.4 kg) were divided in three group according to extension of liver resection: group 1 (n=2), standard left hepatectomy (segments 2,3,4); group 2 (n=3), liver segments 2,3,4,5,8 resection; group 3 (n=15) extended liver resection of segments 2,3,4,5,6,7,8. Animals were followed for five days, at which time they were sacrificed observing the death due to liver failure after liver resection. A multivariate analysis was performed.

**Results:** Early onset of liver failure (n=5) leading to animal death within 3 days after surgery was observed only in group 3, but the number of liver segments resected was not useful for recognizing which animal will develop liver failure. The multivariate analysis revealed that the extension of liver resection t greater than 2.3 % of total body weight (p<0.05), the persisting high INR (p<0.05) and serum bilirubin (p<0.05) in the first postoperative days were predictors of early liver failure development.

**Conclusions:** The extension of liver resection greater than 2.3 % of total body weight, the persisting high INR and serum bilirubin in the first postoperative are independent predicting fac-

tors of early liver after extended liver resection in a large animal model.

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### **Periampullary Cancer Associated with Synchronous Right Colon Cancer (Case Report)**

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**Introduction:** We report a case of a woman, 65 years old, affected by obstructive jaundice and iron-deficiency anaemia produced by periampullary cancer associated with synchronous right colon cancer.

**Materials and Methods:** The diagnostic procedures used in our patient to obtain preoperative histology of periampullary cancer, have been the ERCP with brush biliary cytology and multiple biopsies (investigations performed twice over three weeks) and the first time plastic stenting to relieve jaundice. A further complication in this case report has been the coexistence of small multiples common bile duct stones without gallstone disease; this association isn't uncommon (in about 40% of periampullary cancer). The diagnosis of right colon cancer has been occasional in the course of abdominal laparotomic exploratory time. We operated on the patient of right hemicolectomy and pancreaticoduodenectomy no-pylorus-preserving. We employed the ultracision for pancreatic neck division and duct-to-mucosa, end-to-side, for pancreaticojejunostomy.

**Discussion and Conclusion:** The diagnosis of periampullary cancer redoubles the risk of second synchronous or metachronous primary colorectal cancer, the possible underlying mechanism of this association being a common carcinogenic pathway (secondary biliary acids). In more than 70% of the investigated carcinomas of the papilla tissue samples are found with severe dysplasia and often the first biopsy result is false-negative. As carcinogenesis is a multistep time-requiring process, age is with no doubt the main risk factor for cancer. Therefore it's expected that as people live longer they are more likely to develop cancer and of course the prevalence of multiple primary malignancies is destined to increase with age.

We retain this case report very interesting in order that the association of periampullary cancer with second primary tumour and with small multiple bile duct stones without gallstones.

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### **Acute Large Bowel Obstruction and Cecal Perforation in Megacolon**

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**Introduction:** Large bowel obstruction due to megacolon is rare and its management in acute is a challenge. We report a case of acute obstruction with cecal perforation in an abnormally distended bowel.

**Materials and Methods:** A. A (39 y.o.) presented as an emergency with cramping, distended abdomen constipated to flatus and faeces and an huge mass could be palpated in the left sections. A plain abdomen X ray and a CT scan showed a markedly distended bowel, with intra abdominal free air: the rectum and sigmoid colon reached 15 cm in diameter extending from the pelvic floor to the left hemi-diaphragm.

**Results:** Laparotomy was performed: the rectum and sigmoid colon were enormously distended by solid feces; the proximal colon was less distended and fecal material poured out from a small perforation in the antimesenteric border of the cecum. A proctocolectomy with a terminal Brooke ileostomy was performed. The postoperative course was uneventful, the patient was discharged after 9 days and at six months the patient is in good health. Histopathological examination of the resected specimen showed the presence of megacolon with ganglionitis.

**Conclusion:** Despite the evenience of a cecal perforation due to distal fecal impaction in megacolon is rare, the complication needs to be considered every time we evaluate a young patient with chronic constipation and large bowel distension for suspected megacolon. Elective surgery should be taken in account.

### Autologous Platelet-Gel (APG) for the Treatment of Sinus Pilonidali Wounds

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**Introduction:** APG is being used clinically in plastic, orthopedic, cardiovascular, oral maxillofacial and dermatologic surgery with the aim of improve tissue healing. The objective of this report is to show the healing of difficult surgical wounds as the sinus pilonidali post surgical wound, treated with topical APG.

**Materials and Methods:** S.R. (37 y.o.) was operated in 2008 for the forth time for sacrococcygeal pilonidal sinus disease. The extension of the surgical wound did not allow us to perform any type of primary closure nor flaps. He underwent a weekly application of APG and two weekly traditional medications. The procedure showed to be effective since the first application in promoting granulation formation and the tissue growth.

**Results:** Healing was monitored by clinical evaluation and by measurements to determine the extent, the speed and the esthetic result of spontaneous wound closure. The surgical sacrococcygeal wound closed completely in five weeks, the replacing tissue reached the surgical borders and resulted in a functional and satisfactory wound healing.

**Conclusion:** This case showed that topical application of APG can help surgical complicated wounds heal more quickly and completely: it is believed that platelets have concentrated levels of naturally occurring growth factors and other substances that have the potential to accelerate healing. Further investigations and studies are needed to confirm this result.

### Synchronous and Metachronous Primary Colorectal, Bilateral Renal and Esophageal Tumors: a Rare Entity

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**Introduction:** Non-familial multiple primary tumors are a rarity: we report the case of a patient with synchronous primary lesions in the colon, bilaterally in the kidneys and metachronous in the esophagus.

**Materials and Methods:** D.G. (61 y.o.) in 2004 was diagnosed of a sigmoid cancer:the CT scan discovered 2 synchronous lesions of the left kidney and one of the right kidney. A rectal anterior resection and the excision of the two lesions of the left kidney were performed during the same procedure while the excision of the lesion of the right kidney was performed in 3 months. At four years follow-up D.G. complained progressive dysphagia due to an esophagogastric junction cancer that required a gastrectomy extended to the distal esophagus.

**Results:** Histopathological examinations of the resected specimens showed the presence of a T3 N1 M0-Dukes C left colon carcinoma, a clear cell renal carcinoma of left and right kidneys and a T2 N0 M0 Lauren's intestinal cardia carcinoma. A genetic study to evaluate the VHL and the BHD genes was negative.

**Conclusion:** The development of multiple cancers can be in association with genetics, environmental, immunological, viral etc ... factors and they have become more common because of an improvements in diagnostic technique. During the work up for any type of cancer this possibility should be kept in mind. New genetic technology could help us in detecting the alterations at the base of multiple malignancies.

### Island Flap Anoplasty for Benign Anal Stenosis: The Colorectal Eporediensis Centre Experience

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**Introduction:** Benign anal stenosis is an uncommon and disabling condition. Many different treatments and surgical procedures have been suggested for the treatment of this situation.

**Materials and Methods:** Between 1994 and 2007, 25 consecutive patients underwent an island flap anoplasty. The diagnosis was made on history and clinical examination. According to Milsom and Mazier classification 4 were slight, 17 moderate and 4 severe. Clinical data were obtained before treatment, at a minimum follow-up of one month and at a minimum follow-up of six months (last follow-up). The functional outcome was determined using the Cleveland Clinic Constipation score (CCCS), the Incontinence score (CCIS) and the Straining score (SS). Then the results were classified as good or poor according to a surgeon subjective evaluation based on symptoms relief, spontaneous evacuation and surgical outcome.

**Results:** Of the 25 patients treated, 23 were seen at the first follow-up and of these, 22 (96%) were successful. At the second follow-up visit 19 patients attended and all (100%) had had a successful outcome. In the one patient who failed, a second island flap was performed with a plain success.

**Conclusion:** The Island flap anoplasty has showed to be an effective procedure with low risks and high percentage of success. It is an easy to perform procedure and it can be feasible for different degree of anal stenosis.

### The Effect of Sacral Nerve Modulation (SNM) on Constipation: Obstructed Defecation and Slow Transit Constipation Clinical Outcome

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**Introduction:** Sacral nerve modulation (SNM) was first used in the early 1980s for patients with urinary retention and incontinence. Later it founds its application also in colorectal functional disease as fecal incontinence and constipation with good results.

**Materials and Methods:** Between September 2007 and December 2008, 22 patients underwent SNM therapy, between these, 9 had slow transit constipation and 13 obstructed defecation. A temporary electrode, first stage, was inserted percutaneously into the 3<sup>rd</sup> posterior sacral foramen with the patient under local anaesthesia. The patients underwent a full clinical evaluation before and at 1 month after the first stage: the number of evacuations per week, the straining index, the Wexner constipation score and the PAQoL and SF-36 were all determined.

**Results:** The success rate was 72.5% (16/22), 6 slow transit and 10 obstructed defecation patients underwent the SNM second stage with a permanent pace maker implantation. The number of evacuations per week and the Wexner constipation score statistically changed ( $p \leq 0.05$ ) in all patients, as the straining index, the PAQoL and the PCS of SF-36 in the obstructed defecation patients.

**Conclusion:** In our experience SNM has showed to be a safe and effective treatment for slow transit constipation and obstructed defecation in the short term. A longer follow-up and a larger patients numbers are now required to confirm the findings.

## Predicting GEP-NET Subtypes and Metastases Using a 9 Marker Gene Panel Approach

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**Introduction:** Predictive gene expression profiling with reverse transcriptase (RT) PCR has been applied to detect gene expression levels in cancer by investigating the clinical applications of transcript expression in breast, colorectal, gastric, pancreatic cancers and gastroenteropancreatic neuroendocrine tumors (GEP-NETs) as well. The aim of this study was to identify genetic markers to predict the development of metastasis in GEP-NETs.

**Methods:** mRNA transcript levels of 9 genes was analyzed in seventy-three GEP-NETs and 30 normal samples using real-time polymerase chain reaction. Normalized transcript expression levels were then included in a predictive gene-based model, constructed using supervised learning algorithms. Genes expression alterations p-value <0.05 with Mann-Whitney statistical test were considered significant.

**Results:** Expression of CgA, FZD7, Ki-67, NAP1L1, NRP2, and Survivin were significantly altered in tumors depending on tumor subtype. Using these data, primary GEP-NETs could be differentiated from normal with 100% specificity and 92% sensitivity. Metastases were predicted in all cases with 100% sensitivity and specificity.

**Conclusions:** The current results indicated that gene expression profiling and supervised machine learning can be used in GEP-NET to predict metastatic behaviour and may be used in prognostic models for individualized patient treatment.

## Prognostic Relevance of CEA in Locally Advanced Rectal Cancer Treated with Neoadjuvant Chemoradiation

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**Introduction:** Aim of this study is to evaluate the role of serum carcinoembryonic antigen (CEA) as a prognostic factor in locally advanced rectal cancer (LARC) treated with neoadjuvant chemoradiotherapy (CRT).

**Materials and Methods:** From January 1<sup>st</sup> 2000 to December 31<sup>st</sup> 2008, 79 consecutive patients, affected by LARC, underwent preoperative CRT followed by surgery. Serum CEA evaluation was performed in all patients before submission to CRT. A cut-off of 4 ng/ml was adopted to classify the patients in two CEA groups (Group A: pre-CRT CEA <4 ng/ml; Group B: pre-CRT CEA >4 ng/ml) and compare their oncologic outcomes.

**Results:** Twenty patients (25.3%) achieved a pathological complete response (pCR). Higher pCR rates were found in Group A than in Group B ( $p=0.08$ ). The rates of tumor downsizing ( $p=0.016$ ) and nodal downstaging ( $p=0.043$ ) after CRT were significantly higher in Group A than in Group B such as the 5-years disease-free survival rate (90.4% vs 78.2%;  $p=0.05$ ).

**Conclusion:** Our data show that serum CEA level <4 ng/ml could play a prognostic role in predicting not only tumor response but also DFS. Higher CEA level patients could be considered for more aggressive or alternative strategies.

## Locally Advanced Rectal Cancer (LARC): From Heald to Heal?

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**Introduction:** The surgical treatment of locally advanced rectal cancer (LARC) significantly improved in the past twenty years. Neoadjuvant chemoradiation therapy (CRT) is the gold standard treatment in these patients. The aim of this study is to evaluate our experience in the past eight years.

**Materials and Methods:** From January 1<sup>st</sup> 2000 to December 31<sup>st</sup> 2008, 79 consecutive patients (35 males and 44 females, median age 63.2 years), affected by LARC, underwent preoperative CRT followed by surgery. Medical comorbidity, surgery, morbidity, mortality and histological outcomes including local recurrence, distant metastasis, pathological response rate, disease-specific, overall and disease-free survival are here evaluated.  $\chi^2$ , student test, Kaplan-Meier curves and Cox models were used for statistical analysis.

**Results:** Sixty-two patients underwent low anterior resection, 12 abdominoperineal resections, 4 Hartmann procedures and in 1 patient only a local excision was performed. The overall surgical morbidity rate was 29.1%: in 7 patients (8.9%) an anastomotic leakage was documented. Two patients (2.5%) died after surgery. Pathological complete response (pCR) to CRT was observed in 20 patients (25.3%). Five-year disease specific, overall and disease-free survival rates were 87.2%, 86.0% and 84.4%, respectively. Seven patients (8.9%) developed recurrence of disease (5 distant, 2 local). On multivariate analysis nodal downstaging (HR 0.17; CI 95%: 0.03-0.93;  $p = 0.04$ ) resulted as the most important prognostic factor.

**Conclusion:** Surgical treatment still remains the standard of care in LARC patients. In our opinion neoadjuvant CRT also explains the good outcomes reported here and in the Literature.



### Nonfunctioning Cystic Lesion of the Pancreas: The Challenge of Differentiating Neuroendocrine Tumor and Cystic Mucinous Lesions

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**Introduction:** Neuroendocrine cystic tumors of the pancreas (CNETs) are rare; up to 40% of neuroendocrine pancreatic tumors are nonfunctioning. In the absence of hormonal excess signs and symptoms, CNETs are rarely suspected preoperatively. Using the common radiological and cytological findings, nonfunctioning CNETs are not easily differentiated from other cystic pancreatic tumors.

**Case Report:** A 43-year old woman with a 3 cm asymptomatic pancreatic cystic lesion of body and tail was observed at our Academic Hospital. A diagnosis of mucinous cystoadenoma was performed by EUS-FNA due to the presence of mucin and muciparous epithelium without nuclear atypia with intracystic CEA levels of 0,8 ng/ml.; moreover, tumor markers were negative. The patient underwent a distal splenopancreatectomy. Hystology showed a well-differentiated neuroendocrine tumor with uncertain malignant potential.

**Conclusion:** Preoperative diagnosis of nonfunctioning cystic lesion is often difficult. CT imaging and MRCP are not always efficacious in differential diagnosis. EUS-FNA with evaluation for mucin and cellular atypia reasonably identifies mucinous cysts with malignant potential, but it's less accurate in clearly providing a diagnosis of CNETs. Along with cystic neuroendocrine tumors, the most cystic pancreatic lesions have a malignant potential and this supports the role of surgery for the treatment of pancreatic cystic neoplasms.

### Results of the Lateral Advancing Flap Operation with Karydakis Procedure for the Management of Sacrococcygeal Pilonidalis Sinus Disease

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**Purpose:** The Karydakis procedure is one of the asymmetric flap techniques used in the treatment of sacrococcygeal pilonidalis sinus disease. The procedure consists of the asymmetrical elliptical excision, mobilization of the flap from the median side of the wound, fixation of the base of the flap to the sacrococcygeal fascia, and suturing of its edge to the lateral one.

A modification of the original technique consisting of unfixing the base of the flap to the sacrococcygeal fascia with the purpose of flattening the natal cleft has been applied and its results evaluated.

**Methods:** The present study included 17 consecutive patients. Data concerning age, gender, body mass index, duration of complaint, findings at presentation, and previous surgical treatment were obtained. The modified technique was applied in all patients. The postoperative complications and hospital stay were recorded. Patients were followed up by physical examination to detect recurrence.

**Results:** The hospital stay was two days for all patients. Postoperative complications were encountered in 2 patients (11.7%). Wound infection was encountered in 1 patient (5.8%), and subcutaneous fluid collections were encountered in 1 patient (5.8%). No recurrences were encountered throughout the 10 +/- 10 months mean follow up duration.

**Conclusions:** The low complication rate, short hospital stay, short healing time, high degree of patient satisfaction, and absence of recurrence render the present modified technique a viable option in the management of sacrococcygeal pilonidalis sinus disease.

### Use of Ultrasound in the Taking Care of the Critical Patient According to A.T.L.S. Algorithm

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**Purpose:** The concept of "critical ultrasound", has lately evolved in "emergency ultrasound" and is a fundamental step in the approach of the critical patient in the emergency room nowadays. Using ultrasound, in the ATLS – ACLS algorithm, we can achieve a quick and efficient diagnosis. In our emergency unit, we used ultrasound scan in the diagnosis and treatment of pneumothorax (pnx), and in the evaluation of the vascular run in of the hypovolemic shock, measuring the vena cava in its retrohepatic portion.

**Methods:** From February 2008 to February 2009, all the trauma patients in our emergency department who presented respiratory and cardiac failure was treated according to the A.T.L.S. guidelines. All the patients received an ultrasound check of the lungs, vena cava and abdomen.

**Results:** Ultrasound was feasible in all patients. In 84% of the patients the diagnosis was made with ultrasound only (10 patients with pneumothorax, 1 patient with retroperitoneal haemorrhage, 10 patients with hemoperitoneum, and 2 patients with massive hemothorax).

**Conclusions:** Ultrasound assessment in the emergency setting is feasible and well intergrated in the diagnostic flow-chart. It is little time consuming and doesn't interfere with other diagnostic procedures. Ultrasound assessment has an immediate impact on

diagnosis and therapeutic choices and can support other diagnostic and therapeutic maneuvers.

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### **Acute Appendicite, Laparotomic or Laparoscopic Approach?**

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**Purpose:** In this study we would like to point out the best surgical procedure in the cases of acute abdomen especially in suspect acute appendicitis.

**Methods:** We considered all the patients who underwent a surgical procedure for acute abdomen. From 2001 till now we performed 356 surgical operations for suspect acute appendicite, 132 of these with a laparoscopic procedure, mostly in female patients (96 F and 36 M).

**Results:** The conversion rate from laparoscopic to laparotomic procedure was 8.4%. The mean lasting time of the operations was 65 minutes for the laparotomic group and 50 minutes for the laparoscopic group. 317 of the 356 cases of acute abdomen was due to acute appendicitis. In other 39 cases it was caused by right colon neoplasia (15%), P.I.D. (20%), perforated diverticulum (62%), meckel's diverticulum (3%). The mean hospital stay was 6 days for the laparotomic group and 4 days for the laparoscopic group. The post operative complications were growing hernia, surgical site infections, bleeding, with a different rate in the 2 groups, 10 % in the first one and 4% in the second one.

**Conclusion:** According to national and international literature we can subscribe that the laparoscopic approach is better in the cases of suspect acute appendicitis.

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### **Surgical Treatment of Colorectal Liver Metastases: A Single-Centre Retrospective Analysis**

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**Introduction:** Liver metastases frequently occur in colorectal cancer patients. We report our single-centre experience in colorectal cancer patients with liver metastases submitted to hepatic resection, radiofrequency ablation (RFA), chemotherapy or combined treatments.

**Material and Methods:** A retrospective series of 113 consecutive patients with colorectal liver metastases managed at our institution from 1995 to 2006 is reported. We analyzed the impact on survival of: number of liver metastases, intrahepatic localiza-

tion, timing of occurrence, presence of extrahepatic disease and type of treatment (surgery, RFA, chemotherapy, combined treatments). Cumulative survival was calculated with the Kaplan-Meier method and differences were analyzed with the log-rank test.

**Results:** Bilobar, synchronous, and > 4 liver metastases related to a worse prognosis ( $p < 0.05$ ). Extrahepatic disease also related to poor survival ( $p < 0.05$ ). The 3-year survival rate for surgery alone, for RFA, for combined resection/ablation and for systemic chemotherapy were 55%, 20%, 44% and 10% respectively. A total of 29 patients underwent radical locoregional treatment followed by chemotherapy. This population reached 24% survival rate at 5 years, 28% if locoregional treatment was represented by surgery alone.

**Conclusion:** In our experience, hepatic resection still represents the treatment of choice of colorectal liver metastases, especially when surgical treatment is radical and it can be followed by adjuvant chemotherapy. The use of RFA combined to surgery does not impair survival rates, while expanding the pool of treatable patients, and RFA alone provides survival superior to nonsurgical treatment. Bilobar, synchronous, and > 4 metastases, as well as the presence of extrahepatic disease are related to a poor outcome.

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### **Vacuum Assisted Closure in Rectal Anastomotic Leak. Initial Experience**

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**Introduction:** Anastomotic leakage is a major complication after rectal surgery with high morbidity and mortality. Most patients are treated conservatively, however healing is often very slow, and formation of abundant scar tissue resulting in a poor functional result is not uncommon. Vacuum-assisted closure (VAC) has been shown to accelerate wound healing by increasing local blood flow, reducing bacterial load and stimulating tissue growth. Treatment of anastomotic leakage with VAC has been described only in a few small series. In this paper, we describe our initial experience in the use of VAC for treating anastomotic leakage after rectal resection.

**Methods:** We report one patient with anastomotic leakage after rectal resections treated with VAC. The anastomotic leakage was < 50%, peritonitis was absent, a diverting colostomy was performed during the initial treatment, general conditions of the patients were poor due to comorbidity.

In this case anastomotic leakage was treated by transrectal application of the VAC system through the anastomotic defect and into the perirectal abscess cavity. The VAC device was set to apply a suction of 125 mmHg subatmospheric pressure intermittently. The sponge was changed every 2–3 days.

**Results:** The cavities became clean within 3 days and was fully covered by granulation tissue within 7 days. The sponge was changed 11 times and the treatment was discontinued for healing at 32 days.

**Conclusion:** VAC treatment may shorten healing time of anastomotic leakages after rectal resection and reduce the pelvic sepsis severity. Larger prospective studies are warranted, addressing also the functional results.

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### **Sentinel Node Biopsy in Gastric Cancer: Feasibility and Diagnostic Accuracy**

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**Introduction:** Intraoperative sentinel node biopsy was introduced in the clinical practice to predict local recurrence in breast cancer and melanoma patients. Furthermore few studies have been published on the feasibility of this technique in gastric cancer patients.

**Aim:** To evaluate the feasibility and the diagnostic accuracy of the lymphatic mapping in predicting the nodal status in gastric cancer patients.

**Methods:** 10 patients with <T2, N0 gastric cancer, referred to our department from January 2008, were enrolled. All the patients underwent to sentinel node biopsy by subserosal injection of patent blue violet followed by total gastrectomy and D2 lymphadenectomy. All the resected nodes were taken for the routine pathological examination; the sentinel nodes were also examined by immunohistochemistry (cytokeratin 20 and carcinoembryonal antigen) and RT-PCR for cytokeratin 20 and carcinoembryonal antigen mRNA expression.

**Results:** Sentinel node was identified in all the patients; the mean coloured nodes was 1.4. The “N” status diagnostic accuracy has been 100%; no false negative has been detected.

**Conclusions:** Sentinel node biopsy should be a valid technique to predict the nodal status in <T2, N0 gastric cancer patients. More studies with a larger number of patients with standardized protocols are needed to assess the feasibility and the clinical relevance of this technique.

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### **The Treatment of the Obstructed Defaecation Syndrome. Our Experience with Transtar**

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**Introduction:** The obstructed defaecation syndrome (ODS) occurs in about 7% of adult population, specially in women up to fifty years of age and is related to the pelvic floor dysfunction, functional outlet obstruction, mechanical outlet obstruction and dissipation of force vector. Today the introduction of a new surgical device the Contour Transtar for the STARR has lead to a new treatment approach of ODS.

**Methods:** We perform from June 2007 to January 2009, 105 consecutive stapled transanal rectal resection with transtar for ODS. An RX defecography and anorectal manometry were performed before the intervention in all pts. and 16 pts underwent to a preoperative pelvic floor rehabilitation with biofeedback.

**Results:** An improvement of the clinical conditions and symptoms were observed in all cases. 70% of the pts. reduced the laxatives and enema use and all the women abandoned the digitalization. The main complications included 2 persistent pelvic pain, 1 anastomotic stenosis and 1 recto-vaginal fistula that required a surgical treatment.

**Conclusions:** The TRANSTAR procedure seems to be the ideal treatment in case of ODS when the rectal prolapse with recto-rectalis or recto-analis intussusception are present. A preoperative study including RX defecography and anorectal manometry are mandatory.

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### **Hepatic Resection and Outcome for Hepatocellular Carcinoma Larger Than 10 cm: A Single Centre Experience**

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**Introduction:** Although screening programs in high-risk populations have facilitated the detection of small hepatocellular carcinoma (HCC), some patients continue to present with large tumors. However, reports of hepatic resection for HCC>10 cm (L-HCC) are limited. This study aims to determine the outcome of liver resection for L-HCC in our unit.

**Materials and Methods:** Up until January 2009, 154 patients with HCC were resected in our unit; Of these, 31 had L-HCC (23 men, 8 women, mean age 60.6 years - range 32–78). The mean tumor diameter was 12.9 cm (range,10.0–20.0).

Four patients had non cirrhotic liver and 27 cirrhotic liver (12 with HBV, 7 HCV, one HBV/HCV, 5 alcohol related cirrhosis and 2 unknown cirrhosis); 25 patients were CHILDA5, 6 were CHILDA6 and 2 were CHILDB7. Alpha-fetoprotein was <100 ng/ml in 21 patients, and > 100 ng/ml in 10 patients.

In 23 cases there was unifocal tumour. Major hepatectomies were performed in 24 patients, resections of 2 segments in 6 and limited resection in one case.

Long term outcome (intention-to-treat) was assessed by Kaplan-Meier method.

**Results:** Blood transfusions were required in 13 cases (41.9%). One patient (3.2%) died from multiple organ failure. Seven patients (22.6 %) had major complications. Disease-free survival at 12, 36, 60 months was 44%, 38%, 38%, with overall survival of 75%, 42%, 34% respectively.

**Conclusions:** Hepatic resection, when feasible, is safe and is the preferred treatment for L-HCC patients.

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### Management of Acute Left-Sided Malignant Colonic Obstruction: Colonic Self-Expandable Metal Stent (SEMS) vs Emergency Surgery

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**Purpose:** This study sought to determine the cost-effectiveness of colonic self-expandable stent (SEMS) vs. emergency surgery for management of acute malignant colonic obstruction.

**Methods:** From January 2004 to December 2007, 25 patients (10 stent + surgery vs 15 emergency surgery) were admitted to our emergency department with obstructive colon cancer.

**Results:** There was no significant difference in general condition (age and comorbidity) or in cancer classification between the two groups. The percentage of resections with primary anastomosis was significantly higher in the stent group (9/10: 90% vs 7/15: 46.7%;  $p=0.040$ ) and the percentage of stoma creation significantly lower in the stent group (1/10: 10% vs 8/15: 53%;  $p=0.040$ ). There was no significant difference in hospital stay (21.2 days vs 14.8 days;  $p=0.163$ ), major and minor complications (2/10: 20% vs 7/15: 46.7%;  $p=0.230$ ) and mortality (2/10: 20% vs 0/15: 0%;  $p=0.150$ ), between two groups. There was no significant difference in prognosis between the two groups (87.5 % vs 93.3% at 15 month;  $p=0.675$ ).

**Conclusion:** Colonic self-expandable metal stent (SEMS) insertion followed by elective surgery appears more effective than emergency surgery. Our findings suggest that colonic stent insertion should be offered, whenever feasible, as a bridge to elective surgery in patients presenting with malignant colonic obstruction.

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### Colorectal Anastomotic Leakage: Study About Histological and Biochemical Features of Colo-Rectal Anastomosis

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**Introduction:** This study originates from the assumption that the oxidative stress has an important role in the anastomotic leakage, mainly for the colorectal anastomotic leakage.

**Methods:** We examined tissue fragments from patients that underwent a surgical colon resection for colorectal cancer. The tissue fragments were analyzed with optical microscope and with molecular biology techniques (long PCR, qPCR and real-time PCR).

**Results:** We divided patients in 3 groups: group I, patients with anastomotic leakage; group II, patients without anastomotic leakage and with neoadjuvant treatment; group III, patients without anastomotic leakage and without neoadjuvant treatment. From DNA analysis we couldn't show important oxidative damage in the tissues of patients of group I and group II compared with the control group (group III). From morphological analysis, we show that neoadjuvant radiotherapy causes histological alterations; however, is not possible to link these alterations to the leakage, because we found them in patients with and without leakage.

**Conclusions:** Is not possible to establish a causal relationship between oxidative stress and leakage and between histological lesions for radio-chemotherapy and leakage. The search of oxidative stress markers must be shifted towards a damage of structural macromolecules of connective more than towards DNA's alterations.

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### ICT as Accreditation Support to Joint Commission International Standards

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**Introduction:** The application of standards JCI in the operating block is, as well as the common cultural effort from all the implicated actors, a suitable instrument to make the healthcare network more effective and sure.

**Materials and Methods:** In such process the hospital computer integration assumes a fundamental role for the workflow correct management in the aim to achieve efficiency, effectiveness and the health expenditure control. Since 1-2008 in the department of General Surgery we started to experiment an innovative model of integration, by analyzing first all data flows and then

proceeding to integrating them, standing to the defined qualitative standards (JCI). The automatization model started to be operative in less than 6 months, the training phase of all the implicated actors took about 3 months and still seems necessary to solve some criticism!

**Results and Conclusion:** Since 11-2008 we are starting to analyze the data flows. The few data collected, suggests already interesting results, in term of efficiency, quality standards, economical analysis, but the poor statistic weight can't allow jet any conclusion. The objective of this work is to indicate the most suitable solutions of Healthcare Enterprise Resource Planning adapted to the application of qualitative standards JCI, defining the basic characteristics of a friendly automatization model of the data flows.

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### **Verneuil Disease or Suppurative Hidradenitis: Description of a Case with an Extremely Extended Pathology Appeared in Pregnancy**

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**Introduction:** The Verneuil disease, a rare suppurative pathology of apocrine glands and pilosebaceous system of inguin-pelvis and perianal region with a multifactorial aetiology.

**Clinical Case:** The patient F, 34 years old, comes to our observation at 4<sup>th</sup> gestational month, with suppurative sinus pilonidalis diagnosis and with the absolute indication of the gynecologist to the abortion. We decided to continue the pregnancy, seeing the absence of fetus and mother compromissions. The patient gives birth with C. to 9 months; the newborn baby perfectly healthy, after the maternal milk analysis, is also nursed for about 2 months. After a controversial histology (first Wartyn Carcinoma, then after a "second view" by the Morphopath. of London, suppurative hidradenitis), we started a series of medical treatments with fleeting results. The patient didn't answer substantially, therefore, the last chance appears a combined demolitive and plastic surgical treatment.

**Discussion and Conclusions:** This pathology can present in pregnancy, motivating therefore the interruption of the same one. Our experience contributes underlining the possibility to bring, without problems for the fetus and the mother, to term the pregnancy, by monitoring the conditions of both and to differ

therefore the intervention in a second time, when hormonal activity extinguishes and the aggressiveness of the pathology seems to weaken.

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### **Liver Surgery: Experiences in a Non-Specialized Surgery Division**

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**Introduction:** The mortality for liver surgery is stabilized about 2-5%. The major surgical complications are represented by massive haemorrhages and pulmonary embolisms. Other compliances are due to incisional hernia and infections.

**Materials and Methods:** In our Territorial Hospital (not a Center of reference for Liver surgery) came from 9-2004 to 12-2008 to our observation 25 cases of patients with liver lesions, susceptible of surgical treatment. 12 patients were surgically treated (48%), in 4 cases (16%) it was performed a joined surgical and thermo-ablative treatment, when the secondary lesion wasn't in a well assailable segment (no conditions for major liver resection). We didn't observe larger mortality or morbidity, only the 28% of patients (7/25) were transferred in Center of Reference; in 2 cases (8%) the treatment consisted only in observation and US monitoring every 4-6 h. It was needed on average about 4-5 units of concentrated blood/patient and the average hospitalization-time was 12.5 days.

**Results and Conclusions:** The therapeutic possibilities in case of primary, secondary or traumatic hepatic lesions, are remarkable, even in a "not excellence Center". The burning matter is the diagnostic timing, the availability of specialistic anesthesiologic support, advanced devices for hemostasis and collaboration with experienced experts in US-guided thermo-ablation of liver lesions.

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### **Solitary Fibrous Tumor of the Pelvis**

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**Introduction:** Solitary fibrous tumor (SFT) is a rare neoplasm derived from mesenchymal tissue. We present one case of a SFT originating from the pelvic cavity and discuss about treatment of this tumor.

**Methods:** In the 2004, 76 years-old-man was admitted in our unit for acute retention of urine, abdominal pain and constipation. Ultrasonography demonstrated bladder relaxation and bilateral hydronephrosis, while CT and RMI discovered pelvis' mass compressing bladder and rectum.

**Results:** Successful en bloc resection of mass and rectum was performed. Histological examination revealed solitary fibrous tumor. No postoperative complications were observed, also if urodynamic found bladder sphincter dyssynergia. At present, patient is disease free.

**Discussion:** Pelvis is uncommon localization of solitary fibrous tumor, because it usually originates in pleural space. Surgery is the gold standard therapy and it can be enough in order to obtain recovery.

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### Long Term Anal Pain After Stapled Mucoprolapsectomy: Our Experience in 10 Years of Follow-Up

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**Introduction:** Chronic anal pain is described as a complication of stapled hemorrhoidectomy with incidence between 9 and 22%.

**Materials and Methods:** Between 1997 and 2006, 298 patients with 3<sup>rd</sup> or 4<sup>th</sup> degree hemorrhoids underwent stapled hemorrhoidectomy at our institution. 213 patients were asked to answer an 11 points questionnaire. Pain was assessed and scored on a numeric scale. Patients with chronic anal pain were invited to visit for local examination and answer a GastroIntestinal Quality of Life Index questionnaire.

**Results:** 40 over 213 patients (18,6%) complained long term anal pain. 18 of 40 came to our attention. Retained staples were identified in 3 patients and their removal caused pain relief; recurrent prolapse was seen in 5 patients; anal fissure in 3; pathologic hemorrhoids in 7. 29/40 patients said they would recommend that operation to relatives or friends. Chronic anal pain incidence was higher in patients subgroup operated on between 1997 and 2001 (23 cases). Even though this difference is not statistically significant ( $p>0.1$ ), we registered a lower incidence of chronic pain after 2001 since when indication to mucoprolapsectomy was restricted to 3<sup>rd</sup> degree hemorrhoids.

**Conclusions:** Incidence of long term anal pain after stapled hemorrhoidectomy is quite relevant, sometimes it is associated to other anal pathology and could be lower with precise indication.

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### Early Feeding After Colorectal Surgery. Preliminary Results

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**Introduction:** Fast track perioperative management is a debated issue in nowadays colorectal surgery, applied in less than 20% of surgical units.

**Materials and Methods:** We adopted a protocol of early feeding which prescribes saline from nasogastric tube in p.o day 1 and progress to liquid, semisolid and solid diet in p.o. day four. From May 2005 until December 2006 we examined 42 consecutive patients undergoing elective laparotomic colorectal surgery. Mean age was 70 years (range 50-84).

**Results:** Protocol was correctly applied in 17 patients. In 21 there was a delay in realimentation. Solid diet was administered after a mean of 5,75 days. 7 patients complied severe nausea and 6 patients had vomit. Nasogastric tube was kept longer than planned in 7 patients and reinserted in 2. Bowel gas transit was registered in postoperative day 3.6 (range 2-6), stool transit in day 6.7 (range 2-10). Hospital discharge was in mean on postoperative day 10,6 (range 6-23) after complete recovery of bowel function. There is no statistically significant correlation between success of early feeding and type of operation, length of surgery or age (Fisher's exact test).

**Conclusions:** Early feeding after colorectal surgery seems feasible and safe. Incidence of nausea and vomit is acceptable. Satisfaction degree of patients was good. At the moment anticipation of hospital discharge does not represent an end point in our institution.

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### Preoperative Neutrophil to Lymphocyte Ratio: A New Prognostic Factor in Colorectal Liver Metastases Patients

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**Introduction:** The inflammatory response to tumour is supposed to play a significant role controlling tumour aggressivity. Preoperative assessment of neutrophil to lymphocyte ratio (NLR), could be used as a simple indicator of systemic inflammatory response in patients with colorectal liver metastases (CLM). The aim of this study is to determinate the importance of NLR as a prognostic factor in these patients.

**Materials and Methods:** Several clinicopathologic data were reviewed for 162 consecutive patients with CLM. Different treatments was performed in relation of disease presentation, including surgery alone; surgery + RTA; exclusive RTA and chemotherapy alone. NLR was available for all patients and correlated

to specific survival. Linear regression between NLR and survival were calculated; cumulative and specific survival curves were assessed with the Kaplan-Meier method. Statistical difference were considered significant for P value <0.02.

**Results:** Overall survival was 31 months. NLR was found raised in 39 patients (25%) with mean survival rates of 16 months (P < 0.002). 90 patients had a surgical ± RTA treatment or RTA alone with a mean survival of 36 months for NLR < 5 and 13.5 months for NLR > 5 (n = 18) (P < 0.001); 58 patients had an exclusive chemotherapy, with mean survival of 22 and 7.5 months in NLR < 5 and NLR > 5 respectively.

**Conclusions:** NLR is an easily assessed parameter that can help to recognize patients more likely to have a poor prognosis, and could be helpful in selecting patients that could benefit from perioperative therapies in order to improve outcome. NLR may reflect non specific systemic inflammation that belongs to a favorable environment for establishment and growth of metastases.

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### Difficulties in the Preoperative Assessment of Pancreatic Cystic Lesions: A Case Report

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**Introduction:** Conventional diagnostic instruments encounter great difficulties in the preoperative assessment of pancreatic lesions. Also preoperative histological diagnosis is not trustworthy as there is a high rate of false negatives and differential diagnosis can often fail.

**Case Report:** We report a case of a young woman with instrumental diagnosis of a suspect malignant pancreatic cystic lesion. The patient underwent distal splenopancreatectomy and histological examination of the specimen revealed an Intraductal Papillary Mucinous Neoplasm (IPMN) associated to a Mucinous Cystic Neoplasm (MCN) and an unexpected small neuroendocrine tumor in the pancreatic tail.

**Discussion:** Not all pancreatic neoplasms need a radical surgical treatment which is associated to high morbidity and mortality rates. Nevertheless it is indicated in all cases of MCN with signs of malignant transformation, in main- and branch duct IPMN and in case of pancreatic neuroendocrine tumors if they are singular and in M0 stage. So a certain preoperative histological diagnosis would be desirable.

**Conclusions:** A preoperative definite histological diagnosis, in case of cystic and neuroendocrine neoplasms of the pancreas, is often not feasible. So many patients undergo surgery with the suspect of pancreatic neoplasm as the certain histological diagnosis can only be made on the specimen.

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### Duodenal Metastasis of Renal Cell Carcinoma: An Uncommon Cause of Massive Intestinal Bleeding

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**Introduction:** Massive upper gastrointestinal bleeding from duodenal metastasis is particularly rare.

**Case Report:** A 67 years old male patient was admitted for asthenia, haematemesis, melaena and severe anaemia (HGB 6,4 g/dl, HCT 20,2 %). At anamnesis he describes anterior rectal resection for adenocarcinoma (ADC) in 1996, nephrectomy for clear cell renal ADC (RCC) in 1996 and radical prostatectomy for ADC in 2007. At EGDS the patient presented a single duodenal mass, that resulted to be compatible with an inflammatory polyp at endoscopic macro biopsy. Preoperative CT-scan showed a duodenal mass of 40 mm with suspected cephalopancreatic invasion. At endoscopic ultrasonography the pancreatic involvement was not confirmed and the duodenal mass was described as compatible with GIST. The patient underwent local excision by duodenotomy and intraoperative evaluation excluded pancreatic invasion or evidence of other disease. After histological and immunohistochemical examination the duodenal mass resulted to be a RCC metastasis. A total body tomography performed one month after surgery, demonstrated dissemination at both lungs. Recently the patient had a diagnosis of metastasis from RCC in the right submandibular gland.

**Conclusion:** Rarely metastasis of RCC can occur to duodenum causing upper gastrointestinal bleeding; in these cases an aggressive surgical treatment should be performed.

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### Pre-Operative Predictive Factors of Malignancy in 22 Patients Affected by Main-Duct/Combined Intraductal Papillary Mucinous Neoplasm of the Pancreas

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**Introduction:** Prognostic factors and natural history of Intraductal Papillary Mucinous Neoplasm (IPMN) of the pancreas have not been well defined. The differentiation of malignant IPMN from benign IPMN remains unclear. The aim of our study is to evaluate the role of clinicopathological features as preoperative predictive factors of malignancy in patients affected by main duct/combined IPMN.

**Materials and Methods:** We enrolled 22 patients affected by main duct/combined IPMN and underwent to radical pancreatic resection. In 14 cases, the evaluation of CEA and Ca 19-9 levels in pancreatic juice was performed. The clinicopathological features and pancreatic juice analysis were correlated with histological findings.

**Results:** 86.4% of the patients were symptomatic. The histological findings revealed an IPMN adenoma in 2 patients (9.1%), an IPMN borderline in 5 patients (22.7%), and IPMN carcinoma in situ in 1 case (4.6%) and IPMN carcinoma in 14 patients (63.6%). The presence of mural nodules and the size of the neoplasm were the only statistically significant predictive factors of malignancy.

**Conclusion:** Our findings suggest that tumor size and mural nodule were predictive factors for diagnosis of malignancy in patients affected by main duct/combined IPMN.

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### **A Systematic Review of Role of Lymphadenectomy in Pancreatic Cancer**

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**Introduction:** Pancreaticoduodenectomy is the standard treatment in patients affected by resectable head pancreatic cancer. Improving survival in this disease is a strong challenge. The prognostic impact of an extent lymphadenectomy associated to the procedure is still unclear.

The purpose of this review is to assess the benefit of lymphadenectomy in pancreas cancer.

**Materials and Methods:** A computer-aided search of MEDLINE was conducted for randomized controlled trials (RCTs) on role of lymphadenectomy in pancreatic cancer.

**Results:** Four RCTs were included in this review. The studies were analysed to determine the benefit of an extended lymphadenectomy in patients undergone to pancreaticoduodenectomy for head pancreatic adenocarcinoma. Our review shows that there are no differences in term of morbidity, mortality and survival between standard and extended lymphadenectomy. Moreover our analysis demonstrates that there is not unique definition of standard and extended lymphadenectomy in pancreatic surgery.

**Conclusion:** There is evidence that survival is not improved by a more extended lymph node dissection. Besides, a standardization of the extension of the lymphadenectomy during pancreaticoduodenectomy is necessary in order to realize future comparative studies and customize therapies.

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### **The Effects of Preoperative Oral Supplementation with Carbohydrate Rich Solution on Metabolic Stress Induced Response Prior to Elective General Surgery: A Prospective Not Randomized Trial**

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**Aim:** To evaluate the effects of preoperative nutrition with oral carbohydrate rich solution on metabolic response and post-operative complications in patients undergoing general surgery.

**Methods:** A prospective not randomized trial with 76 patients divided in 2 groups: 1) the treatment group (Group A, n=38) received a carbohydrate-rich beverage in doses of 800 ml day before surgery and 400 ml within 3 hours before the induction of anaesthesia; 2) the control group (Group B, n=38) were submitted to traditional "nil-by-mouth from midnight". Each group was divided in two subgroups according to the degree of surgical trauma: moderate surgery subgroup (n=44) and major surgery subgroup (n=32). All patients were submitted to strict clinical and biochemical monitoring; metabolic effects were evaluated with systematic dosage of serum level of interleukin 6 (IL-6), insulin, cortisol and blood sugar.

**Results:** Preoperative administration of carbohydrate rich solution was well tolerated by all patients and no complications related to the nutrition were observed. Group A showed lower rate of infections and a lower level of IL-6 and glycaemia as index of lower surgical stress.

**Conclusions:** Oral carbohydrate rich solution given prior to surgery is a safe clinical practice, able to reduce the per-operative stress with no added risk for the patients.

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### **Extraintestinal Manifestations of Crohn's Disease: Risk Factors and Impact of Digestive Surgery**

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**Background:** The aim of the present study is to define the risk factors for extraintestinal manifestations and the relative influence of intestinal surgery.

**Patients and Methods:** In a cohort of 223 patients with Crohn's disease we analyzed the association between demo-



graphic/clinico-pathological factors and extraintestinal manifestations. In addition, we evaluated their association with the timing of the appearance of extraintestinal manifestations with respect to the intestinal surgery.

**Results:** Fifty-seven patients (25.6%) developed 91 extraintestinal manifestations.

Demographic and clinico-pathological variables significantly associated with extraintestinal manifestations were: female gender (OR 2.84, 95% CI: 1.37-5.90) and colonic involvement (OR 2.68, 95% CI: 1.06-6.76). In patients not undergoing surgery and in patients with extraintestinal manifestations present only before surgery, the latency period between the onset of Crohn's disease and extraintestinal manifestations were  $3.7 \pm 8.2$  and  $2.1 \pm 6.3$  years, respectively. In patients in whom extraintestinal manifestations developed only after surgery, the latency between surgery and extraintestinal manifestations was  $12.0 \pm 10.0$  years. In 5 patients with early onset of extraintestinal manifestations, these did not regress or they recurred after surgery.

**Conclusion:** Female gender and colonic involvement are confirmed as risk factors for the development of extraintestinal manifestations in Crohn's disease. Surgical treatment of the intestinal disease represents a therapeutic option for patients with extraintestinal manifestations, as it seems to prevent or delay these manifestations in most cases.

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### Advanced Cancer on a by-Passed Ileo-Colic Loop for Crohn's Disease

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**Background:** An increasing percentage of colorectal and ileal cancer among patients suffering from Crohn's disease is found in the literature.

**Materials and Methods:** On September 2008 we observed M. L., 51 years old, suffering from ileo-colic Crohn's disease since 1984, when he was submitted to an intestinal by-pass (ileo-ascending colon). An operation was advised because of sub-occlusion in a steroid-dependent disease since 2007.

The preoperative examinations (CT and colonic-endoscopy) revealed a worsening of Crohn's disease of the ileo-caecal tract, including the previous by-pass.

During the operation there was evidence of voluminous, hard mass involving the terminal ileum, the by-passed tract, the bladder and the sigmoid colon.

Peritoneal nodules examined during the operation revealed a localization of adenocarcinoma.

We proceeded with resection of the mass including both the ileum and the ascending colon, the medium sigma and partial resection of the bladder.

A functional end-to-end ileo-colic anastomosis, an end-to-end colon anastomosis and the wall bladder reconstruction were performed.

**Results:** The histological diagnosis confirmed a poorly differentiated small bowel adenocarcinoma with infiltration of the sigma and the bladder.

**Conclusion:** The case shows the typical behaviour of cancer within Crohn's disease, as the clinical diagnosis and the imaging often prove to be inadequate concerning its characteristics.

The by-passed bowel particularly appears at risk because the Crohn's disease progresses even if there are not specific symptoms.

An operation is mandatory, when a change of symptoms is found, especially when endoscopic and histological controls are not possible as in the by-passed tracts or because of stenosis.

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### Surgical Odyssey: Surgical training in Germany for a Greek Resident

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Similar to Odysseus in the ancient Greek history the surgical training for a greek resident in Germany is a long, adventurous journey running into many obstacles.

First the causes of such a decision will be analyzed. The factors that affect the quality of medical education can spread in many different levels. Comprehension problems, lack of language knowledge or dialects, partially different medical terminology and interaction both with the patients and the clinic staff were problems one had to deal with. Also the cultural adaptation in another environment, the different way of thinking and different expression forms were obstacles to overcome. Furthermore a demanding and full program in specialty training, with a wide spectrum of behaviors and reactions from tutors, colleagues and nurses and the significance of mentoring as a solution are themes that every surgical intern in every continent faces. The personal experience in general surgery in Germany will be analyzed and ways and solutions for an easier and smoother transition from Greek to German surgical training will be proposed.

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### Perianal Sepsis Due to Ingested Fishbone

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**Case Report:** Clinical presentation after ingestion of foreign bodies is a common problem in surgical practice. Most of the times the ingested body will pass through the gastrointestinal

tract with no symptoms, but rarely it may come to a stop, causing minor manifestations, as well as life-threatening diseases. The anal canal is an unusual site of impaction. We report the case of a 56-years-old female complaining severe perianal pain and swelling lasting one day. Two days after surgery pain continued and fever appeared; an immediate and careful examination of the residual cavity revealed a 3.2cm fishbone deep in the perianal tissue, close to the abscess cavity. After removal of the foreign body the patient referred a prompt and permanent relief of symptoms. After nine months of follow-up no recurrent abscess or fistula were found.

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### **The Role of Intraoperative Parathyroid Hormone (iPTH) Assay (QPTH) in the Surgical Approach to the Treatment of Hyperparathyroidism**

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**Background:** Intraoperative parathyroid hormone (iPTH) assay (QPTH) in combination with preoperative localization, permits a less invasive operative approach in the treatment of hyperparathyroidism. A 50% reduction of the intraoperative PTH level, misured within 15 minutes with a immunochemistry system of III generation (ICMA), shows the completeness of the hypersecretive tissues surgical removal.

**Patients and Methods:** From June 2006 to December 2008 a series of 39 patients underwent target parathyroidectomy with intraoperative parathyroid hormone assay for parathyroid disease. Intraoperative PTH was measured before, 5-10 and 20 minutes after parathyroidectomy. 79.5% of patients had secondary hyperparathyroidism, 29.5% had primary disease. In 38 patients (97,4%) the intraoperative PTH levels declined more than 70% and in only one patient (2,6%) intraoperative PTH levels declined less than 50%.

**Results and Conclusions:** QPTH has deeply modified the surgical approach to the treatment of hyperparathyroidism.

Intraoperative measurement of iPTH is useful in the prediction complete removal of all parathyroid tissue after surgery for parathyroid disease, thus avoiding persistence or recurrence of disease and surgical failures.

In well-studied cases QPTH can be considered a valid alternative to the intraoperative hystological examination.

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### **Laparoscopic Total Colectomy with Ileo-Rectal Anastomosis for Polyposis and Ulcerative Colitis**

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**Introduction:** Since the introduction of laparoscopic colorectal surgery, several studies have demonstrated the advantages of mini-invasive segmental colon resections in the treatment of benign and malignant diseases. On the contrary the use of laparoscopy for total colectomy and proctocolectomy is not worldwide accepted first of all because of the technically challenging nature of these procedures. The aim of this report is to show the feasibility and safety of straight laparoscopic total colectomy (LTC) for polyposis (P) and ulcerative colitis (UC).

**Material and Methods:** Between January 2006 and June 2007 in our Institution 5 patients underwent to LTC with ileorectal anastomosis plus temporary loop ileostomy for P ( 2 cases) and UC (3 cases).

**Results:** The mean age was 69.2 yrs (62-77) and in all cases the preoperative endoscopy showed the distal rectum almost without signs of disease. Mean operative time was 320 minutes and the estimated mean blood loss was 250 cc. No transfusions were necessary. No conversions occurred. The mean surgical specimen length was 100 cm. and in all acses the margins of resection were disease free. Considering the postoperative course, no morbidity and mortality occurred. The mean hospital stay was 8 days. The temporary ileostomy was suppressed in all patients within three months since the procedure.

**Conclusions:** The analysis of our data highlights that LTC is effective and feasible even if the use of this procedure, because of its complexity, has to be reserved to well-trained laparoscopic surgeons.

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### **Solitary Skin Metastasis from a Sarcomatoid Carcinoma from Urinary Bladder**

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**Introduction:** Cutaneous metastases from carcinomas of the bladder are very rare. They are related to advanced stages of the disease and have poor prognosis with low survival rates. The common modality of treatment of cutaneous metastases from a primary bladder cancer is wide local excision of the metastases followed by combination chemotherapy. We reported a case of solitary skin metastasis from a rare urinary bladder carcinoma type in a 68 years old man.

**Material and Methods:** Review of the literature and identification of patients previously reported, including our own case report was done.

**Case Report:** A 68 years old man affected by sarcomatoid carcinoma of the bladder (T3a N3 M1/G3), a rare and very aggressive type of urological malignances, was admitted in our department for a thoracic wall metastasis and disseminated loco-regional linfoadenopathy. He was underwent a Transurethral resection of the bladder tumor (TUR-BT), wide surgical local excision of metastasis and two polichemotherapy cycles. At six months later follow up results a disease progression by spread dissemination and pulmonary metastasis.

**Conclusions:** Urinary bladder carcinoma metastasizing to the skin is an uncommon finding despite the high incidence of this tumor. Skin metastasis generally presents in the late stages of this disease and indicates a poor outcome. Because of the extremely aggressive malignant potential of sarcomatoid carcinomas, the indications for TUR-BT should be carefully assessed and suitable therapeutic strategies should be examined further.

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### Use of Intraoperative Endoscopy to Localize Bleeding in the Small Intestine

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**Introduction:** Bleeding within the small intestine is difficult to diagnose and localize because it typically occurs at a slow rate. These patients may undergo multiple transfusions and repeated endoscopy, contrast studies, bleeding scans, and angiography before the bleeding source is identified.

**Case Report:** We report a case of 64-year-old woman, where both endoscopic and angiographic techniques were used to localize protracted bleeding. During endoscopic treatment, the arteriovenous malformations continued bleeding. However, highly selective angiography and intraoperative endoscopy outlined the segments of small intestine for resection. This case reviews the evaluation, localization and treatment of small intestine bleeding.

**Discussion:** Localizing the site of protracted bleeding in the small intestine beyond the duodenum bulb can be problematic. For some patients, the course of examinations and transfusions can take years. The small intestine is an uncommon site for gastrointestinal hemorrhage, and only 3%–5% of gastrointestinal bleeding occurs between the ligament of Treitz and the ileocecal valve. The length and location of the small intestine, along with other anatomical factors, make this area difficult to assess with endoscopy or radiology. In this case of protracted bleeding, highly selective angiography and intraoperative endoscopy were used to locate the source of the bleeding.

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### Optimal Treatment Strategy in Extremely Elderly Patients with Hepatocellular Carcinoma

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**Introduction:** The hepatocellular carcinoma (HCC) is a cancer frequent in patients over 70 years; few papers in literature analyze the clinical characteristics and the survival of elderly patients with HCC. The aim of this study is to compare the clinical characteristics and the results of treatment in two groups of patients with HCC older and younger than 80 years.

**Materials and Methods:** We retrospectively analyzed 464 patients with HCC observed from 1991 to 2007. Treatment options were evaluated in relation with liver impairment and tumor stage according with BCLC classification.

**Results:** For hundreds and fourteen patients were younger than 80 and 50 older. The severity of liver disease and the tumor stage was not significant different in the 2 groups of patients ( $p>0.05$ ). 136 (29.2%) patients were submitted to liver resection (LR), 232 (50.0 %) to local ablative therapies (LAT) (ethanol injection, radiofrequency ablation, chemoembolization), 8 (1.7 %) to liver transplantation (LT) and 88 (19.0 %) to supportive therapy (ST). Overall survival was not significantly different in the group younger or older than 80 years with an actuarial 5-year survival of 27% and 25%, respectively ( $p>0.05$ ). Median survival time was 57 months for LR, 30 for LAT and 8 for ST, with a 5 year survival of 47 %, 20 % and 2.5 % respectively ( $p=0.001$ ). In the LR, LAT and ST survival was not significantly different if the two group of patients ( $p>0.05$ ).

**Conclusions:** LR and LAT for patients with HCC older than 80 years can achieve good results comparable to younger patients. Optimal treatment strategy should not be guided by patients' age but by the tumor stage and the degree of liver dysfunction.

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### En-Block Resection for Large Perihilar Cholangiocarcinoma

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**Introduction:** Radical liver resection is the only treatment option for perihilar cholangiocarcinoma. We describe a case of major liver resection with vascular resection for large perihilar cholangiocarcinoma.

**Materials and Methods:** A 69 years old patient without co-morbidity referred to our clinic for abdominal pain in upper quadrant with a large tumor of right liver lobe. Preoperatively

CT scan and ce-US (contrast enhanced ultrasonography) confirmed the presence of perihilar tumor of right lobe with 10 cm of diameter infiltrating the bifurcation of portal trunk, dilatation of intrahepatic biliary ducts of left lobe; tumor had radiological characteristics of cholangiocarcinoma. Tumor markers (CA and CA 19.9) were negative.

**Results:** Patients was submitted to explorative laparotomy. Intraoperatively was confirmed the perihilar tumor of right lobe with infiltration of biliary confluence and portal trunk. Right trisectionectomy (S4-S5-S6-S7-S8) without vascular clamping, with common bile duct resection, with en-block resection and vascular reconstruction of portal bifurcation was performed. Vascular reconstruction and Roux-en-Y jejunal loop anastomosis were performed. Lymph node dissection of regional lymph-nodes was associated. Postoperative period was uneventful and patient was discharged on the 10<sup>th</sup> postoperative day. At definitive histology tumor was confirmed as perihilar cholangiocarcinoma with infiltration of the biliary confluence and portal vein.

**Conclusions:** Radical en-block surgical resection is feasible and safe treatment for perihilar cholangiocarcinoma.

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### Laparoscopic Diagnosis and Treatment of Diaphragmatic Morgagni Hernia: Case Report and Review of the Literature

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**Background:** Morgagni's hernia is a rare and congenital type of diaphragmatic hernia. The majority of these are asymptomatic and diagnosed incidentally during evaluation or treatment for other conditions. When diagnosis is made surgery is mandatory. The Authors report the laparoscopic repair of small Morgagni hernia, followed by review of the literature.

**Materials and Methods:** A case of 55-year-old woman complaining a sensation of tightness in her chest, but especially an oppressive epigastric pain with episodes of fainting fit and breathless is described. The definitive diagnosis was confirmed by laparoscopy. The hernia was repaired laparoscopically using a mesh fixed by hernia stapler after excision of the sac.

**Results:** In the postoperative recovery patient has presented an episode of heart condition due to pericarditis treated pharmacologically. The patient was discharged on the seventh postoperative day symptom-free.

**Conclusions:** Laparoscopic technique must be considered as a first line approach for the treatment of Morgagni hernia, easy and safe by carry out. We recommend do not excise hernia sac, even if small, and particular cure in the use of the mesh fixed by metal staples.

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## Vascular Surgery

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### A Successful Case of EVAR in High Tortuosity Iliac Arteries Anatomy

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**Introduction:** Endovascular therapy has undoubtedly revolutionized the treatment of abdominal aortic aneurysms. Most studies are currently focused on the possibility of treating aneurysms with short and angled neck. However, the ability to push the devices through complicated access is still a major challenge. The key to this lies through out material's characteristics in terms of both size and flexibility.

**Discussion:** We present the interesting case of a 90 years old patient with a AAA with bilateral iliac artery considerable tortuosity especially on the left side where the common iliac artery performed a double curve of 180 degrees. Given the age we groped by an endovascular repair.

We used the left side for the introduction of the main body of an Excluder Gore® endoprosthesis. We then covered the left internal iliac artery outlet. Finally, we introduced the opposite limb from the right. We didn't embolized the internal iliac artery. The perioperative and the 1 months control revealed no endoleak. The greatest difficulties we have encountered were in advancing the stiff guidewires through the curves in spite of the presence of a glidecath catheter. Positioning of the main body from the left was useful in gaining with minor difficulties the gate. The patient was discharged in good condition in IV post-operative day.

**Conclusion:** Development of new materials has certainly improved the endovascular therapies. This is certainly a borderline case for the endovascular therapy. However, current knowledge techniques and materials available have made possible the success of the procedure.

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### Endovascular Repair for Ruptured Abdominal Aortic Aneurysms in Haemodynamically Unstable Patients in a Single Centre

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**Purpose:** Retrospective analysis of the efficacy of endovascular repair (EVAR) for ruptured abdominal aortic aneurysms in haemodynamically unstable patients in a single centre.

**Methods:** Between December 1999 and October 2007 all 138 patients presenting at our centre with confirmed rupture (not symptomatic or acute) of an abdominal aortic aneurysm were considered for treatment with EVAR. Fifty patients were treated with EVAR and 30 of these patients were classified as haemodynamically unstable at arrival. The mean AAA diameter was 77 mm.

**Results:** Successful graft deployment was 90% (3 immediate conversions) with a 30 day mortality of 47%. The post-operative reintervention rate (within 30 days) was 24% and a 7% secondary intervention rate with an average follow-up of 23 months (1-48). The overall reintervention rate was 30%. We recorded a 20% severe complication rate.

**Conclusions:** The results, although reporting somewhat high mortality and post-operative complication rates, seem to be favourable, especially when considering the extremely grave situation of this group of patients. However, our limited experience is not evidence enough to definitively suggest that EVAR should be considered the first choice treatment for rAAA.

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### Viabahn-Assisted Recanalization for Superficial Femoral Artery Long Occlusion: Our Experience

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**Introduction:** ViaBahn-assisted recanalization is increasingly utilized to treat severe superficial femoral artery (SFA) occlusive disease.

**Materials and Methods:** Twenty-nine procedures in 26 patients (20 men, 6 women, mean age 77.4), with long SFA occlusion (7-20 cm, mean 16.2 cm) were performed. Severe claudication was present in 12 (46.1%) cases, rest pain in 6 (23%), 11 (42.3%) patients had tissue loss. Indications for treatment included 10 type B, 15 type C and 4 type D lesions according to TransAtlantic InterSociety Consensus classification. All patients had at least one run-off vessel. Recanalization of the SFA was performed transluminal in 17 (58.6%) cases, subintimal in 10 (34.4%). In two (6.8%) patients no re-entry in the true lumen of SFA was possible. In all 27 cases we covered the recanalized SFA segment with one or more ViaBahn endoprosthesis. Clinical and ultrasound evaluation were performed at discharge, at 1, 3, 6, 12 months, then yearly. Mean follow-up was 11.7 months (range, 1 to 36).

**Results:** Technical success was achieved in 27 (93.1%) cases. No periprocedural deaths occurred. 6 (22.2%) limb salvages and 15 (55.5%) claudication or rest pain improvements were achieved. In two patients distal bypass were carried out. In 6 (23%) cases minor amputations were needed. Life-table one year primary and secondary patency were 71% and 79%, respectively.

**Conclusions:** In our experience, ViaBahn-assisted recanalization of occluded femoral superficial artery can lead to good mid-term patency and excellent limb salvage rates.

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### Results from Endovascular Treatment with Selective Stenting of Tibial-Peroneal Vessels in 332 Limbs: A Single Center Experience

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**Purpose:** To evaluate clinical results and factors influencing outcomes after successful tibial artery angioplasty with selective stenting in patients with critical limb ischemia (CLI).

**Materials and Methods:** From January 2000 to February 2009 a tibial artery angioplasty with selective stenting was attempted in 332 limbs with CLI. Tibial stenting was performed in 19.8% of limbs in case of suboptimal angioplasty, dissection or short isolated lesion of monovessels. Limb salvage rate was estimated by the Kaplan-Meier method. Factors influencing outcomes were detected using GLM univariate analysis.

**Results:** Technical success was achieved in 88.1% of cases. The successful angioplasty limb salvage rate at 12, 24 and 36 months was 80.7%, 78% and 78% respectively. The 30-day mortality rate was 2%. The 30-day amputation rate was 4.5%. Factors significantly correlated with limb salvage were Rutherford category 5 ( $p < 0.001$ ), tibial stenting ( $p = 0.044$ ), "good run-off" ( $p < 0.001$ ).

**Conclusions:** Endovascular treatment of tibial vessels seems feasible and effective for foot revascularization, with a good limb salvage rate and an acceptable mortality and morbidity rate. Clinical presentation and foot "run-off" seem important factors which influence outcomes. Trends in our results suggest that tibial stenting could be useful but several randomized trials are needed to detect its utility.

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### Utilization of a New Type of Platelet Gel in the Treatment of Chronic Wound: Fibrinet System. Our Experience

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**Introduction:** Recently there has been effective use of blood components in the topical treatment of chronic wound, ulcer not healed. Fibrinet System (FS) is a medical device which allows the production of growth factors, cytokines and proteins of autologous and homologous blood, through concentration of platelets.

This is the only system that allows to obtain a membrane of about 10cm of PRFM (Platelet Rich Fibrin Matrix) from only 18cc

of blood. It is a platelet concentrate dispersed in a compact matrix of fibrin.

Our objective is to evaluate the effectiveness of the FS, considering the state of ulcer and the time needed for tissue regeneration.

**Methods:** 3 patients with ulcer refractory to any treatment have been treated (suffering respectively from Thevenard's syndrome, a lesion from bedsores, a failure of the venous system). The parameters considered have been location, depth, diameter, margins, presence of fistulas or infection, exudates and time of onset to ulcer.

**Result:** All lesions after a single application showed a reduction of more than 50% and had a complete resolution.

**Conclusion:** FS has proved to be a useful device in the treatment of chronic ulcers. It is a scaffold for the cell proliferation induced by cytokines, preventing the dispersion of growth factors incorporated into solid fibrin matrix of the patient, remaining active for 7 days and actuating the tissue regeneration.

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### Three Severe Complications After Renal Artery Percutaneous Transluminal Angioplasty and Stenting (RA-PTAS): Case Report, Our Experience and Revision of Literature

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**Introduction:** RA-PTAS is the most frequently performed method of revascularization for renal artery disease. We present our retrospective review of complications.

**Materials and Methods:** Since January 2005 to December 2008, 39 patients (44 renal arteries) underwent RA-PTAS. We had 4 complications, three of which serious:

1) A 81 years-old woman underwent a bilateral RA-PTAS; the day after, right hip pain arose in association with acute renal failure. A renal RM showed a large ischemic area of the right kidney.

2) A 63 years-old woman underwent a left RA-PTAS; a few hours after the treatment back and left hip pain arose in association with acute anaemia. A CT-scan showed a large and not supplied haematoma near the left kidney.

3) A 71 years-old man underwent a bilateral RA-PTAS; the day after, right foot pain arose in association with ischemic signs. Duplex scanning showed a damage of tibial arteries probably due to embolization.

**Results:** In several studies, the range of complication rates after RA-PTAS is 0 to 40% with a main rate of 11%, while the range of severe complication rates is 6 to 13%. In our experience, according to literature, overall rate of complications was 10.3%, while severe complication rate was 7.7%.

**Conclusion:** RA-PTAS is associated with a not negligible rate of complications; those severe are usually less frequent, but they may cause permanent damages.

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### The Multidisciplinary Treatment of a Severe Upper Extremity Trauma: A Case Report

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**Introduction:** A 36 years-old man had a work accident and suffered an almost complete amputation of the right arm associated with multiple fractures of the right hand. He was operated in emergency, under general anaesthesia.

**Materials and Methods:** At first, the orthopaedists performed the humeral fracture reduction with external fixation.

Then, vascular surgeons performed a rebuilding of the humeral vessels with great saphenous vein graft from the right leg.

At the third time of the operation, neurosurgeons explored the arm, pointed out the damage of the median and the radial nerves and marked their stumps.

At last, the orthopaedists repaired the damaged bones and tendons of the hand and they sutured the large wounds of the arm and the forearm.

**Results:** The color duplex scanning of the radial and ulnar arteries at the wrist, performed at the end of the operation, showed a regular flow pattern.

The post-operative course was regular.

After a month, vascular surgeons repaired the remaining wound of the hand with a skin grafting "en pastilles".

After the discharge and the complete wound sealing, the patient had a neurosurgery operation to repair nerve injuries.

**Conclusion:** Thanks to surgery, and steady physiotherapy too, the patient recovered a fairly good functionality of the arm.

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### Endovascular Abdominal Aortic Aneurysm Repair: Device-Related Results

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**Objective:** To analyze early and mid-term results after endovascular abdominal aortic aneurysm repair (EVAR) on the basis of the type of the device employed.

**Methods:** From January 2000 to May 2008, 443 consecutive elective EVAR were performed. Data related to the four currently available bifurcated endoprotheses were extracted and constitute the present study. Perioperative and follow-up results were recorded and a device-related analysis was performed.

**Results:** 391 EVAR procedures in 365 males (93%) and 26 females were enrolled. In 116 cases an Excluder (group 1), in 149 a Talent (group 2), in 77 a Zenith (group 3) and in 49 an Anaconda (group 4) endograft was deployed. Technical success was 98.7%.

Thirty-day mortality and morbidity were satisfactory (0.8% and 4.8%) and no significant differences were recorded between the four groups. Mean follow-up was 26 months. Freedom from endoleak at 36 months was 84.4% in group 1, 90% in group 2, 84.4% in group 3 and 65.8% in group 4 ( $p=0.001$ ). Overall, in 40 patients (10%) a reintervention was necessary. Freedom from reintervention at 36 months was 92% in group 1, 85% in group 2, 91% in group 3 and 77% in group 4 ( $p=n.s.$ ).

**Conclusions:** Outcomes with the most common commercially available devices in Italy are satisfactory. However, close follow-up is required with approximately 10% of patients requiring secondary interventions.

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### Endovascular Procedures in Different Infringuinal Arterial Sites

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**Aim of the Study:** To evaluate the impact of different extensions and sites of arterial lesions on early and mid-term results of the endovascular treatment of peripheral arterial disease (PAD).

**Materials and Methods:** From May 2005 to October 2008, 145 endovascular procedures were carried on for the involvement of femoro-tibial district. Patients were divided in three groups: patients with diffuse involvement of femoral, popliteal and tibial axis (Group 1; 55 patients), patients with lesions limited to superficial femoral (SFA) and popliteal arteries (Group 2; 18 patients) and patients who had only their SFA treated (Group 3, 72 patients). Early an follow-up results were analysed and compared.

**Results:** Technical success was 96.5%, without differences between the three groups. There were no perioperative deaths; early rates of thrombosis, restenosis and amputation were 2.8%, 2.1% and 1.4%, without differences in the three groups. Mean duration of follow-up was 10.2 months. There were no differences in terms of estimated 12-month survival, primary and secondary patency and limb salvage between the three groups, even if there was a trend towards poorer survival ( $p=0.08$ , log rank 4.3) and secondary patency  $p=0.07$ , log rank 5.1) in patients of group 1.

**Conclusions:** Endovascular treatment of diffuse and extensive lesions of femoro-tibial vessels in patients with PAD is safe.

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### Patient Cooperation During General Anesthesia for Carotid Endarterectomy

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**Objectives:** To analyze a new technique of Cooperative Patient General Anesthesia with remifentanyl (Co.Pa.Ge.A.) comparing it with the two conventional techniques of anesthesia (regional or general) during carotid surgery.

**Methods:** 943 consecutive adult patients scheduled for carotid endarterectomy during the last 3 years were prospectively enrolled in a nonrandomized trial comparing general, loco-regional and Co.Pa.Ge.A. anesthetic techniques. Standard general anesthesia was performed in 132 patients (Group 1), loco-regional anesthesia in 360 patients (Group 2), and Co.Pa.Ge.A. was achieved in 451 cases (Group 3). The thirty-day rates of stroke, death and cardiac outcomes were analyzed and compared.

**Results:** Co.Pa.Ge.A. was successful in 97.6% of patients. Intraoperative stroke occurred in 2 patients (1.5%) in group 1 and in none in the other two groups. Postoperative myocardial infarction occurred in one patient (0.8%) in group 1, in 5 patients (1.4%) in group 2 and 4 patients (0.9%) in group 3, without significant differences. The overall incidence of stroke and death at 30 days was 3.8% (5 patients) in group 1 and 0.8% (3 patients) in group 2, whereas no stroke or death was recorded in group 3 ( $p<0.001$  for group 1 vs. groups 2 and 3).

**Conclusions:** Cooperative patient general anesthesia is a feasible and safe alternative to standard general and local techniques for CEA.

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### Results of Hybrid Treatment of Aortic Arch Aneurysms

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**Objective:** To retrospectively analyze our experience in the hybrid treatment of aortic arch aneurysms.

**Methods:** From January 2000 to August 2008 a hybrid treatment for complex aortic aneurysms (aortic arch, thoracoabdominal aorta or abdominal and thoracic segments at the same time) was performed in 34 cases. In 11 patients a hybrid exclusion of an aortic arch aneurysm was carried out. Perioperative results in terms of mortality and morbidity were assessed. Mid-term results in terms of survival and aneurysm-related complications were analyzed.

**Results:** All the patients were males with a mean age of 74 years, range 68-81. Technical success was achieved in all the

cases. In the perioperative period (<30 days) one patient died for an acute stroke. The overall 30-day mortality rate was 9,1%. One frenic nerve paralysis and one acute respiratory failure with pneumonia were observed with an overall 30-day major morbidity rate of 18,1%. During follow-up (mean duration 19,3 months, range 1-36) no death, conversion or aneurysm-related complication were recorded.

**Conclusions:** Hybrid approaches to the treatment of complex lesions involving the aortic arch can be successfully used. However, perioperative complications remain still not irrelevant and long-term efficacy has to be proved.

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### Early and Long Term Results of Surgical Treatment of Visceral Artery Aneurysms

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**Objective:** To analyse our 25-year experience with surgical treatment of visceral artery aneurysms (VAAs).

**Materials and Methods:** From January 1982 to September 2007, 55 patients underwent surgical treatment of 59 VAAs. The site of aneurysmal disease was splenic artery in 30 cases (50,8%), renal artery in 9 cases (15,2%), common hepatic artery in 7 cases (11,9%), pancreaticoduodenal artery in 4 cases (6,8%), celiac trunk in 3 cases (5,1%), superior mesenteric artery in 2 cases (3,4%) and gastroduodenal, inferior mesenteric, middle colic and right gastroepiploic in 1 case (1,7%) for each artery. Early and long-term results were analyzed.

**Results:** Two patients (3,6%) had a ruptured aneurysm (one pancreaticoduodenal artery and one middle colic artery). One perioperative death occurred due to an acute pancreatitis in a patient operated on for a splenic artery aneurysm for a perioperative mortality rate of 1,8%. Two major complications (retroperitoneal haematoma and acute pancreatitis) were recorded. Mean duration of follow-up was 82,1 months. Estimated 10-year survival rate was 79,5%. During follow-up two aneurysm related complications occurred, with an estimated 10-year aneurysm-related complication-free survival rate of 75,2%.

**Conclusions:** Elective open surgical treatment of visceral artery aneurysms is safe and effective and offers satisfactory early and long-term results.

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### The SEPS in the Treatment of Severe Chronic Venous Insufficiency

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**Introduction:** Chronic venous insufficiency (CVI) of the legs occurs commonly in the general population in the Western country (2-56% in men and 1-60% in women)<sup>1</sup>. The stage C4-C6 of CVD is associated with significant morbidity, high cost of health-care and worsening of quality of life. In these cases, as suggested by Linton since 1938 and more recently confirmed by several authors, perforators's insufficiency plays a relevant role. The aim of surgical treatment, is abolishing venous reflux, by perforators's interruption. In the past it was performed by large access through diseased skin but now most Authors use mini-invasive video-assisted technique (SEPS).

**Materials and Methods:** From April 1999 we treated 166 lower limbs in 159 patients (mean age = 67,2 years; 61 patients was in C4, 33 in C5 and 72 in C6). We perform SEPS by means of two devices: the Space-Maker®, to create a subfascial space in lower limbs, and the Ultracision®, to perform the perforator veins dissection and interruption.

**Results:** No significant early complications occurred except for 2 subfascial hematoma, 3 safenous nerve disesthesia, 1 superficial thrombosis and 1 inguinal hygroma. At the follow-up (1-78 months) we observed: in C4 patients no appearance of stasis ulcers; in C5 patients no ulcers recurrence. Concerning C6 patients we observed: complete and lasting healing of the ulcers in 63 pts (87%).

**Conclusions:** Compared to conservative or conventional surgical treatments SEPS reduces the complications rate, the in hospital stay, so it can be considered a safe and effective procedure with early and lasting healing of ulcers.

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### Endovascular Prosthesis Infection: Report of Two Cases and Review of the Literature

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Endovascular prosthesis infection after exclusion of abdominal aortic aneurysm (AAA) is a rare and dramatic event and its diagnosis and treatment are extremely complex. This particular complication has been the less well explored in the Literature than others like endoleaks, migration or stent rupture.

The incidence of aortoiliac stent-graft infection is almost 0.7% while the infection rate in open surgery varies from 0.6% to 3%.



From 1991 to date only 94 cases of endograft infections have been reported in the World Literature, to which our two cases have to be added for a total of 96 cases.

The first of our patients was diagnosed with an early infection that was successfully treated by explant of the infected graft followed by aortic reconstruction with homograft. After 6 months from the operation the patient died for cardiac failure.

The second case was a late infection developed after eight years from the first intervention in a patient with chronic renal failure treated with dialytic therapy. After aneurysmectomy and stent-graft removal, a bifurcated silver graft was implanted. The patient died from cardiogenic shock forty days after surgery.

The surgical treatment of this serious complication has high peri-operative morbidity and mortality and needs an adequate planning of the operation.

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### **Mesenteric Revascularization in a Young Patient with Antiphospholipid Syndrome and Fibromuscular Dysplasia**

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Fibromuscular dysplasia (FMD) or fibromuscular hyperplasia is a rare nonatherosclerotic and noninflammatory vascular disease that primarily involves medium-size and small arteries, most commonly renal and carotid arteries, less frequently vertebral, iliac, subclavian or visceral arteries (mesenteric, hepatic, splenic). Antiphospholipid syndrome (APS) is one of the most commonly acquired hypercoagulable states, defined by the association of laboratory evidence of antibodies against phospholipids (aPL) with arterial or venous thrombosis or recurrent pregnancy losses. The presence of these antibodies is associated with an increased risk of thromboembolic phenomena, including peripheral thrombophlebitis, pulmonary thromboembolism, stroke, retinal artery occlusion, myocardial infarction, placental thrombosis and Budd Chiari syndrome.

In this report we discuss the uncommon case of a young male patient with both APS and FMD that came to our attention for pulmonary embolism and “angina abdominis” due to occlusion of three mesenteric vessels.

The possible relationship between APS and FMD revealed in our patient still remains unclear.

We treated the patient as if he had the two different diseases. After partial failure of endovascular surgery, the patient underwent surgery with reimplantation of three visceral arteries to the aorta. Subsequently he was treated with stent placement after development of a re-stenosis of one of the three reimplanted visceral arteries. The patient was treated conservatively for APS with anticoagulant oral therapy for life.

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### **The Treatment of Pelvic Varicocele: Our Experience**

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**Introduction:** Female varicocele is a condition of periovarian and periannexial varices related in most cases with reflux in ovarian veins and frequently associated with pelvic congestion syndrome. Clinical manifestations included chronic pelvic pain and sometimes perineal varicose veins. The aim of this work is the evaluation of the diagnostic accuracy of transvaginal ultrasound (TVUS) and the efficacy of percutaneous embolization.

**Materials and Methods:** Between 1991 and 2009, 31 women were considered for ovarian varicocele: 28 showed pelvic congestion syndrome and chronic pelvic pain for more than 6 months and 3 perineal varicose veins. The scale of pain perception was analysed through an analogue scale (VAS). TVUS and percutaneous selective ovarian venography was performed. Thirty embolizations of ovarian veins with sclerosing agents was made. Follow up at 3, 6 and 12 month was performed with a clinical examination and TVUS.

**Results:** In one case TVUS findings were not confirmed by venography (sensitivity 96.8%). Thirty women underwent sclerotherapy, under local anesthesia, without complication. Seven patients experienced temporary pelvic pain for 1-4 days. Reverse flow disappeared at TVUS in 28/30 at 3 months, 26/28 at 6 months, and 19/22 at 12 months and a statistically significant reduction of the VAS pain score was demonstrated ( $p < 0.005$  compared with baseline).

**Conclusions:** In our experience TVUS showed high sensitivity. Percutaneous embolization of ovarian veins is a safe and effective treatment with good clinical success rate in the short and long-term. The high reduction of pelvic pain is associated with great improvement of the quality of life.

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### **Thoracic Outlet Syndrome with Transaxillary Approach**

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**Introduction:** Thoracic Outlet Syndrome (TOS) is a rare condition difficult to diagnose. We proposed surgical treatment with Roos technique for patients with serious TOS (venous deep thrombosis, ischemia, neurological damage).

**Materials and Methods:** Retrospective review from Jan 1988 to Dec 2007 of 44 patients (14M, 30F; mean 27,5; 4 bilateral).

Symptoms: 11 neurological; 16 venous, 6 ischemic and 15 mixed. Diagnosis was based on anamnesis, physical examination and thorax X-ray, EchoDuplex, EMG, MRI, dynamic arteriography and phlebography. 43 patients underwent to first rib resection with transaxillary approach. 1 patient with compression of subclavian vein by small pectoral muscle underwent to tendon resection (anterior subclavicular approach). 2 patients with critical ischemia were treated with carotid-humeral bypass and first rib resection. 2 patients underwent to anterior subclavicular approach.

**Results:** 2 cases of pneumothorax and 1 emothorax treated as early complications. During follow-up (18 months) patients underwent to thorax X-ray and specific clinical examinations. We recorded healing in 46 cases and an evolution in 2 cases.

**Conclusion:** A good selection of patients to submit to surgical treatment is very important. First rib resection is fundamental in patients with serious TOS and transaxillary approach is a very good solution for cervical rib resection; it is slightly painful and offers a very good aesthetic result.

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### **Endovascular Aneurysm Repair for the Treatment of Type I Endoleak of the Infrarenal Aortic Aneurysm: The Chimney Technique**

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**Introduction:** The chimney graft is a technique described by Malina for preserving or rescuing aortic branch vessels in stent-graft sealing zones.

**Materials and Methods:** We report the case of a 74-year-old man who had undergone EVAR with bifurcated Talent® Medtronic stent-graft three years before. After one year the right branch stent-graft occluded causing acute omolateral limb ischaemia so the patient underwent femorofemoral crossover bypass. After two years, because of abdominal pain and important anemization (Hb 7,6 gr%), abdominal and pelvic CT angiography were carried out on the patient, these showed a proximal type I Endoleak caused by the shifting of the stent-graft. The X-rays also showed inadequate fixation zones sufficient to position a new Stent because of the presence of the origin of the left renal artery close to the prosthetic free-flow. The patient had undergone the placement of another Aorto Uni-iliac Talent® Medtronic stent-graft and a stent was deployed parallel to the main aortic stent-graft in the left renal artery by chimney technique.

**Results:** The angiography after surgery showed a perfect exclusion of the endoleak and the regular patency of the renal arteries.

**Conclusions:** The use of chimney grafts is feasible in the renal arteries to facilitate stent-graft repair of abdominal aortic lesions with inadequate fixation zones.

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### **Endovascular Treatment After Extreme Bypass Graft**

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**Introduction:** This study evaluate the outcome of patients submitted to endovascular treatment after extreme bypass.

**Materials and Methods:** Retrospective review from Jan 2005 to Dec 2008 of 20 patients (8F,12M; mean age 70; 4 patients with chronic renal failure in hemodialysis; all patients with arterial hypertension and diabetes mellitus; 10 ex-smokers) affected by critical ischemia of lower limbs (CLI) with trophic lesions and rest pain. 16 patients were submitted to venous bypass and 4 to PTFE bypass. 10 patients underwent to PTA on stenotic arterial sites placed after distal anastomosis while in 10 patients we performed an endoluminal recanalization of the occlusion arterial sites.

**Results:** During the mean follow-up (12 months) we recorded the healing of trophic lesions and limb salvage in 13 cases; 7 major amputations (4 transfemoral amputations; 3 transtibial amputations). 8 patients died for comorbidities; 12 patients are still alive with a discrete level of ambulation.

**Conclusion:** PTA on stenotic arterial sites after distal anastomosis (50%) can improve bypass outflow ensuring healing of trophic lesions and limb-salvage. Endoluminal recanalization of the occlusion arterial sites after distal anastomosis (50%) caused retrograde bypass thrombosis. In conclusion PTA after extreme bypass has an acceptable role to improve revascularization in patients with CLI.

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### **Tibial Revascularization for Limb Salvage in Patients with Critical Limb Ischemia**

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**Introduction:** The treatment of Critical Limb Ischemia (CLI) remains a challenging issue in vascular surgery, being associated with significant perioperative morbidity and mortality. Endovascular strategies for the treatment of critical infrageniculate arterial occlusive disease exist and are becoming the primary methodology for such lesions at many centers. Purpose of this study is to evaluate safety and effectiveness of tibial endovascular revascularization, in patients with CLI.

**Methods:** This is a retrospective registry lasting from January 2008 to January 2009. We included all consecutive patients presenting infrapopliteal lesions. Revascularization strategy included balloon angioplasty or bail-out stenting. A clinical and duplex scan follow-up was attempted at 1,3 and 6 then every six-month.

**Results:** We performed 44 infrapopliteal endovascular revascularizations in 44 patients, majority of which were diabetics (n=31; 70%). Technical success was 81.8 % (36/44). Primary patency, primary assisted patency and secondary patency was respectively 91.7%, 94.4 %, 97.2% at 1 month and 66.7%, 75%, 77.8 % at 3 months. Major amputation free survival rate was respectively 84.1%, 81.8%, 75% at 1, 3 and 6 months.

**Conclusion:** Percutaneous therapy is an attractive therapeutic alternative for lesions of tibial arteries in patient with CLI, even if patency rate is very poor.

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### Color Doppler Ultrasonography Evaluation Before and After Arteriovenous Fistulas for Hemodialysis

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**Introduction:** Color Doppler Ultrasonography (CDU) is a non invasive exam to evaluate structural and hemodynamic data of vessels prior to surgical arteriovenous fistulas (AVF) in uremic patients.

**Materials and Methods:** From January 2008 to December 2008, 28 patients have undergone surgical AVF to provide hemodialysis access. Before surgery CDU identified appropriate vessels to ensure successful outcome. CDU at 30 and 45 days measured the AVF diameter and flow.

**Results:** In the preoperative evaluation the mean internal diameter of veins and radial arteries were  $2.4 \pm 0,6$  mm and  $2.0 \pm 0,4$  mm respectively. All eligible veins of forearm were investigated and mapped. The intima-media thickness (IMT) of radial artery was studied.

In the postoperative period AVF was investigated and the median AVF internal diameter was  $0,42 \pm 0,22$  mm. The AVF flow volume registered was  $450 \pm 110$  ml/min, calculated by: (average time velocity) x (cross sectional area) x (60).

**Conclusion:** CDU identifies appropriate vessels for AVF. Success of AVF improves when veins over 2,4 mm and artery over 2,00 mm were used.

Radial artery IMT had a negative correlation with internal diameter of artery. Presence of unknown IMT on the site of AVF anastomoses represents a potential risk factor of AVF dysfunction.

Correct timing of first AVF puncturing is indicated by flow volume over 500 ml/min and AVF diameter over 4mm.

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### Complete Carotid Artery Thrombosis Due to Atherosclerotic Plaque: Case Report of a Recanalization After Systemic Thrombolysis

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**Introduction:** Systemic thrombolysis with r-tPA in acute stroke patients is still controversial, as evidence of its effectiveness is unclear. According to medical literature, outcome in patients with embolic stroke seems more favourable than in those with thrombotic stroke.

**Materials and Methods:** Case of a female patient who presented with sudden drowsiness, left hemiparesis and right deviation of head and eyes. History negative for serious diseases, except for hypertension on medical therapy. NIH score on admittance was 22. Urgent brain CT-scan showed no signs of ischemia or bleeding. Color Duplex scan showed acute thrombotic occlusion of the right internal carotid artery on a tight stenosis. The patient was therefore placed on r-tPA (Actilyse®) with nearly complete recovery of neurological function (postprocedural NIH score was 4).

Repeat brain CT-scan after 12 hours showed an area of hypodensity in the occipitoparietal region. 48 hours later a new color duplex scan showed recanalization of the right internal carotid and a residual 90% stenosis due to a carotid plaque.

**Discussion:** In this case r-tPA thrombolysis permitted a near-total recovery of the acute neurologic deficit and recanalization of the previously occluded vessel. The patient is currently waiting for definitive treatment by carotid endarterectomy after stabilization of the neuroradiological picture.

**Conclusions:** Benefit of systemic thrombolysis cannot be excluded even in patients with complete carotid artery thrombosis due to atherosclerotic plaque. Patients may subsequently undergo CEA as a delayed procedure, as surgical emergency procedures may have serious risks and may not favorably alter the outcome.

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### Mitral Valve Reoperations: Preliminary Results of Minimally Invasive Approach Without Aortic Cross-Clamp and Cardioplegia Delivery

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**Introduction:** The optimal approach for mitral reoperations is still matter of debate. Extensive surgical dissection, aortic cross-clamping and cardioplegia delivery add complexity to procedures which already carry a significant risk of complications and mortality.

**Methods:** From August 2008 to March 2009, 9 patients (mean age, 66 years) underwent a reoperation on the mitral valve through a right mini-thoracotomy. A port-access technique was adopted and adhesions' dissection was limited to gain access to the left atrium and the anterior surface of the ascending aorta. Operations were performed in moderate hypothermia on the beating heart/ventricular fibrillation without clamping the ascending aorta. Protection from air-embolism was achieved by carbon-dioxide field flooding.

**Results:** Mitral valve was repaired in one patient and replaced in 8 cases. Mean cardiopulmonary bypass with unclamped aorta was 143 minutes. One patient died for multiorgan failure. Neurological complications were not observed. In all patients, mitral prosthesis or valve function was normal at last follow-up examination.

**Conclusion:** Patients undergoing reoperative mitral surgery can significantly benefit from a minimally invasive approach. Excellent valve exposure, avoidance of extensive surgical dissection, no need for aortic cross-clamp and moderate hypothermia simplify otherwise complex and risky procedures.

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### Aortic Isthmus Pseudoaneurysm After Metal Tip Injury

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**Introduction:** Thoracic aortic pseudoaneurysms are a life-threatening complication of aortic surgery, infections, genetic disorders or trauma. After blunt thoracic accidents, approximately 2% to 5% of patients with aortic injury develop a false-aneurysm if it is not diagnosed or it is treated only with medical approach.

**Materials and Methods:** We describe the case of an aortic arch pseudoaneurysm after a metal tip injury treated with endovascular stent-grafting. First pathogenetic hypothesis was that the metal tip could be a piercing inhaled by the patient and then migrated through airways up to left bronchial tube. Here it could have caused a decubitus on aortic wall, weakening it and originating the false-aneurysm. The patient was scheduled for endovascular stent-grafting combined with a carotid-subclavian bypass plus subclavian artery coverage to achieve an adequate landing zone.

**Results:** The postoperative angiography and CT scan demonstrated the complete exclusion of false-aneurysm lumen and confirmed the correct position of the stent-graft, detecting as unmodified the position of the metal tip close to the aorta.

The patient recovered uneventfully.

**Conclusions:** The false-aneurysm of the descending aorta are a localized form of aortic pathology. The localized nature makes endovascular approach attractive. Moreover an endovascular treatment offers advantages reducing perioperative mortality and morbidity compared with traditional open surgical repair. Long-term results are not known yet and continue close surveillance of treated patients is mandatory, since different problems related to stent-graft may arise during follow-up.

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### A Comparison Between Traditional Cardiopulmonary Bypass And Minimized Extra-Corporeal Circulation: The S. Filippo Hospital Experience

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**Introduction:** It has been shown that minimized extracorporeal circulation (MECC) may reduce systemic inflammatory responses, postoperative bleeding, assisted ventilation time and ICU stay. The aim of this study was to evaluate the effect of MECC on early outcomes in patients undergoing isolated CABG surgery.

**Materials and Methods:** Between Dec-2003 and Dec-2008, 344 consecutive patients underwent isolated CABG. Of these, 170 patients received MECC and were compared to the remaining 174 patients (control group). Baseline characteristics were similar in both groups.

**Results:** Overall mortality was similar in two groups (2.6% in MECC vs 3.3% in CPB, p ns). Bleeding at 24/h was lower in MECC (260 ml ± 100 vs 580 ml ± 200 p <0.002) as well as blood requirement in OR (0.08 ± 0.5 units/pt vs 0.5 ± 1, p<0.03) and in ICU (0.03±1.0 units/pt vs 0.7±1.8, p<0.04). Ventilation time and ICU stay were lower in the MECC group (6.2±2 hours vs 12.8±4, p<0.001; 1day (1 to 4) vs 2 days (2-8), p<0.02).

**Conclusion:** In our experience MECC improves early outcomes in patients undergoing isolated CABG. Double-blind randomized control trials with large sample size need to confirm these data.

### Drug Releasing Three-Layered Functionalized Hybrid Scaffold: New Alternative in Cardiovascular Tissue Engineering

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**Introduction:** To overcome several limitations of tissue engineered vascular graft. we evaluated a novel hybrid device to provide both a specific microenvironment to allow cell differentiation and a drug delivery system.

**Materials and Methods:** We developed a multilayer hybrid construct with a middle pivotal fibronectin-collagen network and two functionalized Poly-lactic acid (PLLA) layers on both inner and outer sides. The inner side layer has been realized as a drug delivery system releasing Heparin (HEP) and Erythropoietin (EPO), while the outer one has been engrafted with TGF- $\beta$ . PLLA and PLLA/HEP-EPO nanocomposite scaffolds were prepared by electrospinning. and membranes microstructure was evaluated by SEM. After sterilization scaffolds was seeded with human mesenchymal stem cells and cell engraftment, viability, proliferation and differentiation were evaluated by light and confocal microscopy.

**Results and Conclusions:** Scaffolds showed a porosity favourable to cell attachment and culture. Both HEP and EPO release showed an initial burst within the first 24 hrs and a further smoother pattern. Microscopy was consistent with a good cell attachment and viability. The presence of ki67+ cells confirmed cell proliferation. A shift towards CD31 positivity was observed in the inner side of the scaffold while smooth muscle positive cells were detected on the outer side.

### A GCSF Releasing Scaffold for Stem Cells Seeding: A New Differentiating Device for Cardiac Purposes

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**Introduction:** A major concern in cardiac stem cell therapy is represented by the failure to reach cardiac transdifferentiation leading to lack of functional electromechanic integration of the transplanted cells into the myocardium. In myoblast cell therapy,

ineffective integration carries a threatening potential for arrhythmogenesis. Recently, Granulocyte colony stimulating factor (G-CSF) has been shown to induce upregulation of Connexin43, a cardiac specific component of the gap junction complex crucial for impulse conduction.

**Materials and Methods:** Given its recently reported benefit on conductance aberration following a myocardial infarction, we developed a G-CSF releasing polymeric patch using Poly-L-Lactic acid (PLLA) electrospun fibers seeded with skeletal myoblasts (C2C12) to obtain an engineered cardiac graft.

**Results and Conclusions:** In GCSF/PLLA polymers C2C12 were non quiescent and exhibited a more elongated and spindled cell profile, images of pole to pole cell fusion and fibers rearrangement in striated muscular-like phenotype. Connexin43 expression and a fibrillar actin distribution were detected by confocal microscopy. In conclusion we developed a biodegradable device effective in both orientate stem cell differentiation and exert important systemic and local effects positively modulating the infarction microenvironment.

### Atorvastatin Treatment Increases Circulating Endothelial Progenitor Cells in Patients Undergoing Cardiopulmonary Bypass Surgery

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**Introduction:** Endothelial Progenitor Cells (EPC) are a subtype of bone marrow-derived mesenchymal stem cells with endothelial differentiation capabilities and able to regenerate the vascular endothelium in case of injury.

EPC are mobilized from the bone marrow in response to cytokines, ischemic injury or systemic inflammatory conditions as cardiopulmonary bypass surgery (CPB). HMG-CoA reductase inhibitors improve the in vitro and in vivo mobilization, differentiation, and survival of EPC

**Materials and Methods:** 40 patients undergoing coronary artery bypass surgery with CPB were randomized to placebo and 40 mg/die Atorvastatin for 4 weeks before surgery and EPCs were counted as CD34+/CD133+ percentage from whole blood by means of flow cytometry before and 6 hours postoperatively. Cardiac specific markers along with cardiac functional assessments were obtained.

**Results and Conclusions:** In the treated group EPCs count showed a ten fold increase compared to the preoperative values and was significantly higher than the non-treated group. Atorvastatin could therefore represent a potential aid to improve endothelial function even during CPB surgery.

### A Clinical Score to Identify High Risk Patients Undergoing CABG Who May Benefit from the Elective Use of IABP

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**Introduction:** The use of intra-aortic balloon pump (IABP) is a well-known risk factor for postoperative mortality after cardiac surgery. The aim of the study was to construct a scoring system to predict the need for insertion of intra/postoperative IABP in patients undergoing isolated coronary artery bypass grafting (CABG).

**Materials and Methods:** From April 1996 to February 2009, 10642 consecutive patients underwent CABG surgery. Of these, 186 patients received intra or postoperatively IABP.

**Results:** Postoperative mortality in patients who received IABP was 19.4% (1 % in all cohort). Statistical multivariate analysis showed that age>70 yrs, female sex, Canadian cardiovascular class, redo operation, poor and fair ejection fraction, left main disease>50%, emergency operation and CPB>90 min were independent risk factors for insertion of intra-postoperative IABP. A simplified score that spans 0 to 16 was developed based on this logistic model. Discrimination by the receiving operative characteristic was 0.82 (95% CI 0.789 to 0.852). Four risk groups were identified. The observed incidences of receiving IABP and mortality of these groups were the following: 27.3% and 6.8% (score>9), 10% and 3.2% (score 6-8), 3.6% and 1.9% (score 3-5), 0.9% and 0.5% (0-2).

**Conclusion:** This score might help identifying high risk patients undergoing CABG who may benefit from the elective use of IABP.

### A Novel and Simple Approach to Remodelling Annuloplasty for Degenerative Mitral Valve Disease

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**Introduction:** The rationale of current mitral valve (MV) annuloplasty provides no critical approach to the different segments of MV annulus. We report an innovative technique of MV remodelling annuloplasty in patients with degenerative MV disease.

**Methods:** We consider the MV annulus composed by two types of segments corresponding to coapting or not coapting portions of the leaflets. The surgical technique includes three steps: a bilateral segmental supra-commissural annuloplasty, a segmental

supra-scallops plication of the posterior MV annulus and an inter-commissural posterior pericardial ring.

**Results:** From October 2005 to August 2008, 46 patients underwent MV repair. The degree of MV regurgitation was severe in 33 patients and moderate-severe in 13 patients. The mechanism of regurgitation included prolapse of posterior leaflet (PL) in 26 patients, anterior leaflet (AL) in 6, and a bileaflet prolapse in 14 patients. Leaflet procedures included resection of PL in 25 patients, resection of AL in 11 patients, artificial chordae to AL in 17. Postoperative TEE assessment showed a mean coaptation length of 0.82 cm with no residual or trivial regurgitation in 43 patients and mild regurgitation in the remaining 3 patients. No in-hospital death or major postoperative complication occurred.

**Conclusion:** This technique is easy and represents a valid alternative to a rigid annuloplasty ring.

## Thoracic Surgery

### New Minimally Invasive Approach for Lung Cancer Staging Using N.O.T.E.S (Natural Orifice Transluminal Endoscopic Surgery) Instruments

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**Introduction:** invasive mediastinal and pleural exploration remains the « gold standard » in lung cancer staging. N.O.T.E.S techniques are rapidly evolving and few applications in abdominal surgery have been published. The technical feasibility and safety of trans-oesophageal approach of the mediastinum and pleura was completed recently in animal. The aim of this study is to present the results of an experimental study for simultaneous exploration of mediastinum and pleura in cadavers using N.O.T.E.S technology.

**Material and Methods:** an experimental work on refrigerated and non embalmed cadavers was initiated. The cadavers were free from chest and neck disease. Simultaneous exploration of the mediastinum and the right pleura through a unique incision was achieved using N.O.T.E.S instrumentation.

**Results:** mediastinal exploration was easy and allowed us to identify and make biopsies of mediastinal lymph nodes (2R, 4R, 7 and 4L). A complete exploration of the pleural cavity and multiple pleural biopsies were performed through the same incision. A 20 Fr. silicone chest tube was placed in the end of the procedures.

**Conclusion:** N.O.T.E.S techniques have already a place in abdominal surgery. Several human applications had been published in the literature. The potential advantages of its application in thoracic surgery are: simultaneous exploration of mediastinum

and pleura and reduction of chest pain. Up to date, no applications of these techniques are ethically acceptable due to a high level of major complications. Authors' present a new minimal invasive approach for simultaneous mediastinal and pleural staging in lung cancer. This experimental work can lead to the first in human application of N.O.T.E.S techniques in thoracic surgery.

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### Thoracoscopy and Pleural Carcinomatosis: Our Experience

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**Background:** Nowadays, due to the advance in the treatment of the neoplasias, survival in the cases of pleural effusion has been increased. Thoracoscopy can help us to establish a trustworthy diagnosis, to evaluate the degree of disease and also to realise an effective pleurodesis.

**Methods:** We have practiced 84 thoracoscopies applying a protocol of collection of the data. We have been realised all the procedures with local anesthesia and sedation, taking samples from the suspicious injuries or practicing blind biopsies through thoracoscopy in case of not existing macroscopic injuries. In 44 patients the existence of different carcinomatosis at pleural level of primary tumor was confirmed. Other 10 cases were diagnosed of mesothelioma.

**Results:** Carcinomatosis derived from a primary one at pulmonary level in 12 patients, mammary in 11, of ovary in 7, digestive origin in 4, 2 of lymphoma and in 8 cases was of unknown origin. The median survival of the patients with pleural carcinomatosis was of 180±179 days. Based on the primary tumor of the carcinomatosis there were variations in the survival.

**Conclusions:** The diagnosis of pleural carcinomatosis can be performed through the thoracoscopy with a high yield. Thoracoscopy allows to establish an early diagnosis and a better treatment and an increment of the survival and the quality of life of our patients.

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### Primary Spontaneous Pneumothorax in Young Males

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**Objectives:** The aim of this paper is to show that primary spontaneous pneumothorax (PSP) affects young, high, thin health males, active smokers. PSP symptoms are dispnea, pain, or both. Duration of symptoms can affect the length of hospitalization.

**Methods:** During 2007 and 2008 we hospitalized 41 patients 37 males and 4 females. Data were obtained from anamnesis and physical examination.

**Results:** Average life age were 33.32. Most of patients with PSP were in the age groups form 21 to 30 and from 31 to 40. In the first group average life age was 21.93 and in the second group the average life age was a 32.45.89% of male patients were active smokers. 51% of patients had dispnea, 27% had sharp chest pain, and 22% had sharp pain and dispnea. 10 patients with dispnea were promptly recognized and hospitalized under 6h. Duration of hospitalisation for these group was 5 days. 19 patients have only sharp pain in the first 24 hours, and the duration of hospitalisation for them were 6 to 7 days. 12 patients emerged doctor after 24 hours, they had first sharp pain and after that dispnea, with average duration of hospitalisation more then 7 days. Average length of hospitalization were 7.63 days.

**Conclusions:** PSP is a disease of male population, between age of 21 and 35. They were high, thin, previously healthy people who had been smokers. Dispnea and pain are present in more than 70% of PSP. Dispnea with the pain occurs in approximately 20% of patients. On time recognised, diagnosed and cared PSP affects to the length of hospitalization.

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### Results of the Radio Frequency Ablation in Pulmonary Malignancies Tumors: Our Experience

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**Introduction:** The radio frequency ablation(RFA) is a non-surgical treatment option for patients with malignant lung tumors.

**Objective:** To present our experience with RFA in the lung tumors and the morbidity related.

**Material and Methods:** From August 2004 to February 2009 53 lung tumors in 42 patients were treated with RF ablation. Twenty-nine were primary lung cancers and 13 were pulmonary metastases. RFA was applied with curative intention in 38 patients and in others with palliative intention. The procedures were practiced under local anesthesia. Variables of the study: sex, age, FEV1, tumor size, length of hospital stay and complications.

**Results:** There were 41 men and 1 woman. Mean age was 74 years (rank: 43–84). The average FEV1 of the group was of 60.9%. The mean tumor diameter was of 2,41cm.

Mean length of hospital stay was: 1.45 days (rank: 1-6). Complications: 1 case of bronchial spasm, 1 of pneumonitis, 6 pneumothorax, (three required chest tube drainage), 1 case of intraparenchymal hemorrhage and 1 patient needed to be intubated during the procedure. After 18 months of follow-up, 12 patients had died from causes not related to the technique.

**Conclusions:** RFA offers a palliative and curative alternative for the patient not candidates to surgery and appears to be safe, minimally invasive for local pulmonary tumor control, without mortality, little morbidity, short hospital stay and a better quality of life.

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### **Pneumomediastinum and Cervical Subcutaneous Emphysema as First Signs of Colon Perforation**

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**Introduction:** A case of pneumomediastinum and cervical subcutaneous emphysema secondary to retroperitoneal sigmoid diverticulum perforation is reported.

**Materials and Methods:** A 56-year-old man presented with swelling of the face suddenly developed. A subcutaneous emphysema was present in the upper thorax, neck and face. On examination the abdomen was slightly tender on deep palpation in the left lower quadrant, without signs of peritoneal irritations. A chest X-ray showed a pneumomediastinum; no air was present below the diaphragmatic dome. CT-scan confirmed free air in the mediastinum, subcutaneous emphysema, no pneumothorax. Bronchoscopy was normal. An abdomen-ultrasound revealed an uncomplicated acute diverticulitis: body temperature, white blood cells were normal. Twelve hours later, the patient developed fever and leukocytosis: a contrast enema showed free gastrografin and air in the retroperitoneum. He underwent emergency laparotomy.

**Results:** A perforation on the posterior wall of the sigmoid colon and a retroperitoneal abscess were noted. The drainage of the abscess was followed by a segmental colon resection and end-colostomy. Pneumomediastinum and subcutaneous emphysema disappeared after the operation. Postoperatively, a right pulmonary embolism occurred. He was discharged on day 52. Histopathology examination showed no tumour.

**Conclusion:** Seemingly unrelated complaints must be readily interpreted to avoid life-threatening complications.

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### **Complications After Pulmonary Resection in the Elderly**

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**Introduction:** Lung resection surgery on elderly patients (pts) represents a serious challenge to thoracic surgeons. We revised our experience with pts aged over 75 years submitted to lung resection. Pts were divided into 4 groups on the basis of Charlson Comorbidity Index and complication rates were calculated for each group. Complication rates and mean post-operative stay (MPS) were compared to those observed in pts under 75.

**Materials and Methods:** From 1997 to 2008, 212 pts aged over 75 (174 males, 38 females, mean age 77,6) underwent lung resection: 144 wedge and 75 typical resections (2 pneumonectomies; 3 bilobectomies; 68 lobectomies; 2 segmentectomies).

**Results:** Histology showed malignancy (178 pts), amartoma (5), flogistic lesions (18), fibrosis (5), sarcoidosis (1), emphysema (4), hydatidosis (1). Post-operative complications occurred in 94 pts (44% vs 20% of pts under 75): minor in 86, major in 20 cases (9%). MPS was 11.3 days, vs 8.9 days in pts under 75. Three pts died peri-operatively.

**Conclusion:** Compared to pts under 75, lung resection surgery on elderly pts was associated with a higher complication rate (mainly minor complications) and a slightly longer mean post-operative stay. We found no clear correlations between Charlson Comorbidity Score groups and complication rates, probably because of numerically non-significant and surgically non-randomized subgroups.

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### **Use of Mixed "Bioresorbable-Nonabsorbable" Surgical Mesh for Chest Wall Repairing After Ablation of a Rare Costal Angiolipoma**

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**Introduction:** Angiolipoma is a rare benign tumor. Its intraosseous allocation is rarely described. We report a rare case of a right 5th rib angiolipoma treated with costal resection and reconstruction by a mixed "bioresorbable-nonabsorbable" surgical



mesh (Proceed, Ethicon Inc., Sommerville, New Jersey, USA). The use of a such a mesh is still very uncommon in thoracic surgery.

**Materials and Methods:** A 20-year-old woman, with radiological evidence of a wide chest wall mass, was submitted to right postero-lateral thoracotomy at 6th intercostal space and showed a bi-lobular mass involving the 5th rib on its posterior aspect, the relative vertebra and part of the 4th and 6th rib. We resected the posterior segments of 4th and 6th rib; then we removed the whole 5th rib en bloc with the mass, after dissection from the vertebral layer. A Proceed patch was utilized as protection of rib section area, in order to avoid lung hurting. Chest wall was repaired by a 10x20cm Proceed mesh implant. Two pleural drainages were placed.

**Results:** Pathological examination showed an angioliipoma of the 5th rib. 3 year follow-up evidences the mesh strength and durability, without tissue scar, adherences or pleural effusion.

**Conclusions:** Mixed "bioabsorbable-non absorbable" surgical meshes are safe and effective for chest wall reconstruction. Further studies on wide numbers need to confirm this result.

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### **Transsternal Transpericardial Approach for Acute Descending Necrotizing Mediastinitis**

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**Introduction:** Descending necrotizing mediastinitis (DNM) is a severe infectious disease with a very high mortality rate; it is a primary complication of cervical or odontogenical infections that can spread to the mediastinum through the anatomic cervical spaces. Early diagnosis and aggressive surgical drainage are very important for successful treatment. However, the surgical techniques remain controversial.

**Materials and Methods:** Between 2003 and 2008, 5 patients with DNM were treated (4 M, 1 F; mean age: 53 years) . Primary etiology was peritonsillar abscess in 2 and parapharyngeal abscess in 3 cases. Diagnosis was confirmed by neck and chest Computed Tomography.

**Results:** All patients underwent surgical drainage of the cervico-mediastinal regions by a transsternal transpericardial approach. Outcome was favorable in 4 patients; one died of multiorgan failure related to septic shock. One patient required three reoperations. Bacteriologic results revealed in all cases a polymicrobial infection.

**Conclusion:** High mortality rate of DNM is due to diagnostic uncertainty and difficulty of creating an adequate continuous mediastinal drainage after toilette and necrosectomy. Transsternal transpericardial approach is a useful and effective technique for surgical treatment of patients with DNM: it allows a complete mediastinal exploration and radical drainage of infected tissue.

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### **Pleurodesis in Malignant Pleural Effusion**

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**Introduction:** Malignant pleural effusions (MPEs) are still a problematic issue because of poor therapeutic outcome. Chemical pleurodesis is accepted as palliative therapy for patients with recurrent, symptomatic malignant pleural effusions.

**Materials and Methods:** From 2005 to 2009, in our general surgery division, a total of 25 patients underwent pleurodesis for MPEs. Above all, lung, ovarian and breast cancer account for the majority of MPEs, with GI malignancies, mesothelioma, and other malignancies for the remaining. Initial drainage occurs with standard thoracentesis to confirm the presence of malignant pleural disease and to provide symptomatic relief. If the MPE recurs, several approaches exists for further control: repeat thoracentesis, placement of a tube thoracostomy with pleurodesis "talc slurry" (8 cases) or video-assisted thoroscopic surgery (VATS) (19 cases) with pleurodesis. Talc and fibrin glue have been used to produce pleurodesis,

**Results:** In our experience all patients had an improvement of symptoms especially for dyspnoea, even if the X-ray control didn't reflect it often. We observed no significant differences, between "slurry" and VATS pleurodesis or between the use of talc and fibrin glue. In the perioperative period we didn't have any complications and patients could return to systemic chemotherapy in a short period.

**Conclusions:** Malignant pleural effusions (MPEs) are a common clinical problem in patients with neoplastic diseases. Pleurodesis remains the most practiced treatment according to its low cost, wide distribution, easy administration and high efficacy. Both talc and fibrin glue pleurodesis could achieve good results.

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### **Concurrent Chemoradiation Therapy (Cisplatin and Docetaxel Plus 3D Conformal Radiotherapy) in Patients with III A/B NSCLC**

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**Introduction:** Concurrent chemoradiation may be considered standard of care in patients with unresectable stage III A/B NSCLC but no standard regimen has been established. We conducted a multidisciplinary experience to evaluate the efficacy and toxicity of weekly docetaxel/cisplatin and radioteraphy in pts with unresectable stage IIIA/B NSCLC.

**Materials and Methods:** Pts with stage III B were chemonaive, while pts IIIA were inoperable after a first line platinum-based

chemotherapy. Treatment consisted of docetaxel 25mg/m<sup>2</sup> IV infusion followed by cisplatin 25mg/m<sup>2</sup> IV infusion was administered weekly during RT (45Gy for first five weeks: 1,8Gy fractions 5 days/wk).

**Results:** From 2006/01 to 2008/04, 16 pts (ECOG PS 0-1) were enrolled (median age 68 years, 80% males). Nine (56%) pts had stage IIIA, 7 IIIB (44%). Histology included epidermoid (25%) and adenocarcinoma (75%). Radiologic response was seen in 11 pts (68%); 4 pts (25%) had a stable disease and 1 had a progression. Six pts (37%) undergone surgery after chemo-radioteraphy; 4 underwent a radical resection without residual mediastinal malignant disease. Toxicity was mild.

**Conclusion:** Weekly docetaxel/cisplatin with 3D conformal RT thoracic radiation is a well-tolerated regimen and is feasible by multi-physicians collaboration group. In selected cases pts previously unresectable may be reconsidered for surgery.

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### **Sternotomic Approach in Thoracic Surgery: 10 ys of Experience**

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**Introduction:** Accessing thoracic cavity by a median sternotomy has been reported for heterogeneous diseases: thymomas, mediastinal masses, goiters, bronchopleural fistulas, descending necrotizing mediastinitis and locally advanced lung cancers.

**Methods:** Between 2000 and 2009 we performed 77 sternotomies (55 M, 22 F; mean age : 59,2 years) ; non-small-cell-lung-cancers were treated in 32 cases (23 pulmonary resections and 9 systematic lymph node dissections) , thymomas in 24 ; descending necrotizing mediastinitis were drained in 5 cases; among others we found rarities like a pulmonary artery sarcoma, a mediastinal melanoma and a giant mature teratoma.

**Results:** We had no operative deaths; peri-operative mortality was 7.7%; actuarial survival for thymectomies by a median sternotomic approach is 95.8% with a complete remission of Myasthenia Gravis symptoms in 54% of patients; survivals for resected NSCLC at 1, 3 and 5 years were respectively 68.4%, 21% and 10.5% with two long survivors at 112 and 65 months; they all were T4 with direct anterior mediastinal invasion.

**Conclusions:** Median sternotomy is a safe and useful approach for treatment of invasive thymomas, mediastinal goiters or anterior masses ; transternal transpericardial approach for T4-lung tumours has to be carefully considered as treatment of choice, because of its high morbidity and poor long-term outcome.

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### **Is Right Upper Sleeve Lobectomy in Non-Small Cell Lung Cancer (NSCLC) a Feasible and Effective Alternative Option to Right Pneumonectomy?**

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**Background:** Right pneumonectomy is known to be associated with high rate of postoperative morbidity and mortality.

Bronchial sleeve resections, are well accepted and valid alternatives to pneumonectomy in NSCLC and right upper sleeve lobectomy is, by far, the most frequent bronchoplastic procedure.

Aim of this study is to review and to compare the impact of these procedures in terms of short- and long-term results, focusing on locally advanced right upper lobe neoplasms.

**Methods:** A retrospective study was carried out by reviewing the records of 93 consecutive patients submitted to right upper sleeve lobectomy for NSCLC from January 1990 to December 2005. This group was compared with 95 consecutive patients who underwent right pneumonectomy in the same period.

**Results:** In sleeve group: males 83 and females 10. Pathologic staging: 3 stage IIa, 56 stage IIb, 30 IIIa and 3 IIIb; one case, after neoadjuvant chemotherapy, no evidence of residual disease. Inductive therapy was administrated in 25 patients.

In pneumonectomy group: males 83 and females 12; pathologic staging: 26 stage Ib, 3 IIa, 27 IIb, 20 IIIa, 15 IIIb and 4 IV; neoadjuvant therapy in 14.

In sleeve and pneumonectomy group perioperative mortality rate was 2.1 % and 11.6%, respectively (p=0.01); overall morbidity rate was 22.6% and 29.5%, respectively (p=0.28). Overall 5-year survival rate was 41% and 30%, respectively (p=0.07).

**Conclusion:** Compared with sleeve lobectomy, right pneumonectomy is associated with an higher morbidity and mortality rate and worse long-term survival for comparable stages of right upper lobe cancer.

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### **Single-Institution Experience on Multimodality Therapy Including Neoadjuvant Chemotherapy for Stage III and IV Thymic Tumors**

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**Introduction:** In stage III and IV thymic tumors, complete surgical resection is not always achievable. There is growing evidence that multimodality treatment is effective in advanced stage thymomas and that preoperative chemotherapy may convert

inoperable into operable disease, with radical resections. We present our long term experience in multimodality management of advanced thymic tumors.

**Materials and Methods:** Since 1980 we have enrolled 38 patients with clinical-radiological stage III (n=23) and IV (n=15) thymic tumors. Induction chemotherapy consisted of 3-4 cycles of ADOC (adriamycin, cisplatin, vincristine, cyclophosphamide), surgery was planned 3-4 weeks after the last cycle. 31 patients received postoperative radiotherapy.

**Results:** Out of 38 patients, 27 (71%) had R0 and 11 (29%) R1 resection. In 7 (18.4%) cases a vascular procedure was carried out. Overall 5 and 10-year survival was 59% and 51%, respectively. 5-year survival was better for R0 vs R1 (69% vs 37%; p=0,004) and for A-AB-B1 (n=13) vs B2-B3-C (n=25) histotype (84% vs 48%; p=0.05). No significant difference was found between stage III and IV (5-year survival 63% and 52%; p=0.47). On multivariate analysis radical resection (p=0.0009) and A-AB-B1 (p=0.03) histotype were independent predictors of better prognosis.

**Conclusion:** The multimodality treatment in advanced thymic tumors provides an high resection rate with a good long term survival.

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### Thymoma in Polymyositis: Case Report

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**Introduction:** Thymoma is a rare neoplasia associated with neuromuscular diseases, especially with Myasthenia gravis (more than 40%).

**Materials and Methods:** We report an unusual case of a young woman affected by thymoma showing polymyositis as paraneoplastic phenomenon with an acute onset of symptoms: in one month's time the patient was enforced on a wheelchair.

In Neurological Department she underwent several investigations included muscle biopsy (T-cells and inflammatory cells), electromyography (compatible with myopathy), laboratory findings (AChR Ab positive) and finally chest tomography showing a mediastinal mass.

At admission in Surgery Unit the differential diagnosis was between lymphoma and thymoma.

**Results:** We performed a mediastinal mass biopsy compatible with thymoma and afterwards a radical thymectomy through a median sternotomy. Histological features confirmed the pathology and staged it as B1 according to WHO. The last step consisted in mediastinal radiotherapy. At four months, patient has a total remission of symptoms.

**Conclusion:** We emphasize that in suspect of thymoma the best management is a multidisciplinary approach.

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### Diagnosis of Indeterminate Lung Lesions: The Role Of <sup>18</sup>FDG PET and <sup>99m</sup>Tc MIBI-SPECT

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**Objective:** To compare <sup>18</sup>FDG- PET and <sup>99m</sup>Tc-MIBI SPECT in the diagnosis of indeterminate lung lesions.

**Methods:** We prospectively studied 52 consecutive patients with indeterminate lung lesion examined by both <sup>18</sup>FDG PET and <sup>99m</sup>Tc-MIBI SPECT before invasive diagnostic procedure. Lung lesion was analysed visually and semi-quantitatively using the ratio of tumour-to-normal radioactivity (T/N ratio) for <sup>99m</sup>Tc-MIBI SPECT and standardized uptake value (SUV) for <sup>18</sup>FDG PET. Finally, the scintigraphic findings were correlated to the definitive diagnosis

**Results:** 38 patients had a malignant lesion whereas, 14 benign disease. Visual analysis showed that sensitivity and specificity of PET were 92% and 71% respectively, while those of SPECT were 86% and 92%, respectively. ROC analysis using peak SUV FDG uptake (cut-off point of 5.7) and T/N MIBI uptake (cut-off point of 1.3) provided, sensitivity and specificity values of 92% and 85% of 86% and 100% for PET and SPECT, respectively. No statistically differences were shown between both methods. For lymph nodes staging, PET and SPECT showed sensitivity and specificity values of 88% and 95% of 75% and 97% respectively.

**Conclusion:** MIBI-SPECT is similar to FDG-PET in the detection of malignancy of indeterminate lung lesion and represents an alternative when PET is not available

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### Bronchoscopic Placement of One-Way Endobronchial Valves for the Treatment of Giant Emphysematous Bulla

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**Objective:** The treatment of giant emphysematous bulla (GEB) with bronchoscopic placement of one-way endobronchial valves (EBVs)

**Methods:** Three patients were investigated for treatment of GEB. Respiratory tests showed:

Case 1-FVC: 1.35 L (49%), FEV 1: 1.25 L (51%), VR: 2.45 L (186%)

Case 2- FVC: 2.04 L (60 %), FEV 1: 1.57 L (65 %), VR: 2.52 L (190%)

Case 3- FVC: 1.35 L (33 %), FEV 1: 1.2 L (27 %), VR: 2.45 L (198%)

Chest Tomography (CT) showed a GEB which occupied one third of the left hemithorax in Case 1 and in Case 3 and of the in Case 2 with compression of the adjacent parenchyma. The patients were poor surgical candidates, thus endobronchial treatment was investigated

**Results:** Following intubation with oro-tracheal tube, flexible bronchoscopy was performed. Two EBVs were sequentially positioned in the culmen and in the lingular bronchi in Case 1 and 3 respectively, and three EBVs in the segmental upper lobe bronchi in Case 2. Following 1 month, respiratory tests showed:

Case 1-FVC: 1.85 L (51%), FEV 1: 1,73 L (61%), VR: 1.85 L (105%)

Case 2-FVC: 1.93 L (70%), FEV 1: 1.78 L (70%), VR: 1.75 L (107)

Case 3-FVC: 1.71 L (42%), FEV 1: 1.64 L (37%), VR: 1.65 L (130%)

In all cases, CT illustrated an almost complete disappearance of the bulla.

**Conclusion:** In selected case EBVs may represent a valuable alternative to surgical bullectomy.

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### A Strange Case of Haemoptysis

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**Introduction:** We report a strange case of migration of a foreign body from the oesophageal wall to the lung parenchyma resulting in a lung abscess treated by surgical resection.

**Materials and Methods:** In 2008 a 58-years-old man was admitted to our unit complaining cough and haemoptysis since three months. A CT scan revealed a mass of RLL close to the posterior mediastinum suspected for malignancy. However, to exclude an oesophageal disease, contrast swallow was administrated showing a minimal communication between the oesophageal lumen and the lung parenchyma. Either bronchoscopy than oesophagoscopy resulted negative.

**Results:** Indication for surgical resection was set. At surgery we found the abscessualized mass of the RLL associated with a 2 cm oesophago-pulmonary fistula individuated by the injection of methylene blue through the nose-oesophageal tube. A wedge resection of the posterior basal segment of the RLL was set up. The oesophageal fistula was sutured by a Reticulator 4.8. The specimen analysis showed that lung abscess was caused by the migration trough the oesophageal wall into lung parenchyma of a toothpick swallowed accidentally.

**Conclusions:** Despite an oesophageal perforation by a foreign body with negative findings of esophagoscopy is a rare event, the haemoptysis can disclose a unknown oesophageal disease. In doubt TC scan with contrast swallow could be diriment.

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### Results of Surgical Treatment of Endothoracic Metastases from Renal Cell Carcinoma

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**Introduction:** We present our experience in surgical treatment of endothoracic metastases from renal cell carcinoma (RCC).

**Materials and Methods:** From January 1988 to July 2008, 68 patients (pts) (57 men, 11 women), mean age 62 years (range 39-80), underwent surgical resection for suspected endothoracic metastases from RCC (59 wedge resections, 6 lobectomies, 2 pneumonectomies, 1 lymphadenectomy). Mean disease free interval (DFI) between nephrectomy and 1st lung resection was 34 months (range 2-198).

**Results:** There was no perioperative mortality. Only 44 pts (65%) had histologic diagnosis of metastases from RCC; 14 (21%) had benign lesions, 10 (14%) primary lung cancer. Overall tumor specific survival at 1 year from metastasectomy was 94,6%, at 3 years 63,3%, at 5 years 38,1%. 5 year survival was: 24,2% in pts with DFI<36, 52,5% in pts with DFI>36 months (p=n.s.); 49,1% in pts with solitary metastasis, 30,5% in pts with multiple metastases (p=n.s.); 40,4% for pts<60, 34,1% for pts>60 year-old (p=n.s.).

**Conclusion:** The evidence of endothoracic nodules in pts submitted to nephrectomy for RCC is not necessarily indicative of metastatic disease. In pts with RCC metastases surgical resection can prolong survival. The identification of sure prognostic factors would need a big number of surgically treated cases and maybe the creation of a new specific RCC lung metastases register.

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### Hyperthermic Intra-Operative Pleural Chemotherapy (HIPC): Our Preliminary Experience

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**Introduction:** Hyperthermic peritoneal chemotherapy is a modality of antitumoral intra-operative treatment which proved to be effective in some abdominal neoplastic pathologies. More recently, it has been described also for the treatment of pleural neoplasms with promising results.

**Materials and Methods:** Aim of this study was to asses feasibility, toxicity and efficacy of HIPC for the treatment of mesothelioma (MPM, stage I-III) and plural recurrence of thymoma. After pleurectomy or excision of pleural implants, patients underwent perfusion of the pleural space with a solution, containing cisplatin

80 mg/m<sup>2</sup> and epirubicin 25 mg/m<sup>2</sup>, at the temperature of 42.5 °C, for a period of 60 minutes. Most of patients underwent post-operative CT and/or RT according with the protocol.

**Results:** From January 2005 to December 2008, we performed HIPC on 37 patients, xx males and xx females, mean age 61,8 years (range 34 – 76). In 27 cases it was for a MPM (25 epitheliomorph, 2 bifasic) and in 10 cases for pleural recurrence of thymoma. HIPC was feasible in all cases without adverse events related to the procedure. No patients experienced signs or symptoms of toxicity. At a median follow-up of 28 months (range 3 – 44) 8 patients with thymoma and 8 patients with MPM (median actuarial survival in a selected cohort of patients was 21,8 months) are still alive.

**Conclusions:** HIPC is feasible and safe. Its efficacy still require further experience and multicentre randomized studies.

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### VATS for Congenital Lobar Emphysema: A Case Report

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**Introduction:** Congenital lobar emphysema (CLE) is a rare congenital lung disease consisting in overinflation of a pulmonary lobe. Adult onset of CLE is therefore unusual, often presented with mild symptoms. We report a very uncommon case of congenital segmental emphysema diagnosed in a 21 year old non-smoking male because of recurrent right pneumothorax.

**Materials and Methods:** Indication to pulmonary resection was established according to functional limitation, radiological findings of right upper lobe segmental emphysema with corresponding bronchial agenesya, scintigraphic result of extremely reduced ventilation and perfusion of lung emphysematous area and recurrency of pneumothorax. The intervention was carried out by 3-portal video-assisted thoracic surgery using single-lung ventilation.

**Results:** In this case, as soon as one-lung ventilation was instituted, the target area for resection remained expanded because of air trapping. This made it possible to perform a stapler wedge resection by VATS, that, as far as the Author's knowledge, it is the first case of endoscopic parenchymal sparing resection in CLE.

**Conclusions:** Even though congenital lobar emphysema is rare, clinical awareness of this condition is important for early diagnosis and effective surgical treatment that in this case led to favourable results. The V.A.T.S. procedure seems to be an advantageous approach.

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### Single Access Technique: A Painless Way for Chemical Pleurodesis by VATS

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**Introduction:** Chemical pleurodesis by VATS is widely utilized for treatment of malignant pleural effusion (MPE). We compare the efficacy, in terms of pain control and effusion recurrence, of a "single access" technique with standard VATS for MPE.

**Materials and Methods:** from 1995 to 2008, 363 patients with MPE underwent chemical pleurodesis by VATS. In 214 patients (group A) we used only one access to introduce the camera and another surgical instrument. Two or more accesses were necessary in 149 patients (group B). An elastomeric pump for a continuous infusion ( 20 mg of morphine with 150 mg of ketorolac at 2 ml/h), was administrated for the first 48 postoperative hours. In case of pain persistency, another elastomeric pump was given. The efficacy of pleurodesis was evaluated by a chest x-ray, 1 and 3 months after surgery.

**Results:** mortality and morbidity did not differ in two groups. The pain control was obtained by only one elastomeric pump in 87% of group A and in 66% of group B, with a statistical significant difference (p=0.0001). MPE did not recurr in 96.7% of group A and in 95.3% of group B.

**Conclusions:** Single access technique allows a statistically significant reduction in timing analgesic administration compared to a standard VATS and did not influence the efficacy of pleurodesis.

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### Intraoperative [111 in-DOPTA]-Octreotide Scintigraphy with a Hand-Held Gamma Detector in the Surgical Management of an Acth-Secreting Bronchial Carcinoid Causing Ectopic Cushing's Syndrome

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**Introduction:** Bronchial carcinoid tumors are rare neuroendocrine tumors, approximately 2-5% of all lung neoplasms. These tumors overexpress somatostatin receptors, and intraoperative [111 In-DOPTA]-Octreotide scintigraphy with a hand-held gamma detector probe has been proposed to increase the intraoperative detection of small tumors and their nodal metastases.

**Materials and Methods:** We describe a 39-years-old woman with ectopic Cushing's syndrome due to an ACTH-secreting bronchial carcinoid. A Ct-scan detected a well-marked endobronchial lesion in left-upper lobe (15 x 6 mm) without enlarged lymph

nodes. Radiolabeled octreotide scintigraphy confirmed the ectopic source of ACTH and didn't show other pathologic uptake.

**Results:** Radioguided surgery was performed using a hand-held gamma probe 48 h after iv administration of a tracer dose of radiolabeled [111In-DTPA]-octreotide. After detecting the pulmonary lesion a left-upper lobectomy was performed. Subsequently, a second gamma probe exploration evidenced residual disease in mediastinal lymph nodes. After mediastinal lymphadenectomy, no pathological uptakes were detected. Pathological examination confirmed the diagnosis of ACTH-secreting carcinoid with nodal metastases.

**Conclusions:** The use of an intraoperative gamma counter appears a promising procedure in the management of ACTH-secreting bronchial carcinoids.

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### **Video Assisted Thoracoscopic Surgery for Catamenial Hemopneumothorax: Analysis of Three Cases**

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**Introduction:** Thoracic endometriosis is a very uncommon entity characterized by the presence of foci of endometrial tissue in the thoracic cavity.

**Materials and Methods:** We discuss surgical treatment of 3 women affected by catamenial hemopneumothorax.

**Results:** Three women ( 24, 28 and 39 years old) affected by recurrent right-sided catamenial hemopneumothorax, underwent video assisted thoracoscopic surgery. Thoracoscopically, a dense, cream coloured nodular peel was observed on the parietal pleura surfaces in every patient, associated with small perforations over the tendinous part of the diaphragm with adjacent endometrial implants. Multiple purple colored nodules were seen on the visceral surface of upper and medium lobe in the second woman. In the last patient a small bleb in the parenchyma of the superior lobe was found. A complete decortication and diaphragmatic excision plus reinforced suture was performed in all patients. Where necessary, a bullectomy was performed. All patients are free of recurrence 48, 24 and 28 months respectively, after thoracoscopic treatment.

**Conclusions:** Video assisted thoracoscopic surgery is a suitable approach to treatment of thoracic endometriosis. For patients who present with pneumothorax or haemothorax, surgical pleurodesis with diaphragmatic fenestrations repair has been shown to be useful in preventing recurrence.

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### **Complete Restitutio Ad Integrum After Intrapleural Urokinase for Multiloculated Pleural Empyema. Case Report**

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In May 2008 a non-smoker 48 years old man was admitted at our Department with polypnea, right thoracic pain and fever previously treated with clarithromycin and paracetamol without clinical advantage. Chest X-ray and CT scan showed a large multi-loculated pleural effusion. The patient underwent right echo-guided chest tube, with immediately drainage of 200 mL of purulent pleural fluid. Blood and pleural effusion culture were positive for *Pneumococcus*. Because of poor drainage despite appropriately positioned, we started intrapleural administration of Urokinase through the chest tube. The result was a daily output of 200 mL of pleural fluid, becoming serum mixed to fibrin, with an important improvement of clinical condition. CT scan revealed an important reduction of loculated empyema, with almost complete re-expansion of lung parenchyma. Because of the remaining of a posterior paravertebral loculated pleural effusion, the patient underwent another chest drainage and subsequent instillation of Urokinase through both drainage, with further improvement of clinical condition. CT scan showed a complete restitutio ad integrum, chest tubes were removed and the patient was discharged two days after. In literature the results of intrapleural fibrinolytic therapy for empyema are controversial, but in our experience, in selected cases, this therapy is successfully, avoiding surgical therapy.

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### **Surgical Resection in Elderly Patients: Predictive Factors of Overall and Disease Free Survival in Our Experience**

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**Introduction:** Also in elderly patients radical surgery represents the gold standard therapy, because of poor survival otherwise. We present our retrospective study about possible predictive factors of overall (OS) and disease free survival (DFS) in patients over 75's.

**Material and Methods:** From 2001 to 2008 115 men and 17 women median age 77.1y, affected by NSCLC underwent radical surgery. We retrospectively studied the clinical (sex, smoke, comorbidities,) surgical (type and extension of resection) and neoplasm data (histology, N+, T, stage). 1-3-5 years' OS and DFS

were calculated with Kaplan-Meier score and log rank on 7 years' follow-up.

**Results:** 131 patients completed the study with a median follow up of 43 months; one patient was excluded. We observed a 30-days mortality in 5 patients (3.8%) and a morbidity in 59 (44.7%). 1-3-5 years OS was 85%, 56% and 39%, the 1-3-5 years' DFS was 74%, 47% and 22% respectively. The only significant variables were type of resection in OS ( $p=0.04$ ) and extended resections, T, N+ and cancer stage in both survivals ( $p=0.0001$ ).

**Conclusion:** Age is not a contraindication to radical lung surgery in over 75's NSCLC patients, who have, if correctly selected, the same short and long time results of younger ones. Mandatory is the correct type of resection, radically performed with major lung sparing. Cancer stage determines the OS and DFS.

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### Thoracic Wall Reconstruction After Surgery for Primary and Secondary Tumours: Our 15-Years Experience

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**Introduction:** After extended thoracic wall resections the use of synthetic mesh, armoured ribs and muscle or omental flap helps to repair great defects. We present our 15-years' experience on resection-reconstruction for primary and secondary chest tumours.

**Material and Methods:** 43 men and 14 women median age 60.2y underwent resection and reconstruction often with synthetic mesh, thytanium bars or cyanomethacrilate ribs, covered with omental or muscle flap. In 35 cases there was a lung cancer chest wall involvement, in 16 a primary sarcoma, in 6 metastatic sternal disease.

**Results:** median rib resection was 3.1 ribs. We performed 5 subtotal sternectomies, one total. In 35 cases a polypropylene mesh, with cyanomethacrilate ribs in 7 and thytanium bars in 2 were used; in total sternectomy 2 silicon tubes recreated central ribs, in a subtotal 2 thytanium bars. 20 patients underwent latissimus dorsi flap coverage, 5 pectoralis major. No mortality or major complications minor complications were 6 respiratory failure, 4 atrial fibrillation, 3 wall hematoma. Median hospital stay was 9.8 days. All the patients were disease free and presented good prothesis tolerance.

**Conclusion:** For extended thoracic wall resections we have many reconstructive possibilities. Specific pre-operative assessment, accurate surgical strategy and adequate reconstruction are mandatory for good surgical results.

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### Endoscopic Treatment and Prothesis in Tracheobronchial Neoplastic Obstruction: 8 Years Experience

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**Introduction:** The purpose of tracheobronchial stents is to keep airway patency despite strictures and obstruction that cannot be treated by surgical treatment. These devices are positioned under broncoscope control.

**Materials:** We analyze results of tracheobronchial stents in patients treated in the last 8 years for malignant airway obstruction. We did not include patients with benign postintubation stenosis (29 cases) and benign neoplastic strictures (4 patients).

**Methods:** From august 1998 to august 2006, we observed 36 patient (27 M and 9 F), affected by tracheo-bronchial neoplastic obstruction and not suitable for surgery: 31 primary broncogenic cancers, 2 primary tracheal tumors and 3 stenosis from extrinsic compression (1 thyroid cancer, 1 oesophageal cancer and 1 pulmonary metastasis).

**Results:** All patients seen before 2001 were treated with Nd-yag laser resection. During the last 5 years we cored the tumour out the airway mechanically with the rigid bronchoscope. After resection of tumours all patients had a stent to prevent regrowth and maintain adequate airway patency. We used different kind of silicon stents.

None major complications was detected; 3 patients presented with stent migration and repositioning was necessary.

**Conclusion:** Patients with airway obstruction, not candidate for surgical resection, can be successfully managed with rigid bronchoscopy and stent inserction for a quick and stable palliation with clear improvement of quality and even duration of life.

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### Surgical Treatment of Pulmonary Aspergilloma: Clinical Profile and Surgical Outcome in 194 Cases

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**Introduction:** We reviewed clinical profile, indications, surgical treatment for simple (SA) and complex pulmonary aspergilloma (CA), postoperative complications and long-term outcomes in 194 patients.

**Materials and Methods:** From 1975 to 2009, 194 patients underwent surgery for pulmonary aspergilloma at our Thoracic Surgery Department. The most common indication for surgery was hemoptysis. The common underlying lung disease were lung abscess (39.7%), tuberculosis (31.9%) and bronchiectasis (19.6%).

The procedures performed were 24 pleurectomies and decortications, 28 wedge resections, 19 segmentectomies, 115 lobectomies, 8 pneumonectomies.

**Results:** There were 5 postoperative deaths (2.6%) occurred in CA:2 after pneumonectomy (2/8 25%) and 3 after lobectomy (3/115 2.6%). 4 patients developed postoperative bronchial fistula and wound infections all resolved with thoraco-muscle-omentum-plasty. No death or major complications occurred in SA. During follow-up, none of the patients had recurrent hemoptysis.

**Discussion:** CA resection was associated with high mortality after pneumonectomy and significant morbidity, whereas SA had no associated mortality and morbidity. Long-term outcome is good for SA and satisfactory for CA and is mainly dependent on the underlying lung disease and general condition of patients. Pneumonectomy is the last resort for CA. When it is possible we perform lung sparing resections.

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### Ultrasonography-Guided Radiofrequency Ablation of Lung Tumours

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**Introduction:** Radiofrequency ablation (RFA) of lung tumours is generally performed under CT-guidance but the sonographic one could be a suitable option in selected cases. Herein we report the experience of a single referral centre in Europe.

**Material and Methods:** Since 2001 we performed more than 150 RFAs of lung tumours. Since 2004, 21 procedure were performed via ultrasonographic guidance in 16 patients. They were 11 males and 5 females with a mean age of 71 years. All the patients had pathological evidence of the neoplastic lesion: 11 NSCLC and 5 metastasis. Main selection criteria were: patient not candidate to surgery, lesions smaller than 5 cm and in contact with the visceral pleura. The procedure was performed under local anaesthesia and conscious sedation. Radiological follow-up provided for a CT scan with contrast media at 1, 3, and every 6 months.

**Results:** There was no mortality. Morbidity consisted in 2 cases of haematoma of the chest wall. Seven patients experienced chest pain during the procedure which required a deeper sedation. Five patients who developed a local recurrence or a second lesion were re-treated by RFA. At a mean follow-up of 23.4 months (range 9 – 35) we recorded a 56% of complete responses, which increased to 83% in case of lesions smaller than 2,5 cm.

**Conclusions:** Ultrasonography-guided RFA of lung tumours seems to be feasible and safe. Results in terms of local control of the disease are promising and comparable to those reported in the literature with CT-guidance.

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### Surgical Treatment of a Rare Case of Tracheal Inflammatory Pseudotumor in Pediatric Age

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**Introduction:** Tracheal inflammatory pseudotumor (TIP) is a rare solid lesion characterized by spindle and inflammatory cells proliferation and an unpredictable course. Surgical resection may sometimes be necessary. We report the case of a pediatric patient with respiratory distress due to a TIP.

**Materials and Methods:** A 12-year-old boy presented to us in October 2007 with dyspnoea after some months of wheezing and cough, wrongly treated as asthma. Neck and chest CT scan revealed an intraluminal tracheal mass. Fiberbronchoscopy confirmed the lesion arising from the fifth tracheal ring, involving three rings; it was removed in rigid bronchoscopy. Histopathological examination revealed a TIP. Due to the rapid recurrence of the lesion, two more endoscopic recanalizations were performed. Nevertheless a new recurrence with tracheal wall involvement appeared. Thus a resection of the three involved ring and a termino-terminal tracheal anastomosis were performed through cervicotomy and sternal split.

**Results:** Post-operative course was uneventful. One-year control CT scan with 3D reconstruction and fiberbronchoscopy show a stable tracheal lumen.

**Conclusion:** TIP should be suspected in any pediatric patients with tracheal mass and asthmatic symptoms. Histopathological confirmation is necessary prior to any treatment. After radical removal prognosis is excellent and recurrences are rare.

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### Monocentric Retrospective Analysis of Surgical Treatment of Non Thymomatous Myasthenia Gravis

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**Introduction:** The role of thymus in the pathogenesis of myasthenia gravis(MG) is not clear, but 75% of patients have histological thymus abnormalities. Thymectomy is indicated in myasthenic patients with and without thymoma, even if in the non thymomatous MG(n-TMG) there is not a standardisation of timing and technique of surgery. Benefit from thymectomy in n-TMG has not been established conclusively and there is no univocal determination of independent predictors of positive outcome of



the syndrome. We retrospectively analyze our experience focusing on the MG remission or improvement after transsternal extended thymectomy.

**Materials and Methods:** From 1998 to 2008 we performed 20 thymectomy in n-TMG. We analyze baseline characteristics, with t student's test and  $\chi^2$  (P significant < 0,05); long-term remission rates with Log-rank test. We considered "remission MG" patients with improvement or complete remission (MGFA postintervention status).

**Results:** The mean follow-up was 49 (range 4-96) months. 1 patients died because of MG during follow-up. The remission rate was 74%. There is no significative difference in the two groups (remission vs non remission MG) for the analyzed variables.

**Conclusions:** No predictors of the effectiveness of thymectomy in n-T MG patients was found in our series, except histological thymic hyperplasia, that related with complete stable remission.

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### **Split Latissimum Dorsi Muscle Flap Technique to Protect the Bronchus in Patients at Risk of Bronchial Fistula: Our Experience**

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**Introduction:** We wanted to evaluate the effectiveness of split latissimum dorsi muscle flap to protect the bronchus in patients at risk of bronchial stump insufficiency for associated comorbidities.

**Methods:** We study 13 consecutive patients underwent major lung resections (7 pneumonectomies, 6 lobectomies) for tuberculosis, fungal infection in immunocompromised patients, or lung cancer after induction radiotherapy.

Pleural space was entered through a lateral muscle-sparing thoracotomy. After pulmonary resection all the patients had the latissimum dorsi split, according to its consistent vasculature and its lateral part was raised and transposed into the chest cavity to cover the bronchial stump.

**Results:** We observed nor bronchopleural fistula or complications related to the procedure, none patient developed wing scapula, which is commonly described after the serratus major transposition technique. Split proved to be easy and quick to perform.

**Conclusions:** Although other methods of bronchial coverage have been described, in case of risk of bronchial stump insufficiency for associated co-morbidities we suggest the use of the split latissimum dorsi muscle flap for the following reasons: well vascularized, not excessively bulky, but thick enough to protect the bronchus, easy to raise and transfer in the pleural cavity, it preserves intact most of the latissimum dorsi.

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### **A Rarest Case of Paraneoplastic Extra Limbic Encephalitis Associated with Thymoma**

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**Introduction:** Paraneoplastic neurologic syndromes (PNS) are a rare group of disorders resulting from damage to the nervous system in the setting of cancer, remote from the side of tumour and not related to metastasis, infection, or metabolic derangements otherwise associated with cancer. Thymoma is the most common tumour of the anterior mediastinum. It occurs often with paraneoplastic myasthenia gravis, but is rarely associated with encephalitis. In most cases expansion of brain lesions are confined to the limbic system. This is the 5<sup>th</sup> case ever described of thymoma with cerebral extra-limbic involvement.

**Patient:** A 55 year old woman presented neurologic symptoms as seizure and aphasia; MRI of the head showed multiple lesions located in insular, parietal and temporal lobes. Brain biopsies confirmed the diagnosis of extra limbic encephalitis and thorax CT showed an anterior mediastinal mass suspected for thymoma. The patient was submitted to thymectomy and we assisted to secondary reduction of cerebral lesions and total remission of symptoms.

**Conclusions:** Treatment for extra-limbic encephalitis secondary to a PNS should be directed at underlying disease, a radical dissection should be the target with the best results locally (reducing recurrence) and systemically (clinical improvement).

Our case is an example of total remission of symptoms after radical resection of a thymoma.

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### **Palmar, Axillary and Facial Hyperhidrosis: Results of Concomitant Bilateral Sympathicotomy**

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**Introduction:** We wanted to evaluate clinical and surgical outcome of concomitant bilateral sympathicotomy for the treatment of localized hyperhidrosis.

**Methods:** 51 consecutive patients underwent concomitant bilateral sympathicotomy for hyperhidrosis (35 palmo-plantar, 15 axillary and 1 facial, 1 recurrence) for a total of 103 procedures.

Surgical access was obtained through 2 small incision with introduction of 5-mm trochars. Sympathetic chain was transected at R3, R3-R4 or R2 level, according to the type of hyperhidrosis.

Patients satisfaction was evaluated by pre- and postoperative questionnaire.

**Results:** Mean surgical time was 20 minutes each side. No drain was left at the end of operation and patients were discharged on postoperative day-1. We observed no complication related to the procedure, pain was easily controlled by common analgesic. Compensatory sweating was reported in 23 cases and was severe in 1 case of axillary hyperhidrosis, dysesthesia was reported in 4 cases. In 2 cases the operation was unsuccessful on one side, but one patient refused reoperation. 40 patients were completely satisfied, 10 partially satisfied and 1 completely unsatisfied.

**Conclusions:** Sympathicotomy by minimally invasive thoracic surgery is a very good option for the treatment of localized hyperhidrosis with minimal morbidity and a high degree of satisfaction.

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### Prognostic and Predictive Role of K-RAS and EGFR Mutational and FISH Analyses in Advanced NSCLC Patients

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**Background:** Tyrosine kinase inhibitors (TKIs) seem to be more effective in a subset of NSCLC patients defined by clinical and molecular features. EGFR mutation and amplification have been associated with increased response rate to TKIs, whereas effects on survival are controversial. We want to investigate the prognostic and predictive role of these markers in advanced NSCLC patients.

**Methods:** Tumor biopsies were analyzed from 58 patients who underwent diagnostic or resective surgery for advanced NSCLC from May 2005 to December 2008. Fluorescence in situ hybridization (FISH) analysis and PCR-DNA sequencing of EGFR and K-RAS genes were performed to evaluate the presence of EGFR amplification and EGFR and K-RAS mutation.

**Results:** Mutation analysis was performed in 47 patients and EGFR mutations were present in 13 (28%). So far 39 biopsies were analysed, showing amplification in 17 patients (43%).

Both mutations and amplifications showed no significant correlation with survival, although we found a trend in increased survival for FISH positive and mutated patients treated with TKIs vs FISH-negative and non-mutated patients not treated with TKIs or FISH-positive and mutated patients treated without TKIs ( $p=n.s.$  and  $p=0.06$ ).

Mutational analysis of K-RAS was performed in 43 patients with 11 positive cases (26%). K-RAS-negative patients had a median survival of 99 wks vs 47 wks of K-RAS-positive patients ( $p=0.08$ ).

**Conclusion:** In a group of patients selected according to clinical features, mutational and FISH analyses can identify a subset of patients most likely to benefit from TKIs and a role of molecular analysis in the clinical practise.

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### Long and Early Impact of the Use of Marginal Donors in Lung Transplantation

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**Background:** Despite an increasing number of patients awaiting LT, the number of donor is almost equal, leading to an increasing waiting list mortality. To increase the number of donor several centres has expanded the criteria of donor acceptability.

Aim of this study is to verify the results of LT with the use of marginal donor lungs.

**Material and Methods:** We retrospectively analysed clinical and surgical data about 167 lung donors and the 171 recipient between 1995 and 2007.

**Results:** We used 71 (%) marginal and 96 (%) ideal donors (control group).

Cold ischemic time was  $380\pm 100$  min for marginal lungs,  $347\pm 98$  min for ideal lungs ( $p=0.03$ ); PaO<sub>2</sub> with FiO<sub>2</sub> of 100% was respectively  $414\pm 111$  mmHg and  $430\pm 103$  mmHg ( $p=0.42$ ).

Perioperative mortality was 13.5% in the marginal group and 8.2% in the ideal group ( $p=0.33$ ). Perioperative mortality in marginal donor recipients was higher when more than one marginal factor was present and in cases of purulent secretions at bronchoscopy.

5-year overall survival was 50%; no difference was found in 5-year survival between recipients of ideal and marginal lungs (51% vs 47%;  $p=0.57$ ).

**Conclusions:** No statistical differences were found between the two groups in mortality, morbidity and survival. The presence of more than one marginal criteria should be considered an additional risk factor such as the presence of pathologic fiberoptic bronchoscopy or PaO<sub>2</sub><300 mmHg. Prolonged cold ischemic time should be also avoided using marginal lungs.

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### Evolution of Thoracoscopic Sympathetic Surgery for Primary Palmar and Axillary Hyperhidrosis: Results After 15 Years Experience

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**Purpose:** Several methods have been proposed for surgical approach to palmar and axillary hyperhidrosis, all based on the interruption of the thoracic ganglionic chain. The purpose of this study is to compare our immediate and long term outcomes of sympathectomy versus sympathectomy.

**Patients and Methods:** Between 1993 and 2007, 88 patients underwent surgery for palmar and axillary hyperhidrosis. Different videothoroscopic approaches were used, always through 2 accesses: 24 T2-T4 sympathectomies with 10 and 5 mm trocars, 43 T2-T4 sympathectomies with 5 and 2 mm trocars, 15 T3-T4 sympathicotomies with 10 and 5 mm trocars and 6 T3-T4 ganglionic blocks with 5 and 2 mm trocars.

**Results:** Comparing the immediate remission rates we observed similar results for patients who underwent sympathectomy or sympathicotomy with rates of 96% and 100% respectively. Patients treated by T2-T4 sympathectomy with 10-5 mm trocars had more frequently palmar anhidrosis, transitory intercostal neuralgia, compensatory hyperhidrosis and recurrences.

**Discussion:** The thoroscopic approach to hyperhidrosis had a great evolution in the last decades with a consequent decrease of side effects.

**Conclusion:** In our experience there seems to be no significant differences in long term outcomes between sympathectomy and sympathicotomy, while ganglionic block has the advantage of early reversibility.

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### **Endovascular Treatment in the Management of Hemoptysis: an Alternative to Surgery**

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**Introduction:** We retrospectively reviewed all our data in order to establish whether arterial embolization can be considered an effective and safe alternative to surgery for hemoptysis.

**Material and Methods:** From 2000 to 2009, 190 patients were referred to our thoracic surgery unit with hemoptysis. All of them were evaluated with CT scan and FOB, which revealed a source of bleeding in most cases; 27 of them with hemoptysis of unknown etiology underwent angiography.

Recent follow up data were obtained from each patient whenever possible.

**Results:** 12 male and 15 female patients, aged between 17 and 81 (mean age 50,5) underwent angiography. 12 (44%) of them had underlying comorbidities (pulmonary TB, PAVM, bronchiectasis, CF). A total number of 39 angiographies and 42 embolizations were performed.

Critical care physician's intervention was necessary in 6 cases.

Immediate control of bleeding was obtained in 36 cases (92%). Recurrence was registered in 13 cases, but only 3 of them were severe enough to require embolization.

Emergency surgical treatment was avoided in all but one young girl with cystic fibrosis, who had massive hemoptysis leading to ARDS. She already was waiting for lung transplantation which was performed on the occasion.

**Conclusion:** Endovascular treatment is an effective therapeutic option in management of hemoptysis. We suggest it to be used in order to avoid surgery whenever possible.

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### **Cutaneous Verrucous Carcinoma Presenting as a Huge Ulcerated Mass of the Thorax**

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**Introduction:** Verrucous carcinoma is a rare well-differentiated squamous-cell carcinoma. We report a case of a huge verrucous carcinoma of the chest wall.

**Material and Methods:** An 82-year-old man presented with a 50-year history of a painless, slow-growing mass of the left-lower side of the posterior chest wall. His past medical history was unremarkable. The lesion appeared as an ulcerated, exophytic mass measured 24 x 18 cm. A chest CT-scan revealed the tumour extending from the level of the 6<sup>th</sup> left rib to the left iliac crest. The tumour mass largely infiltrated the soft tissues of the thorax and reached the lumbodorsal fascia with no sign of invasion. The ribs were also tumour-free.

**Results:** The surgical procedure consisted in a wide excision of the mass with free margins of 10 mm; the parietal defect was covered by harvesting two rotated fascio-cutaneous flaps of the lumbar lateral regions and a Thiersch thigh flap for covering the central part of the defect. The post-operative course was uneventful. The patient was discharged on day 8. The histologic exam revealed a well-differentiated cutaneous verrucous carcinoma with free margins. No recurrence was noted 15 months later.

**Conclusion:** Even in case of huge tumour mass, surgical resection is recommended. In this patient, the surgical reconstructive phase was particularly challenging because of the large extension of the excision.

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### **Surgical Treatment of Chronic Parapneumonic Empyema: Relationship Between Surgical Procedures and Long-Term Functional Results**

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**Introduction:** Long-term functional results after surgical treatment of parapneumonic empyema are poorly investigated.

**Material and Methods:** Retrospective study of surgical treatment of parapneumonic empyema. Two different surgical procedures (debridement/decortication) and approaches (VATS/thoracotomy) were compared. Three end-points were considered: short-term surgical results, short and long-term radiological

results, clinico-functional long term results. Cross-tabs correlations and multivariate analysis were performed.

**Results:** 51 debridement (53% VATS, 47% thoracotomy), 68 decortication were performed. VATS debridement had lower postoperative hospital stay ( $p=0.006$ ), shorter duration of chest drainage ( $p=0.006$ ). 60 patients (58%) had a complete respiratory recovery. VATS debridement had greater improvement in subjective dyspnoea degree ( $p=0.041$ ). The long-term spirometric evaluation was normal in 58 patients (56%): 6 patients (6%) with FEV1<50%. Long-term functional results were not related to surgical approach or surgical procedure. Older age negatively effected long-term functional results ( $p=0.039$ ).

**Conclusion:** Surgical treatment of pleural empyema has excellent long-term respiratory outcomes. VATS is associated to less postoperative mortality, shorter hospital stay and better long-term functional results. Long-term functional improvement are less warranted in elderly patients.

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### **Pleural Granuloma Mimicking Malignancy 42 Years After Pleural Slurry Talc Injection for Primary Spontaneous Pneumothorax**

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**Introduction:** Talc poudrage is considered a safe pleurodesis technique to improve results of VATS treatment for Primary Spontaneous Pneumothorax. We report a case of a patient with left pleural pseudo nodular plaque with high metabolic rate at PET scan suspected for malignancy, occurred 42 years after slurry talc injection for conservative treatment of PSP.

**Material and Methods:** A 60 years-old man presenting cough, chest pain and weight loss, reported left PSP treated with simple drainage and slurry talc injection. Trans-thoracic FNAB wasn't diagnostic so he underwent surgical biopsy through left VATS converted to thoracotomy because of the presence of strong adherences. Blood transfusions were required postoperatively.

**Results:** Hystological specimens were examined and the pathologist concluded for chronic granulomatous pleuritis caused by foreign body reaction, likely talc.

**Conclusions:** Pleural cavity talc injection is a safe and effective method to achieve pleurodesis in PSP, but it has to be considered that talc is an inflammatory agent which can also lead to a chronic granulomatosis difficult to be distinguished from malignant disease with non-invasive diagnostic procedures, even though in this patients the presence of adherences of the previous treatment makes surgical re-exploration of pleural cavity very difficult.

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### **Pediatric Thoracic Surgery: Our Experience in 250 Patients**

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**Introduction:** Pediatric thoracic surgery (PTS) is often a difficult challenge because of important anatomical and pathophysiological differences between adult and pediatric patients. We present our experience on PTS during the last decade.

**Materials and Methods:** We retrospectively analyzed the data of 250 pediatric patients (age range: 0-16 years), with respiratory diseases, who were admitted to our Institution and underwent thoracic surgery procedures from January 1998 to June 2008. Patients were classified considering the type of disease: malformative (34), infectious-inflammatory (41), traumatic (4), dystrophic (29), neoplastic (35), foreign body inhalation (97), endothoracic foreign body (1), difficult intubation (9).

**Results:** There were no post-operative complications, except for one case of chylothorax following resection of a huge right paravertebral ganglioneuroma; conservative treatment with pleural drainage, total parenteral nutrition and talcage allowed to obtain spontaneous resolution on 20th post-operative day.

**Conclusion:** An accurate knowledge of anatomical and functional differences between pediatric and adult patients and an optimal cooperation between surgeon and anesthesiologist are mandatory to reduce morbidity and mortality in PTS; with such recommendations, every procedure can be performed with excellent results, in a safe way and without complications.

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### **Update on Talc Pleurodesis. What's New?**

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**Introduction:** Talc is currently the most common agent used for pleurodesis. Despite its role acknowledged as an effective bed side strategy primarily in neoplastic pleural effusion, recently it has been introduced in the treatment of benign diseases such as spontaneous pneumothorax. Aim of this study is to investigate side effects and results of different concentrations of talc pleurodesis (TP) in rabbits.

**Materials and Methods:** Twenty-six New Zealand rabbits were randomly injected intrapleurally with saline (n=6) or talc slurry at usual dosage 40mg/kg (T40, n=10) and 200mg/kg (T200,

n=10). Chest tube was opened at day1 post-operative and removed in day4. Clinical signs and symptoms, fluid lactate dehydrogenase and protein levels were measured daily after the injection until drainage removal, then on day7 and before sacrifice. All groups were equally divided in two endpoints: day14 and day28. At post-mortem examination, pleurodesis was graded, according to Light criteria, from 1(none) to 8(>50% symphysis), by two observers blinded to treatment groups.

**Results:** Adverse reactions were discovered with fever and weight loss in T200 group at 14 and 28 days. Pleurodesis score in the control Saline was negative while it did not differ significantly between T200 (4.0±1.4 at 14 days, 4.2±1.6 at 28 days) and T40 (2.8±2.0 at 14 days, 3.6±1.9 at 28 days) at days 14 and 28 (p=0.25 and p=0.56 respectively). Microscopically several granulomas, moderate localized pleural thickness, few areas of neoangiogenesis and mediastinal lymphatic tissue infiltration were present in both study groups.

**Conclusions:** TP at usual clinical dosage is well tolerated with acceptable clinical results. By increasing the concentration we observed severe side-effects with only mild improvement of pleurodesis.

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### Rare Tumours of the Lung: A Single Centre Experience

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**Introduction:** A rare tumour of the lung (RTL) is defined as neoplasm whose incidence is lower than 2% of all pulmonary tumours. Such group includes different benign and malignant lesions with variable occurrence rate. Aim of this study was to retrospectively analyze a single centre surgical experience and compare it with the literature.

**Patients and Methods:** From February 2002 to April 2009 twenty-four patients underwent resection for RTL. Different procedures were utilized, including operative rigid bronchoscopy, wedge resection, lobectomy, pneumonectomy, and bronchoplastic procedures. All patients entered a follow-up program (median 22, range1-79 months).

**Results:** According to the 2004 WHO classification 6 patients had benign (Group A) and 18 malignant (Group B) RTL. Group A: endobronchial hamartoma (n=1) endobronchial lipoma (n=1), endobronchial fibroepithelial polyp (n=1), benign fibrous histiocytoma (n=1) and sclerosing hemangioma (n=2). Group B: pulmonary blastoma (B1, n=1), mucoepidermoid carcinoma (B2, n=1), adenoid cystic carcinoma (B3, n=3), inflammatory myofibroblastic tumour (B4, n=1), pulmonary synovial sarcoma (B5, n=3), dendritic follicular cells sarcoma (B6, n=1), pleomorphic carcinoma (B7, n=2) spindle cell carcinoma (B8, n=2), and carcinosarcoma (B9, n=4). Symptoms were present mostly in centrally-located neoplasms (10/24, n=3 Group A and n=7 Group B). Two patients were lost at follow-up. Three patients with B9 died of the

disease (median 14 months, range 4-15), one B8 immunocompromised patient had progressive disease after 3 months, the remaining are present alive without evidence of disease.

**Conclusions:** Our results substantially reflect the literature data. A multicentre study would add to the knowledge of this heterogeneous group of tumours.

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## Maxillo-Facial Surgery

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### Stability of Orthodontic-Maxillofacial Surgical Treatment of Skeletal Anterior Open-Bite: 1 to 12 Year Follow Up

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**Objectives:** Seventeen patients presenting anterior skeletal open bite were analyzed retrospectively to evaluate the stability of their surgical/orthodontic treatment using rigid internal fixation.

**Materials and Methods:** All patients (mean age of 24,9 years, SD: 6,2) were studied before orthodontic treatment (T0), before surgery (T1) and after surgery (T2), at the end of the orthodontic treatment (T3) and in the follow-up period (T4), with dental casts, radiographs and cephalometric study. The surgical procedures were Le Fort I osteotomy and bilateral sagittal split mandibular osteotomy.

Patients were classified into 4 groups according to the characteristics described by Ellis: Class II dental and skeletal malocclusion treated with a one-piece (Group 1a) or multipiece (Group 1b) Le Fort I. Class III dental and skeletal malocclusion treated with a one-piece (Group 2a) or multipiece (Group 2b) Le Fort I.

Follow up was from 13 to 148 months (mean: 51,4 months, SD: 39,5).

**Results:** 14 of 17 patients (82,5 %) were clinically stable at the final examination. 3 patients (17,5%) showed relapse producing an end-to-end or negative overbite relationship.

9 patients underwent one-piece Le Fort I: the overbite showed further refinements: Group 1a presented 0.8 mm in T2 and 0.8 mm in T4, while Group 2a shows 0.4 mm of overbite in T2 and 0.8 mm in T4; the inferior facial height relapsed slightly during the follow-up period.

8 patients underwent multipiece Le Fort I: the overbite improved between T2 and T4: Group 1b presented 0,5 mm in T2 and 0,6 mm in T4 while Group2b shows -0,8 mm in T2 and 2 mm in T4; the inferior facial height also improved slightly during the follow-up period respectively.

**Conclusion:** From this retrospective analysis, we conclude that the correct diagnosis and proper surgical and orthodontic treatment give good stability, function and esthetics.

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### **Homologous Bone Grafting for Atrophic Maxilla: Clinical and Histological Findings**

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**Introduction:** Homologous bone is one of the materials used in the surgery of severe atrophic maxilla for an implant-supported rehabilitation. The aim of this study was to evaluate if homologous bone grafting is an evidence-based treatment to create adequate bone volume in the maxilla for the placement of endosseous implants.

**Materials and Methods:** A systematic review of the literature was undertaken to evaluate the effects of homologous bone grafting in term of long-term stability or resorption, histological and histomorphometrical analysis and implant survival and success rate. The search was undertaken using the PubMed database and manually. The EBM evaluation parameters were used to assess each article.

**Results:** The search provided 227 titles. Eligible papers showed a positive effect in favour of new bone formation (range: 28% - 48%) and presence of residual graft particles (range: 7.29% - 52.4%) at a mean time of 6 months. The implant survival at the augmented sites varied from 89% to 100%, while the success rate of the grafts varied from 68.18% to 100% for a period between 6 and 72 months.

**Conclusion:** For the concept of bone augmentation with homologous bone to enable dental implant placement, there are clinical and histological data supporting its potential use, even if the generalization of this approach is limited at this time.

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### **Use of Fresh Frozen Bone Allograft (FFBA) in Surgical Rehabilitation of Severe Atrophic Jaws**

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**Introduction:** In case of loss of teeth due to maxillary resorption with ongoing alteration of inter-maxillary alignment and reduction of keratinized mucosa, the aim of implantoprosthodontic rehabilitation is to restore qualitative and quantitative morphology of hard and soft tissues. Autologous bone has osteoinductive, osteoconductive and osteogenetic properties, but its use is subject

to certain disadvantages such as: Longer surgical time due to the graft harvesting, increased morbidity, limited amount of bone can be harvested from each donor site. Unpredictable resorption without implant load. The aim of this study is to analyze clinical, histological and histomorphometric results of homologous bone for implantoprosthodontic rehabilitation in severe atrophic jaws.

**Material and Methods:** 15 patients were treated with homologous bone bank.

Treatment protocol consist of : I surgical step ,trasversal and vertical volume restore ,II surgical step: screw remove ,specimen biopsy and insert implant fixtures ,IIIstep: mucogingival surgery and prosthesis rehabilitation.

**Results:** Data shows that FFBA could be a valuable substitute of autologous bone. Histological and histomorphometric results are widely overlapping.

**Conclusion:** Thanks to large availability, low costs, versatility, no morbidity reduced hospitalization homologous bone is a valuable option for the reconstruction of atrophic jaw.

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### **Anomalies of Development of Hard Tissues. Our Approach to a Serious Case of Cherubism and a Monostotica Fibrous Dysplasia in Patients with CFCS**

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**Introduction:** The cherubism is an autosomal dominant syndrome characterized by osteolytic lesions of the jaw. The cranio facial fibrous dysplasia is a fibro-osseous lesion benign congenital non-family. Case report. A patient 11 years old came to our observation in May 2007 with dysplasia of the jaw. The family history was negative for cherubism. Clinical examination found bilateral expansion of the mandible and maxilla with dental malocclusion and the absence of some permanent teeth. The impressive growth of the maxilla on the right caused a false exophthalmos, resulting in "scleral show" and diplopia. The orthopantomogram and CT showed the characteristic radiological signs of disease. The histological examination was positive for diagnosis of cherubism. Our patient belongs to grade VI according to the grading system of Notamedia changed. In agreement with the international literature we have adopted an attitude of "wait and see". Surgical treatment of the disease orbit was necessary to prevent functional damage. Case report. A patient 3 years old suffering from CFCs came to our observation with a lesion of the left mandible. The histological examination showed monostotic fibrodysplasia. The patient was undergoing surgery twice. It was done a follow up quarterly and currently the patient has no recurrence. In literature is not described monostotic fibrodysplasia in combination with CFCs.

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### **Secondary Reconstruction of Alveolar Bone Defects in Alveolar Cleft Using Demineralized Freeze-Dried Bone Allograft in Hyaluronic Acid (DBX)**

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**Introduction:** The purpose of this study was to assess the amount of newly-formed bone in twenty patients with alveolar cleft treated with allogeneic bone DBX

**Material and Methods:** We treated twenty patients aged 17-20 years (mean 19 years). Examinations are performed with CT scans at 2 mm in the preoperative to three months and one year after surgery.

We calculated the volume of bone defect and the bone bridge formed by using an image scanner and a personal computer.

**Results:** The mean volume of the defect of the patients was  $0.9 \pm 0.3 \text{ cm}^3$ . The corresponding volume of the bone bridge formed and three months and after one year was  $1.2 \pm 0.5 \text{ cm}^3$  and  $0.9 \pm 0.5 \text{ cm}^3$ , respectively. The value of one year carried significantly decreased compared with that in three months.

**Conclusions:** This study confirmed the hypothesis that DBX can be used successfully for alveolar cleft reconstruction and that an adequate bone volume was maintained at one year with an acceptable volume of reabsorption.

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### **Reconstructive Methods in Head and Neck Squamous Cell Carcinoma**

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**Introduction:** Head and neck squamous cell carcinoma amount for 90% of all the cancer in this anatomical district. It occurs most frequently in old males (age>50). Causes of carcinoma are noted and they are represented by: smoke; alcohol abuse; traumas of oral mucosa; HPV16; bad oral hygiene; preneoplastic lesions; immunodeficiency syndrome ect. Prognosis of head and neck carcinoma is tightly linked with the clinical stage. In stage I and II survival rate amounts for 85% after 5 years, instead of in stage III and IV it amounts for 25% after 5 years. Reconstructive methods depend on the entity of substance loss. Primary closure can be obtained with local wrapping flaps, pedicle flaps and free vascularized flaps

**Material and Methods:** In this article we show some cases of head and neck squamous cell carcinoma treated in the Maxillo-Facial Surgery department of the University of Rome "Tor Vergata" from 2002 to 2008.

**Results:** In the patients we obtained a good functional and aesthetic reconstruction with an improvement of the patients' quality life.

**Conclusion:** Indications to the different reconstructive methods depend on the gap's entity, type and patients' performance status. Good functional and aesthetic results can also be obtained if an exhaustive diagnosis and preoperative programme is performed.

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### **Fronto-Ethmoidal Mucocoele: A Complication of Frontal Sinus Osteomas**

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**Introduction:** Osteomas are uncommon (incidence :0,01-0,43%), benign osteogenic neoformations with slow evolution mostly asymptomatic, diagnosed accidentally, affecting subjects aged between 12 and 73 years. They are divided into two categories: ivory and mature.

**Materials and Methods:** The authors in this work report their experience on the treatment of frontal sinus osteomas causing a fronto-ethmoidal mucocoele.

**Discussion:** Asymptomatic osteomas, according to Savic & Djeric have to be surgically treated: if they extend beyond the boundaries of the frontal sinus or they are located near the fronto-nasal duct. Insistent, neuralgic crisis are the main symptom and when osteomas reach a relevant size they may also cause a deformation of the frontal region and of the orbital contour, exophthalmos, or encourage the formation of a fronto-ethmoidal mucocoele (12.5%-50%) as a consequence of the frontal sinus drainage obstruction, causing neurological disorders and impaired vision.

**Conclusion:** The intervention may be performed with various techniques: the sopra-orbit way more conservative; the fronto-anterior way easier, although burdened by residual scarring more pronounced at the eyebrow and possible residual anesthesia in the frontal and the eyebrow region ;finally the most recent functional Endoscopic Surgery Sinus (Fess-Endoscopic Sinus Surgery) indicated for small osteomas

## Tricks and Pitfalls in the Esthetic of the Nose After Maxillary Advancement

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**Introduction:** Improving facial aesthetics has been shown to be a strong motivation factor in patients who decide to undergo orthognathic surgery. The nose is a keystone of facial esthetics and thus is of central importance in planning and execution of orthognathic surgery. Successful outcomes include not only a well-balanced skeletal relationship but the secondary modification of soft tissues due to skeletal movements. In consideration of the close relationship of the maxilla to the nose, it is not a surprise that Le Fort I osteotomies have the greatest effect on the appearance of the nose. Tip upturning and flaring nasal base are probably the most common modification that occurs after maxillary surgery.

**Material and Methods:** From January 2007 to January 2009 86 patients with dento-facial deformities and malocclusions underwent orthognathic surgery. Patients met the following criteria: 1) adult older than 19 years; 2) good health status; 3) underwent Le Fort I osteotomy; 4) all patients had presurgical and postsurgical orthodontic treatment.

**Results:** There was no relapse or other major complications requiring reoperation. Nasal features were recorded in each patient in a 6 months follow-up.

**Discussion and Conclusion:** Tip upturning and flaring nasal base are the most common modification that occurs after maxillary surgery. Authors due to their experience in orthognathic surgery found out a new angle, the UT angle that can predict how the tip of the nose will upturn in maxillary advancement, and describe a new alar cinch suture technique that seems to be very useful and effective.

## Ultrasonography Guided Core Biopsy Versus Fine Needle Cytology of Parotid Masses: A Comparative Study

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**Introduction:** The first approach for adequate management of a parotid mass is ultrasound guided biopsy. In this study we compared the efficacy of fine needle aspiration cytology (FNAC) versus core-biopsy (FNAB).

**Materials and Methods:** From July 2007 to February 2009, 15 patients have undergone Echo-guided biopsy of parotid mass. Ten of these patients received FNAB (18 G) and the remaining 5

received FNAC (21-23 G). All the patients were treated surgically and histopathological exams were compared with preoperative findings.

**Results:** In 9 cases of FNAB preoperative diagnosis was confirmed by histopathology (5 pleomorphic adenoma, 3 Warthin tumours, 1 basal cell adenoma), in only 1 case the FNAB specimen was inadequate. In 3 cases of FNAC the preoperative diagnosis was correct (2 pleomorphic adenoma and 1 Warthin tumour), but in 2 cases the FNAC was inadequate for diagnosis (1 adenoma and 1 adenoid cystic carcinoma).

**Conclusion:** In our experience FNAB reveal the best findings in preoperative diagnosis of parotid lesions, compared with FNAC. FNAB should be the first choice in preoperative diagnosis of parotid solid masses, while FNAC constitutes the diagnostic approach only in cystic lesion.

## Transplant Surgery

### Liver or Combined Liver-Kidney Transplantation in Polycystic Disease

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**Introduction:** Autosomal dominant polycystic kidney disease ADPKD is a rare disorder, characterized by multiple macroscopic liver and kidney cysts. Isolated Liver transplantation or combined with kidney is a treatment option for these patients with regards to complications arising in hepatic and kidney cysts that are not controlled by other procedures.

**Material and Methods:** Between 2003 and 2008, 8 patients with ADPKD underwent liver (n=4) or liver-kidney (n=4) transplantation at Transplant Center of Modena. Patient mean age was 47 (range:36-57) The main indications for transplantation were cachexia, muscle atrophy, loss of weight, recurrent cyst infection, portal hypertension, ascites, progressive renal impairment (with a glomerular filtration rate GFR below 30 ml/min\1.73mq) (n=2) or complete renal insufficiency (n=2) with a need for hemodialysis.

**Results:** Mean pretransplant GFR in patients who underwent solitary liver transplantation (LT) was 95ml/min\1.73mq (range:72.6-120.2 ml/min\1.73mq) while in patients who underwent liver-kidney transplantation (L-KT) was 21.96ml/min\1.73mq (range:10-16.1ml/min\1.73mq). The mean Meld was respectively 10.3 (range:8-11) and 20.2 (range:18-21). All patients had normal liver function. The median follow-up was 28.4 months (range:5.13-66.31). The mean GFR at the last follow-up visit was 57.86ml/min\1.73mq (range:37.5-111.6 ml/min\1.73mq) in L-KT group and 84.3ml/min\1.73mq (range:14.7-146.7ml/min\1.73mq) in LT group. There was 1 episode of acute liver cellular rejection.



tion, there were no surgical complications or sepsis. At present all patients are alive.

**Conclusions:** Orthotopic liver transplantation or combined liver-kidney transplantation in patients with symptomatic polycystic disease is an excellent and fully curative treatment. Transplantation improves physical health and quality of life, with good results relative to morbidity and mortality.

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### Outcomes and Predictive Factors of Early Graft Dysfunction After Living-Related Liver Transplantation

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**Introduction:** By definition, small-for-size graft dysfunction following living-related liver transplantation (LRLT) is characterized by post-transplant graft dysfunction when the graft-to-recipient body weight ratio (GRBWR) is below 0.8%. However, patients transplanted with GRBWR above 0.8% can develop dysfunction.

**Materials and Methods:** In 73 recipients of LRLT (all with GRBWR > 0.8%) we identified 10 patients who developed a condition that we define as early graft dysfunction (EGD), characterized by: 1) onset within two weeks after LRLT; 2) total bilirubin higher than 5 mg/dl, and/or output of ascites more than 1 L/day; 3) exclusion of technical, infective and immunological complications.

**Results and Conclusion:** A solid trend in favor of the non-EGD group (3-month actuarial survival 98% vs. 88%,  $p=0.09$ ; 3-month graft mortality 4.7% vs. 20%,  $p=0.07$ ) was observed, as well as longer length of stay (13 vs. 41.5 days;  $p=0.05$ ). Univariate analysis of pre-transplant variables identified INR, platelets, liver volume and serum bilirubin as predictors of EGD.

EGD might be identified preoperatively and is associated with increased morbidity after LRLT. Although a larger number of patients need to be evaluated to reinforce this clinical observation, a prompt recognition of EGD can trigger a timely and appropriate treatment.

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### Sirolimus-Based Immunosuppression Therapy in Liver Transplantation for HIV Patients

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**Introduction:** Sirolimus (SRL) is a macrolide lactone which has proven antifungal, antitumoral, and immunosuppressive properties. SRL inhibits HIV-1 progression reducing CCR5-gene transcription, the response to interleukin-2 (IL-2), the SRL-FKBP12 complex inhibits the mammalian target of rapamycin (mTOR) and up-regulates the  $\beta$ -chemokine macrophage inflammatory protein (MIP-1 $\alpha$ , MIP-1 $\beta$ ). We present a retrospective study regarding HIV co-infected patients receiving SRL monotherapy after Liver Transplantation (LT).

**Methods:** Since June 2003, 18 HIV patients have received a cadaveric donor LT due to ESLD. Moreover, 12 of these patients were also affected by Hepatocellular Carcinoma, 14 affected by HCV. Mean Meld score was 22 (range 9-32). Patients were assessed using the following criteria for HIV characterization: CD4 T-cell-count over 100/mL, HIV-RNA levels lower than 50 copies/mL. Mean primary immunosuppression was based on Calcineurin Inhibitors (CNIs), but 8 patients were switched to SRL monotherapy due to CNIs adverse effects or Kaposi's Sarcoma. SRL was the primary immunosuppressant in 4 patients.

**Results:** Cellular rejection occurred in 3 patient under CNIs and in 1 patient under SRL. HCV recurrence arose in 7 patients under CNIs; two other patients, after conversion to SRL, developed HCV-RNA clearance. Mean switch period from CNIs to SRL was 67 days (range: 10-840 days). Significant better control of HIV and HCV replication was found among patients taking SRL monotherapy.

**Conclusions:** According to experimental evidence of SRL antiviral properties, our series shows a significant benefit in long-term immunosuppression maintenance and outcome from HCV recurrence. Also SRL seems to improve the control of HIV-1 replication post-LT.

### Salvage Liver Transplantation for HCC Recurrence in Patients Previously Underwent Liver Resection: Our Experience

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**Introduction:** In the treatment of small hepatocellular carcinoma (HCC) on well-compensated cirrhosis, liver resection (LR) allows to obtain good overall survival (OS) and disease free survival (DFS). However 5-years HCC recurrence rate is about 40-70% in several series. Aim of the study was to evaluate the outcome of patients underwent liver transplantation (LT) for HCC recurrence after LR.

**Materials and Methods:** From 2004 we carried out 135 LT for HCC (mean of follow-up was 30.6±20.1months). 9 of these 135 LT group had a salvage liver transplantation (SLT) for HCC recurrence after liver resection. We have analyzed OS and DFS at 5 years in SLT vs primary LT (PLT) for HCC. Moreover we have performed a multivariate analysis in all transplanted patients for HCC to identify the independent variables associated to HCC recurrence. Cox Hazard Regression took in account LR prior to transplantation, Milan Criteria (in/out), Grading, microvascular invasion, cirrhosis aetiology, donor age.

**Results:** The OS and DFS was respectively 73% and 77 in PLT group vs 77.8% and 66.7% in SLT group. HCC recurrence rate was 33% (3 cases) in SLT and 9,5% (12 cases) in PLT. All patients who develop HCC recurrence after SLT, were out of Milan Criteria at the time of LT. The multivariate analysis showed that HCC out of Milan Criteria and microvascular invasion were the two recurrence predictive factors.

**Conclusions:** SLT for HCC recurrence after Liver resection may represent a useful surgical strategy for those patients who were in Milan criteria at time of recurrence.

### An over Eight-Year Italian Experience in Clinical Intestinal and Multivisceral Transplantation

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**Introduction:** To report the experience in intestinal transplantation in an Italian single Center.

**Patients and Methods:** Between December 2000 and March 2009, we performed 43 intestinal transplants in 42 adult patients: 32 isolated intestinal and 11 multivisceral (5 with liver). In 3 cases abdominal wall transplant was added. Underlying diseases were mainly represented by short bowel syndrome (20 patients), chronic intestinal pseudo-obstruction (9 patients) and Gardner Syndrome (10 cases). Indications for transplantation were: loss of venous access, recurrent sepsis, electrolyte-fluid imbalance; reversible liver dysfunction was present in 19 cases. Immunosuppressive regimens were based on Daclizumab, Tacrolimus and steroids up to 2002, and Alemtuzumab or Thymoglobuline combined with Tacrolimus thereafter.

**Results:** After a mean follow-up of 1284 ± 1004 days, actuarial 5-year patient survival is 58 % for isolated intestinal and 27 % for multivisceral transplant (p= 0.01), while 5-year graft survival is 52 % for isolated intestinal and 27 % for multivisceral transplant (p=0.06). The main cause of death was sepsis (57 %); the main cause of graftectomy (8 patients) was sepsis (75 %). Among the 21 recipients alive 90,5 % has a normal bowel function with a regular diet without parenteral support, 2 patients (9,5 %) are on parenteral nutrition (1 patient waiting retransplantation).

**Discussion and Conclusion:** In our series, isolated intestinal transplant has better results in terms of survival. In cases of pre-transplant liver dysfunction timely isolated intestinal transplant can prevent the progression to liver failure. If possible, surgical intestinal rescue assures better results avoiding immunosuppression complications.

### The Positive Effect of Mycophenolate Mofetil on the Histology Course of Epatitis C After Liver Transplantation

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**Background:** Hepatitis C virus (HCV) recurrence after orthotopic liver transplantation (OLT) is almost universal. The optimal immunosuppression for these patients is still under discussion. We designed a prospective case-control study to evaluate the effect of mycophenolate mofetil (MMF) monotherapy treatment in patients with recurrent hepatitis C.

**Material and Methods:** Fifteen patients with histologically proven hepatitis C recurrence after OLT were under MMF treatment from 48 months. We matched them with 15 calcineurin inhibitors (CNI) treated liver transplant recipients with the same follow up. Baseline biopsies of both groups were comparable in terms of fibrosis rate. Liver protocol biopsies were obtained yearly during the study.

**Results:** Comparison of fibrosis showed no impairment of histological findings in the MMF group [2.6±1.5 (baseline) vs 2.7±1.8 (after 48 months MMF treatment), p= 0.6]. Histological findings of the 15 CNI patients showed a significant increase of fibrosis [2 (baseline) vs 3.2 (after 48 months CNI), p=0.0002].

The MMF group showed a yearly fibrosis progression rate of  $0.05 \pm 0.44$  vs  $0.33 \pm 0.24$  of CNI group ( $p=0.04$ ). Viral load was similar when alanin amino transferase (ALT) levels, measured during MMF treatment, showed a significant decrease [ $74 \pm 40.5$  UI/L vs  $40.3 \pm 22.0$ ,  $p=0.01$ ]. Furthermore MMF group showed a favourable impact on the cholesterol [ $162.9 \pm 39.3$  vs  $143.0 \pm 34.3$  mg/dl,  $p=0.01$ ], triglycerides [ $148.9 \pm 57.9$  vs  $116 \pm 44.8$  mg/dl,  $p=0.02$ ] and creatinine [ $1.9 \pm 0.9$  vs  $1.3 \pm 0.3$  mg/dl,  $p=0.001$ ] course levels.

**Conclusion:** MMF monotherapy showed a positive effect on fibrosis progression and ALT levels compared to CNI transplant patients. This study confirm the favouring impact on metabolic assay in MMF treated patients.

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### Incidence of Non-Melanoma Skin Cancer Following Human Solid Organ Transplantation

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Increasing evidence, that nonmelanoma skin cancers (NMSC) are the most frequent tumours in transplanted patients. The present study aimed to set going first Hungarian dermatological screening program to establish the incidence of NMSC after organ transplantations.

116 adult, white skin-typed transplanted (kidney, simultaneous pancreas-kidney) patients (70 male, 46 female; median age: 49.3 years) have been involved from September of 2008 on the Surgical Clinic of Pecs University. All patients were examined by one dermatologist for NMSC by a full skin examination, and they filled a standardized questionnaire.

Screening resulted 16 NMSC (13.8%, median age: 60 years, male/female=1:1) with a median duration since transplantation of 4.1 years. Histology showed 13 basal cell carcinoma (BBC), 3 squamous cell carcinoma (SCC), and the ratio of BBC/SCC was 4:1. Incidence of NMSC was significantly higher on patients using cyclosporine as immunosuppressant (16 vs. 1,  $p<0.05$ ), who had more than 2 sunburn prior to transplantation (11 vs. 5), or had outdoor workplace (16 vs. 1).

These data indicate the relevance of skin cancer surveillance for transplant recipients and the closed-cooperation between Transplantation and Dermatological Centres. Our results correspond with the international statistics, excepting BBC/SCC ratio. So, further studies are needed to elucidate this difference.

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### Changes of Oxidative Stress on Skin Cancer-Screened Patients Following Solid Organ Transplantation

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Transplant patients are at high risk of developing nonmelanoma skin cancer (NMSC). Ultraviolet radiation can generate oxygen free radicals (OFRs) leading to oxidative stress and carcinogenesis mainly under immunosuppression. In this study we examined changes of oxidative stress parameters on transplanted patients with or without NMSC.

116 adult, white skin-typed transplanted (kidney, simultaneous pancreas-kidney) patients have been involved. Dermatology follow-up have resulted 16 NMSC (13.8%). To monitor oxidative stress peripheral blood samples were collected to measure malondialdehyde (MDA), reduced glutathione (GSH), SH-groups, OFRs, and the activity of myeloperoxidase (MPO), superoxide dismutase (SOD) and catalase (CAT) by spectrophotometry.

Our results showed, that patients without NMSC MDA concentration significantly elevated compare to healthy controls ( $p<0.05$ ). GSH level remained in the normal range, but SH-groups are significantly increased ( $66.68 \pm 5.8$  vs.  $40$  nmol/ml). Total production of OFRs, CAT and MPO activity were in normal level. However, SOD activity elevated significantly ( $877 \pm 25.9$  vs.  $500$  IU/ml). These markers changed on the same tendency in patients with NMSC.

Preliminary research indicate that, exists an imbalance between pro- and antioxidant status on transplanted patients. According to examined parameters significant difference were not found in patients with or without NMSC. Thus, further studies are needed to elucidate these problems.

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### DSC Examinations Following Cold Preservation of Small Bowel

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Present work's aim was to compare the conventional histology and Differential Scanning Calorimetry (DSC) method by measuring structural changes in bowel following experimental intestinal autotransplantation.

Small bowel has been stored in cold University of Wisconsin solution for 1 (GI), 2 (GII), 3 (GIII), and 6 hours (GIV) in Wistar rats ( $n=20$ ). Reperfusion lasted 3 hours in all groups. Bowel biop-

sies were collected after laparotomy, at the end of the ischemia and reperfusion periods. Tissue damage evaluated on hematoxylin/eosin-stained sections, and thermal consequences of structural changes of mucosa, muscular layer and total intestinal wall were detected by DSC.

In GI and GII histological findings were corresponded to an injury grade 2, showing minor clefting with the villus epithelium adjacent to the crypts intact. In GIII showed grade 3 injury with epithelial lifting and villus tip denudation. In GIV injury characterized by severe destruction in mucosal thickness, denudation of villi and lesion in crypts, which was further deteriorated by the end of the reperfusion. According to DSC data, in GI the transition temperature ( $T_m$ ) stained in control level in mucosa, but the calorimetric enthalpy decreased by 30%. In GII it was half of the control one. In GIII-GIV  $T_m$  significantly decreased in mucosa ( $p < 0.05$ ), but unchanged in muscle and in the total intestinal wall. Calorimetric enthalpy decreased less than in GI or GII.

DSC showed more exact results about bowel structural changes in the mucosa and in the muscular layer than conventional histology following autotransplantation. (Supported by OTKAPD77474, Bolyai Scholarship of MTA)

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## Plastic Surgery

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### Reverse Pedicled and Disepithelized Forearm Flap for Hand Reconstruction

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**Introduction:** The use of reverse radial forearm flap for hand reconstruction was first described in 1982.

Many modifications of the original technique have been described since 1982.

This article presents a technical modification and its clinical advantages.

**Material and Methods:** Eight consecutive patients underwent elective reconstruction of their upper extremity using a reverse pedicled radial forearm flap with a modified technique.

The donor area of the flap is previously disepithelized with dermatome; the split-thickness skin graft obtained is left pedunculated proximally and used, after flap elevating, to cover the donor site defect. The rotated flap generally reepithelizes in about 10 days.

A retrospective chart review was made.

**Results:** By elevating the forearm flap as described in this article, some advantages are added to the original merits of the reverse radial artery forearm flap. The flap is disepithelized allowing a better drainage of lymph; moreover the split-thickness skin graft is harvested from the same area of the flap with a better

aesthetical result, reducing even pain associated to the skin graft donor area.

On the other hand the flap requires approximately ten days to reepithelize and the aesthetical result on the donor site is still not perfect.

**Conclusions:** In conclusion we submit that the reverse radial forearm flap has several advantages over its alternatives for soft-tissue coverage of the hand. The modified technique allows a morbidity reduction of the donor area about scars and pain and reduces the postoperative lymphedema of the flap.

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### New Type of Skin Suture – “Fully Buried Running Mattress Suture” – 2 Years Follow-Up

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**Introduction:** Every skin suture has its pros and cons. It is difficult to find a suture that can be applied in all cases. So we have to be able to choose the right type of skin suture in the right cases. The more types of suture we master the better result we can achieve. We want to introduce a new skin suture technique - fully buried running mattress suture and show its advantages and disadvantages.

**Patients and Methods:** Between February 2006 and November 2007 we operated on 150 patients. The following data were taken in every patient: age, gender, type of anaesthesia, localisation of the wound, length of the wound, type of procedure. Postoperatively then infection, eventual hypertrophy, dehiscence, suture reaction and the time to suture removal. Follow-up exams were every 3 month within the first year.

**Results:** Totally we performed 196 sutures within 150 patients. Forty six sutures were of different styles and were used as a comparison to our suture. One hundred fifty sutures of our pattern were done in different localisation within 150 patients. We noticed 24 complications (16%) within 22 patients: infection in 4 patients (2.667%), hypertrophy in 2 patients (1.333%), dehiscence in 7 patients (4.667%) and suture reaction in 11 patients (7.333%). No link can be established between complications and surgical procedures.

**Conclusion:** These results imply a potential use of our new skin suture that is comparable to all up-to-date skin sutures in specific indications.

## Buttock and Calf Augmentation: Our Experience

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**Introduction:** Nowadays, plastic surgeons are more interested in body contouring and surgical reshaping of calves and buttocks. Augmentation of calves and buttocks is indicated in the case of hypoplasia, ptosis and contour irregularities. This kind of implantation can be a reliable surgical method to correct deformities secondary to diseases leading to muscle underdevelopment such as spina bifida, and congenital lower limb deformities or iatrogenic lesions due to orthopedic devices.

**Patients and Methods:** Between March 2005 and June 2008, 22 patients underwent augmentation gluteoplasty and 4 patients to calves augmentation. Surgical access to gluteus maximus was obtained through an incision in the intergluteal sulcus. The pocket for the implants was dissected out intramuscularly paying attention to close muscle fibers without tension. Calves implants were inserted through a median incision placed at the level of popliteal crease. The pocket was dissected in the avascular plane existing between the gastrocnemius and soleus muscle. Videendoscopy was employed in all cases, allowing a better visualization of the operative field and a more accurate pocket dissection and hemostasis.

**Results:** Outcomes were satisfactory in terms of implant volume, projection and symmetry. In three cases of buttock augmentation we observed a dehiscence of the intergluteal wound that was conservatively and successfully treated.

**Conclusions:** satisfaction of the patients and the high success rate of the operation make these procedures essential for the modern plastic surgeon's repertory.

## Does the ECRL-to-EPL Transfer Influence a Hand Function: 2 Years Follow-Up Study

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**Introduction:** The first report of a spontaneous rupture of the EPL was written by Duplay in 1876. There are two commonly used tendons for transfers – the EIP and the ECRL. In the Czech Republic, it depends on a length of the distal stump of the ruptured EPL what tendon is to be transferred. If the ECRL-to-EPL transfer can be performed, we do not sacrifice the EIP but the ECRL.

**Patients and Methods:** We operated 20 patients with ECRL-to-EPL transfer. We invited all patients for 2 years follow-

up survey, 12 patients came. We recorded ROM in the injured and the contralateral hand, Geldmacher scoring system in our modification specific for ECRL-to-EPL transfer and all patients filled up the standardized DASH questionnaire.

**Results:** The ROM of operated thumbs after post-op-rehabilitation was 73.13° (20-125°), IP extension lag 7.00° (0-40°), IP flexion 47.38 (0-80°). The ROM of contralateral thumb was 141.30° (115-190), IP extension 0°, IP flexion 68.8° (50-80°). The follow-up ROM of operated thumb was 98.75° (60-140°), IP extension lag 5.42° (0-25°), IP flexion 65.8° (40-80°). The difference in Geldmacher score: thumb abduction 12°, opposition 0.71cm, elevation 1.92cm, wrist extension 7.34°. The DASH score was 22.513 in mean (2.133-60).

**Conclusion:** The ECRL-to-EPL transfer is an established technique that provides comparable results with the EIP-to-EPL transfer. Although it is not the first choice method, it is commonly used as an alternative technique.

## Peripheral Primitive Neuro Ectodermic Tumor/ Primary Cutaneous Ewing's Sarcoma (pPNET/ES): A Case Report

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**Introduction:** Peripheral Primitive Neuro Ectodermic Tumor/ primary cutaneous Ewing's Sarcoma (pPNET/ES) is a rare round cells malignant tumor with morphological and immunophenotypical (CD99+) characters. We report, to our knowledge, the first case described on the upper eyelid in an adult patient.

**Case Report:** A 53 y-o. male noticed a nodule on the upper right eyelid, diagnosed as a chalazion and excised. Histology revealed an incompletely excised malignant tumor. Patient's clinical presentation and histological evidences fulfilled criteria for diagnosis pPNET/ES. The patient was referred to our Unit one month after the excision and underwent pentagon-shaped excision with 0,5 cm of healthy margins; histological examination was negative. Total body scans did not show other tumor locations, therefore this cutaneous lesion had to be considered as primitive. Then adjuvant chemotherapy and a new surgical widening excision was performed due to impossibility to perform radiotherapy. No recurrence at one-year follow-up.

**Discussion:** Superficial pPNET is uncommon and our case reports suggest that it may be less aggressive when skin and subcutaneous tissue are involved. More data are needed to support this suggestion and reduce the indicated treatment for this tumor only to surgery.

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### **Laser-Assisted Lipolysis in the Treatment of Small Volumes of Fat and Skin Laxity**

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**Background:** The authors analyzed their clinical experience with the use of Laser lipoplasty with pulsed Nd:YAG laser. This system is a new FDA-approved method of removing localized areas of fat with the added benefit of skin tightening.

**Methods:** Laser-assisted lipoplasty was generated through a SmartLipo machine and delivered into the subcutaneous tissues through 2-mm solid optical probes.

We have treated lower abdomen, interior leg and submental areas where skin laxity may occur after the removal of adipose tissue. To evaluate the results the authors used the plicometry because it is an useful and well standardized method.

This treatment was performed on 18 patients divided in three groups: the first (7 patients) treated in the lower abdomen area, the second (6 patients) treated in the interior leg areas and the third (5 patients) treated in submental area.

**Results and Conclusions:** The aim of this study is to evaluate the morphological changes of subcutaneous tissue, establishing the real effects, indications and limits of this technique.

This clinical study demonstrates that the removal of small volumes of fat with concurrent subdermal tissue contraction can be performed safely and effectively especially in the areas where the skin is thin. Additional benefits include excellent patient tolerance and quick recovery time.

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### **A Modification of the Kuhnt-Szymanowski Procedure Used for the Reconstruction of the Upper Eyelid**

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Torino

**Introduction:** The most popular method for the direct closure of a full thickness lid margin defect is to convert it to a pentagon by excising a triangle of skin and muscle. The resultant scar is perpendicular to the palpebral border. A particular case, in which the vertical scar has been reduced with a modified technique, is reported.

**Material and Methods:** A 71-year-old woman underwent excision of a basal cell carcinoma on her right upper eyelid. The tumour interested only the anterior lamella 1 cm in height, and infiltrated the eyelid border full-thickness for less than one third of its length. The defect was repaired utilizing a modified Kuhnt-Szymanowski procedure, involving an upper blepharoplasty type skin and orbicularis muscle resection for the tumour excision, in

block with a pentagon wedge resection of the posterior lamella in the zone where the ciliary border was interested.

**Results:** The blepharoplasty type horizontal incision provided better cosmetic result than an alternative simple full-thickness wedge excision. In this way the myocutaneous blepharoplasty flap covered the vertical defect, and the vertical scar has been limited to 2mm of ciliary border.

**Conclusion:** This procedure can be useful in particular cases with a tumour spreading superficially on the eyelid skin and with limited full-thickness extension to the lower ciliary border.

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### **Navel Reconstruction. An Overview**

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**Introduction:** Reconstruction of an absent umbilicus is seemingly a minor procedure but various techniques have been proposed for the correction of this deformity. Possible causes of lack of the umbilicus are congenital absence, bladder exstrophy, omphalocele, necrotising fasciitis, or the results of operations such as laparotomy, abdominoplasty, umbilical hernia repair, or excision of a skin cancer.

**Material and Methods:** A careful literature review has been done. Reconstruction of the umbilicus has been achieved in the history by skin grafts with local flaps, composite grafts and local flaps only. We find particularly interesting the Miller's technique with four local flaps in a helical pattern; the C-V flap procedure, developed for nipple reconstruction and used by Shinohara in an inverted fashion; the Santanelli's procedure that recreates a secondary-healing wound, and the Ozbek's reverse application of the "unfolded cylinder" technique.

**Results:** The purpose of this work was to give a broad overview of the techniques of umbilical reconstruction. The advantages and disadvantages of each technique were analyzed.

**Conclusion:** The aim of navel reconstruction is to create an umbilicus of sufficient depth, permanent and rounded depression, good morphology and the upper margin should have a slightly hooded skin fold with less scarring. Basing on literature and on our experience we prefer to perform the neo-umbilicoplasty with the inverted C-V flap procedure, that can produce a satisfactory reconstruction of umbilical structures, especially the ring, even in scarred abdominal skin.

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### **Ectopic Cutaneous Meningioma. A Case Report**

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Torino

**Introduction:** Ectopic meningioma outside the skull and spinal column is uncommon. Cutaneous meningiomas are rare tumours derived from meningo-epithelial cells which are ectopically located in the dermis or subcutaneous tissue. A review of types and their management options are analyzed.

**Material and Methods:** We report a case of cutaneous meningioma of the scalp in a 35-year-old man, presented with a 6 years history of a subcutaneous lesion overlying the left parietal region of the scalp. On examination there was a 3 x 4 cm indolent, smooth, bony hard mass adherent to the pericranium and to the overlying normal skin with localised tenderness. Focal neurological signs were absent.

**Results:** The surgical treatment as a fibrolipoma lead to an histological diagnosis of primary cutaneous meningioma.

**Conclusion:** For the surgeons cutaneous meningioma should be considered as a challenging differential diagnosis of hard, subcutaneous lesions arising on the scalp or in the paravertebral area. A histological diagnosis is essential but often can be difficult to reach.

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### **The Descending Branch of the Lateral Circumflex Femoral Artery for Coronary Artery Bypass Grafting**

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Different arterial conduits have been employed in cardiovascular surgery for coronary artery bypass grafting (CABG), avoiding remote cardiac events associated with graft failure and improving the quality and life expectancy of patients with coronary artery disease. The descending branch of the lateral circumflex femoral artery (LCFA) is commonly used in reconstructive microsurgery. In this study we evaluate the early and midterm results of total arterial CABG with this conduit for coronary artery bypass grafting. 10 patients underwent arterial CABG using the LFCA. The patients were preoperatively studied with angiography. The conduits were harvested sparing the nerves of the thigh and used for CABG. Angio-TC follow-up controls were performed at the end of surgery, usually at one year postoperatively. The actuarial survival and event-free rates, the occurrence of late cardiac events, the cumulative rate of the DB-LFCA graft patency, and the incidence of spasm were investigated. The in-hospital mortality and morbidity rates were none. No complications related to the harvest of the thigh were seen. The benefits related to the use of arterial conduits

for CABG have encouraged surgeons to use several different arteries as a graft. No adverse effects were exhibited after CABG using the LFCA graft in this early and midterm follow-up period.

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### **"Vascularized Dermal Flap for Abdominal Wall Reconstruction After Bariatric Surgery"**

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**Introduction:** Plastic surgeons are often called to manage post bariatric surgery abdominal wall complications. The authors report their experience with abdominal dermolipectomies combined with reconstruction of the abdominal wall defects (ventral hernias, diastasis of rectus abdominis muscles, laparocoele after bariatric surgery) using a vascularized dermal flap.

**Materials and Methods:** 66 patients were treated from 2000 to 2008. 56 patients were treated exclusively by our service and 10 jointly with general surgeons. All patients following bariatric surgery presented a redundant abdominal skin and a diastasis of rectus abdominis muscles. 8 patients presented a median laparocoele. The majority of these defects was closed without tension, using a vascularized dermal flap and fascial plication.

**Results:** Our follow-up ranged from 1 year to 7 years. There were 6 cases of minor wound problems, and 2 case of dehiscences that required an additional minor surgical procedure. No patients developed recurrent laparocoele.

**Conclusions:** The vascularized dermal flap combined with abdominal wall plication was assessed as the preferred technique for the repair of laparocoele in the massive weight loss patient following bariatric procedures. Because this technique avoids placement of permanent mesh, it is particularly advantageous in the post-bariatric surgery patient at high risk for wound dehiscence and infection.

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### **Coverage of Soft Tissue Defects of the Knee with the Gastrocnemius and Hemisoleus Pedicle Muscle Flap**

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**Introduction:** Soft tissue defect of the knee is a frequent acute event following tumor resection, trauma, necrosis after total knee arthroplasty and other orthopedic procedures. The pedicled gastrocnemius and hemisoleus muscle flap has proved to be an effective option in the management of the knee defects because of their reliable vascular pedicle with good outcome and minimal morbidity.

**Materials and Methods:** In a 2-year period (January 2007-January 2009), nine patients (five male patients and four female patients; ages range from 40 to 60 years) underwent a soft-tissue reconstruction of an open knee wound (5 x 5 to 8 x 6 cm) with the gastrocnemius and hemisoleus muscle flap. A longitudinal skin incision was made in the back of the lateral border of the fibula. After the dissection the flap was elevated allowing adequate arc of rotation and transposed to cover the defect. The muscle flap was covered immediately with a split-thickness skin graft after the flap inset. The donor site was closed directly.

**Results:** All patients are followed-up for 24 months. All of the muscle flaps survived completely. One case, which sustained superficial infection post-operative, healed gradually by wound dressing. One case developed partial necrosis of the skin graft.

**Conclusion:** Both the pedicle muscle flaps can be a reliable local option for soft tissue coverage of the knee.

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### **Innovations in Plastic Surgery: Free Style Facial Morpho-Functional Reconstruction with Local Perforator Flaps, Tailor-Made Flaps**

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**Introduction:** The reconstruction of the nose presents a particular challenge point. We propose an innovative technique of two different island flaps, based on two perforators: (1) the angular artery and (2) the lateral nasal artery.

**Methods:** Two patients underwent radical excision of nasal BCCs, with immediate reconstruction. The first case involved skin resection of the nasal tip and dorsum. An island flap was harvested in the nasiolabial groove, based on the angular artery perforator, superiorly. A subcutaneous tunnel from the donor to recipient site, was created. The entire defect was reconstructed with no discrepancy between the flap thickness and the skin surrounding the recipient site. In the second case, resection of the ala was undertaken. After nasal lining, and following identification of the lateral nasal artery perforator, a sidewall nasal island flap was designed and elevated. The flap was based solely on the perforator, excluding subcutaneous tissue, surrounding the vessel, a V-Y advancement flap was then performed.

**Results:** The flaps survived completely and secondary revisions were not required. Both functional and aesthetic results were excellent.

**Discussion:** The perforator vessels offer versatile tailor-made flaps.

**Advantages:** One stage procedure, a large arc of rotation, reliable vascularity, excellent texture, colour, and thickness match, and an inconspicuous donor site scar.

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### **Innovations in Plastic Surgery: The Proximal Reversed Radial Artery Perforator (PRRAP) Free Flap in Head and Neck Reconstruction**

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**Introduction:** The Radial Forearm Flap as one of the most commonly used in reconstructive microsurgery. However, the incidence of donor site morbidity is significant. To reduce the donor site aesthetic/functional complications, we have developed a new technique, The PRBP and PRRAP free flaps with advantage in donor site primary closure; and it's based on the proximal brachioradialis perforator or on the proximal septocutaneous vessels, situated along the proximal 1/3 of the radial artery.

**Methods:** The flap designed on the proximal 1/3 of the volar face of the forearm, 4–5.5 cm width. Primary incision is made on the medial side. Upon identification of perforator vessels, dimensions & position of the flap can be determined, as well as the length of the vascular pedicles required. The radial artery is subsequently clamped to its origin to verify the retrograde blood supply to the flap. The PRBP and PRRAP free flaps used in head&neck reconstruction in 2 consecutive patients in October 2005.

**Results:** Both patients had excellent functional-aesthetic results, uneventful recovery of their donor sites, and no complications/flap loss experienced.

**Discussion:** Primary closure of the donor site results in a recovery time of less than 1 week, which is both beneficial to the patient, and is cost-effective. This new technique is recommended, which is applicable in most microsurgical reconstructive cases.

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### **One Step Nipple Areola Reconstruction After Radiation Therapy: Is It a Safe Procedure?**

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**Introduction:** Nipple Areola Reconstruction (NAR) is the final step of breast reconstruction. In some rare cases, this procedure could result in failure and may represent a risk for whole breast reconstruction. We report the case of a NAR in radio-treated patient and breast reconstruction's failure.

**Material and Methods: Case Report:** a 52 years-old patient with ductal infiltrating cancer of the right breast (T2N1a), was treated with mastectomy and immediate breast reconstruction with tissue expander. Adjuvant chemotherapy and radioterapy (RT) was performed. One-year after RT a definitive implant was inserted. Six months later NAR was performed. Complete necrosis of the entire NAR complex followed and full-thickness skin graft salvage procedure failed as well. Two weeks later the implant exposed and was removed.



**Conclusions:** Despite the abundance of studies regarding RT and mammary reconstruction a unique and clear point of view is still missing about RT risks and if mammary reconstruction should be performed or completed or not. We feel that RT is likely to damage skin vascularization. Radio-treated patients candidate to NAR should be selected case-by-case by the surgeon considering local conditions and clinical history.

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### Distal Finger Reconstruction with Reverse Island Flaps Based on the Dorsal Branches of the Palmar Digital Artery

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**Introduction:** Distal finger defects are often a surgical challenge, because most flaps from the hand dorsum (dorsal metacarpal island flaps) can only reach the PIP joint. To overcome this limitation the pivot point can be moved further distal at the level of the P1 or P2, where many collateral branches of the palmar digital arteries can be found. These contribute to the dorsal vascularisation of the fingers and can be used as pedicle for the extended dorsal metacarpal and finger flaps (EDMF).

**Material and Methods:** Between 1994 and 2006 49 patients were operated on with EDMF for skin defects located on 23 long fingers and 16 thumbs.

**Results:** The defects on the long fingers were located on the P2 in 14 cases and the P3 in 9, for the thumb all 16 defects were at P2 level. The average size was 2,8x1,6 cm. Of the 49 EDMF: 45 survived completely and 4 partially (8.9%).

The complication rate showed a gradient from proximal to distal and so that all complications were located at P3 or P2 of the thumb.

The functional outcome was as satisfactory in all patients as compatible with the original trauma.

**Conclusion:** The EDMF can be considered a reliable one stage solution for the coverage of distal finger defects. Main limitations are the unsightly scar at an exposed region and the need for a precise dissection of the pedicle in order to minimize the risk of vascular complication.

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### Poliphasic Protocol for Keloids Scar

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**Introduction:** Keloids are difficult to treat despite increasing knowledge of wound healing and collagen metabolism. Multiple treatment have been advocated but after these therapies however keloids often recur or may become worse. The Authors present their poliphasic protocol of treatment of keloids: it consists in a combination of intralesional excision, of steroids injection and dye-laser treatment in a period of 3-4 months.

**Material and Methods:** In our experience, we have treated 30 patients from 2002 and 2008.

First phase consists in the core excision of the keloid, without cutting on the normal skin and in the intralesional injection of triamcinolone, after the stitches.

In second phase, the triamcinolone is re-injected within a month from the surgery (15 days after the stitches removal) and another time at the 45<sup>th</sup> day.

At the 60<sup>th</sup> day, third phase starts with the dye-laser sessions, repeated after 30 and 45 days.

**Results:** In all cases the results obtained are satisfactory, with a decrement of 75% at least of the keloid scar, flush and itch decrease. There are not relapses or worsening of the keloid scar.

**Conclusion:** The poliphasic protocol proposed for keloids scar have been successful in all cases treated.

We had not have relapses and patients are all satisfied of the results.

Size and symptoms of keloids are improved; side effects are very limited.

All phases are on ambulatory system and required only local or topic anesthesia.

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### Sentinel Node Biopsy: Indications and Controversies

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**Introduction:** Sentinel node biopsy is nowadays considered as part of the surgical treatment of malignant skin melanoma, but the real improvement and survival increase due to this treatment is still matter of much debate.

**Materials and Methods:** We have been performing sentinel node biopsy at our Plastic Surgery Unit since 1998 in all patients with melanoma Breslow major or equal to 1 mm, Clark index major or equal to IV, mitotic index major to 10 HPF, lymphocytic "brisk" infiltrate inside the lesion with histological signs of regression or ulceration. In special cases, based on specific findings, we

do the the sentinel lymph node biopsy, even if not strictly indicated.

The current dispute regarding the use of sentinel lymph node biopsy in the therapeutic protocol is centered on the failure to increase survival.

**Results:** In our experience we performed 325 sentinel node biopsies, 34 were positive so the patient underwent nodal dissection. In 8 of these dissections the microscopic examination evidenced macrometastasis.

**Conclusions:** We can conclude that sentinel node biopsy is useful to select the patients who should undergo nodal dissection.

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### **A Rare Case of Malignant Transformation of Endometrioma**

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**Introduction:** Endometriosis of the abdominal wall, arising on a surgical scar, is a rare event. Its malignant transformation is an uncommon complication.

**Material and Methods:** We report a case of a suspected endometrioma in a caesarian section scar, that was radically resected. Histopathologic diagnosis, surprisingly, was metastasis from papillary cystadenocarcinoma. A hysterosalpingo-oophorectomy was performed. One year later, she presented a mass involving the left rectus abdominis muscle. Histopathologic re-evaluation revealed a carcinoma on endometriosis.

A wide demolition of the abdominal wall was performed, and reconstruction was undertaken with a Goretex mesh and two tensor fascia lata musculocutaneous flaps.

**Results:** Histopathologic diagnosis was adenocarcinoma with invasion into the parietal peritoneum.

Despite an aggressive surgical treatment and adjuvant chemotherapy, 5 months after surgery, she presented a peritoneal dissemination of the disease.

**Conclusion:** The diagnosis of malignancy arising on endometrioma is often difficult, because of the lack of pathognomonic signs. Prognosis is strictly related to the time of diagnosis.

We believe that an early and aggressive treatment upon the sole suspicion of an endometrial origin of an abdominal mass would allow a much earlier diagnosis and treatment for those patients, improving their prognosis, otherwise very poor.

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### **Closed versus Open Rhinoplasty: A Retrospective Analysis of Our Case Study from 2003 to 2009**

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**Introduction:** Because of its central role in the facial architecture, the nasal pyramid has always been object of many surgical approaches. Among several techniques that can be found in Literature, the two main are "closed-rhinoplasty" and "open-rhinoplasty".

**Materials and Methods:** Between 2003 and 2009, 84 patients (57 women, 27 men), aged between 17 and 50, underwent a rhinoplasty procedure: 70 "closed" and 14 "open".

**Results:** No major complications were observed in patients operated with closed-rhinoplasty, while out of 14 open-rhinoplasty, one patient had partial recurrence of tip fall, with columella shortening; a second patient had a long-lasting post-operative oedema (3-4 weeks).

**Discussion:** Pre-operative planning should include a careful examination of patients' anatomical variations, allowing the choice of the correct technique. Closed-rhinoplasty has been the main choice since most of the patients had no need of wide resection of the cartilaginous and osseous component, and also because this technique provides several advantages such as: operating speed; reduction of oedema, both in terms of quantity and permanence; no visible scars; gives major stability to cartilage and bone.

The "open" approach has been chosen in patients in which the aim was to restore a correct anatomy, as it is suggested for noses without projection of the tip, traumatic noses, secondary rhinoplasty, congenital malformations. This procedure allows a symmetrical correction under visual control and increases the opportunity of using grafts.

**Conclusions:** In this retrospective study it is proved the role of closed-rhinoplasty as first choice for the aesthetic correction of nasal pyramid. The correction of major abnormalities with a lack of osseous-cartilaginous structures supposes the open technique.

The choice of the technique depends on the single case, according to the needs and requests of the patient and on the skill of the surgeon and his learning curve.

### Resident's Training in Cosmetic Surgery: Our Goals

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**Introduction:** In the last two decades the demand to undergo aesthetic surgery has considerably grown. This impose that plastic surgery's residents must receive a specific training concerning the management, both surgical and medical, of such patients, with the aim of making them autonomous in planning, execution and post-operative management of these procedures.

**Material and Methods:** In the Plastic and Reconstructive Surgery Residency School of the University of Foggia, residents at the 3rd, 4th and 5th year of training, must perform some of the main aesthetic surgery procedures as first or second assistant. Between 2006 and 2008, residents participated at the following operations: 85 Breast augmentations; 42 Rhinoplasty; 20 Blepharoplasties; 23 Liposuctions; 18 Abdominoplasties.

**Discussion:** Since cosmetic surgery patient's expectations are usually very high, residents' vocational training supposes their active participation in the pre-operative examination, surgery procedure and post-operative management, in order to acquire a professional experience. At an international level, the EBOPRAS is trying, through UEMS' guide lines, to define a common basic standard for training in the Residency Schools of Plastic Surgery, including Aesthetic Surgery. Some studies performed in USA and Canada underline how individual skillness of residents in aesthetic surgery procedures could improve after a few months of practice and study.

**Conclusion:** The need to establish guidelines in aesthetic surgery represents nowadays a priority for the Residency Schools. The operatory theatre still remains the main step for acquiring a proper skill, even if is mandatory to codify the global approach to these patients: patients selection, operatory planning, choice of the technique, post-operative management. The EBOPRAS, as European association involving Specialistic Societies, should be the main reference to trace these guidelines, and should put a bridge between European Universities and Plastic Surgery Societies, in order to define a minimum standard that could bring a guarantee of professionalism, to offer a proper training to young doctors and a better service to patients.

### Our Combined Protocol for Keloid Management

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**Introduction:** Keloids are pathological scars characterized by functional and psychological morbidity. Many treatment have been suggested up to date, without any precise guidelines. Aim of this study is to prove that our *multiphase approach* is a good strategy for the management of these lesions.

**Material and Methods:** From January 2006 to January 2008 thirty patients (13♀ and 17♂; mean age 45 years) have been treated for keloid of: sternum (9), ear lobe (9), shoulder (5), check (4), neck (3); mean scar duration was 38 months. Our 5 months multimodal approach was: silicon gel sheets (every day for 12 to 24 hours) together with alternately (every 15 days) intralesional corticosteroid injections (triamcinolone acetone, 10 mg per linear centimeter) and pulsed-dye laser (wavelength 585-nm, pulsed duration 450 µs, fluence 6.5 to 8.0 J/cm<sup>2</sup>, spot size 5 mm). Effectiveness was proved by clinical evaluation (using the Vancouver scale) monitoring patients' subjective complains of itch, pain and burning.

**Results:** Significant improvement was observed in term of vascularization, thickness, pliability and pigmentation. Patients reported, also, a remarkable reduction of unpleasant sensations. The recurrence rate was 6.67% (2 cases) at 1 year. Local or systemic complications were insignificant. The results were evaluated by two independent groups of plastic surgeons with a rating score from 0 (poore results) to 5 (excellent results).

**Conclusions:** Clinical improvements demonstrated that this combined treatment is effective, safe, reduces recurrence rate and therefore may be a good approach for keloid management.

### Staircase Technique: A Reliable Approach for Reconstruction of the Lower Lip

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**Introduction:** Aim of this study was to compare both aesthetic and functional outcomes, after using different surgical techniques to repair defects of lower lip for tumor resection.

**Material and Methods:** From January 2006 to January 2008 twentyone patients (13 ♂ and 8♀; mean age 69 years) have been treated for squamous-cell carcinoma of the lower lip. The Authors evaluated both the aesthetic and the functional outcome

after reconstruction by different techniques. For smaller defects (up to one-third of the lip) Authors compared *wedge excision* with the *stepwise technique*, whereas for wider defects (two-thirds of the lip) the *stepwise technique* was compared with the *steple technique*. Aesthetic outcomes evaluated: respect of the aesthetic units of the face, lip projection, adequate buccal sulcus, intact labial commissures and the resulting facial expression. The functional outcome consisted of evaluation of lip's symmetrical movement (mouth opening, smiling, blowing up), lips at rest (mouth continence) and satisfactory regarding sensibility.

**Results:** In defects involving up to one-third of the lip, the functional and aesthetic outcome was higher for the step technique than for the wedge excision. In wider defects the results were superior using the stepwise technique, with better respect of the aesthetic units and no symptomatic microstomia. The results were evaluated by two independent groups of plastic (rating score from 0 to 5).

**Conclusions:** The retrospective exam of our series has shown that the stepwise technique is a simple, flexible, one stage operation (therefore a rational approach) to reconstruct full-thickness defects of lower lip, preserving aesthetic units of the face and its function.

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### Microsurgical Management of Facial Contour Deformities

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**Introduction:** Facial contour deformities with hemifacial or bilateral tissue atrophy can have many different etiologies, both congenital and acquired.

**Materials and Methods:** Our experience includes 20 patients with facial contour deformity, treated with the transfer of 22 microsurgical flaps, from 1990 to 2007. We have experienced an evolution in flap selection: we used the scapular flap in our first 4 patients, and then adopted the perforator flaps (ALT, DIEP, SGAP, with a total of 14 perforator flaps in 13 patients). Our current standard approach in these cases is the adiposal DIEP flap, with 4 adiposal DIEP flaps performed in 3 patients.

**Results:** There were no flap losses in this series of 22 flaps, 2 patients developed post-operative haematoma and a minor flap revision was performed in 8 patients. The use of perforator flaps allowed us to reduce donor site morbidity, and obtain better contour restoration as perforator flaps are more easily modelled. The introduction of adiposal DIEP flaps has led to further reduction of donor site morbidity and a softer and more natural reconstruction, thanks to the lack of a dermal component.

**Conclusions:** Based on our experience, the adiposal DIEP flaps can currently be considered the gold standard for facial soft tissue integration, to obtain satisfactory and long-lasting contour restoration in a one stage procedure.

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### Submental Flap in Facial Reconstructive Surgery; Long Term Casistic, Revision

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Forty-seven (47) patients underwent ablative surgery and reconstruction using the submental artery island flap for oral and face cancer, between 1994 and 2008. There were 28 male and 19 female, ages of whom ranged from 48 years to 84 years with a mean of 70 years. The follow up period ranged from 4 to 120 months with a median of 47.5 months.

**Patients and Methods:** From 1994 to 2008, we treated forty-seven patients effected by skin cancer of the face. Thirty patients presented with squamous cell carcinoma, twelve with basal cell carcinoma and four with parotid adenocarcinoma and one malignant melanoma. All patients were operated under general anaesthesia in ordinary hospitalization. The technique to raise the flap is not very difficult. Firstly, the upper limit of the flap is drawn within the mandibular margin, taking care not to encroach too far anteriorly, which would produce a visible scar.

**Result:** The follow up 4 months to 10 years with a median of 6 years. During this period, no major complications were noted and satisfactory results were obtained. All flaps survived completely, excepted two cases. Forty-seven (47) patients underwent ablative surgery and reconstruction using the submental artery island flap for oral and face cancer, between 1994 and 2008.

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### Surgical Treatment of Solitary Plasmocytoma of the Maxilla

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**Introduction:** Solitary plasmacytoma is a rare neoplasm, that represents 1% of all head and neck tumors. The age range of patients is 50-80 years and men are affected more often than women. In the oral manifestations, the mandible is involved far more frequently than the maxilla.

We present a case of solitary plasmacytoma of the maxilla.

**Materials and Methods:** A 51-year-old man presented a swelling on the right jaw. CT scan showed a large multiloculated lesion in the right body of the maxilla. A biopsy was performed, and microscopic examination showed bone with extensive infiltration by sheets of plasma cells, with some atypical and binucleate forms. The cells demonstrated lambda light chain restriction, confirming the diagnosis of plasmacytoma. The patient underwent radio-chemotherapy without local control and so he was referred for surgical excision

**Results:** Surgical radical resection (subtotal maxillectomy) was performed by a team of ENT surgeons and reconstruction with an ALT flap by a team of Plastic surgeons.

**Conclusion:** Solitary plasmocytoma occurs predominantly in the submucosa of the upper airways as a localized disease. This tumor can be treated with radiotherapy and/or chemotherapy. In case of poor control of the disease aggressive radical surgery can provide the best option for potential cure.

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### **Sentinel Node Biopsy. A Staging Procedure Only?**

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**Introduction:** Sentinel Node Biopsy (SNB) is an established staging tool for malignant melanoma. Thanks to identification of occult lymph node metastases, it allows early Complete Lymph Node Dissection (CLND) in patients who require it, and to spare this invasive procedure when unnecessary. Only 10-20% of patients who undergo CLND after a positive SNB have non-sentinel node involvement. A therapeutic role of SNB can be hypothesized in the remaining 80-90% of patients.

Actual research focuses on investigating a therapeutic role for SNB in selected cases.

**Material and Methods:** A literature review was performed. Data about SNB and prognostic indicators, together with a 364 cases series from a single institution were collected and analyzed.

**Results:** Several findings suggest that not all patients with a positive SNB have further lymph node involvement. The prognostic indicators currently available do not significantly correlate with non sentinel node involvement. There is promising research on the biological behaviour of the metastases in the sentinel nodes and on the host's immune response.

**Conclusion:** At present, SNB must still be considered a staging procedure only. Better understanding of the biology of melanoma and of the host's immune response towards it may lead to identification of those patients with the sentinel node as the only site of metastases, who could safely be spared a CLND.

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### **The Role of Integra in the Management of Chronic Wound. The Siena Experience**

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**Background:** The use of conventional wound closure techniques such as delayed closure of the wound and/or skin grafting in the management of chronic wounds with large loss of deep tissue may not be sufficient, both because of underlying illness and because of the width of the defect. And often the possible effects of negative pressure exerted by Vacuum Assisted Closure technique upon an open wound, namely, effective control of tissue edema by removal of tissue fluid, preventing colonization of pathogens, tissue angiogenesis and enhancing granulation tissue growth is not enough to lead to healing by final skin grafting. Integra is a dermal substitute composed by an outer silicone layer, representing a temporary epidermal substitute, and an inner layer composed of cross-linked bovine collagen and chondroitin-6-sulfate. It is adopted in the field of reconstructive surgery due to its prominent feature that is to act as a template for dermal regeneration. It often allows healing of chronic wounds, burns and traumatic loss of substance where conventional methods of repair fail or are too risk.

**Aim of the Study:** The authors analyze Integra's use for chronic wounds in patients with chronic wounds.

**Results:** Applied to wounds Integra reduces inflammation and protects wounds from a possible contamination or another injury. Imbibition, fibroblast migration, neo-vascularization, remodeling and maturation representing distinct histologic phases of forming neodermis are stimulated. Integra is removed after three weeks regenerating a new dermal tissue that is finally grafted.

**Conclusions:** The authors suggest the use of Integra in treating pressure ulcers, venous ulcers, diabetic ulcers, chronic vascular ulcers.

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### **Management of a Rare Ulcerated Erythema Nodosum in a Patient Affected by Crohn's Disease and Tuberculosis**

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**Background:** EN is the most frequent form of panniculitides. The disease typically presents as a red, very tender and non-ulcerating nodule of the lower extremities and especially

pre-tibial regions that usually involutes within 3 to 6 weeks. Hystopathologically EN is characterized by a predominant septal panniculitis without vasculitis neither ulceration, requiring no specific treatment.

**Methods:** Through a report, we highlight a rare case of a patient affected by Crohn's Disease and Tuberculosis in which EN became ulcerated. After several treatments had failed, Vacuum Assisted Closure (VAC) therapy enabled the healing of lesions, in less than 40 days. Since surgical debridement was too difficult because of pain, though local anesthetic was used, the patient was started on Vacuum Assisted Closure Therapy (negative continuous pressure of -125 mmHg) in association to dressing collagen and oxidised regenerated cellulose (Promogran®).

**Results:** The described approach provides a means of achieving a good healing and was successful in our patient.

**Conclusions:** We highlight a new plan of treatment (VAC Therapy and biologic medications) that may be used when a rare complication, as ulceration of EN occurs. This treatment leads to complete healing of the wounds and to a less painful symptomatology and a better quality of life.

#### Breast Surgery

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### Malignant Fibrous Histiocytoma (MFH) of the Breast: Clinical Meaning of a Rare Entity. A Case Report and Review of the Literature

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**Introduction:** Primary sarcomas of the breast comprise less than 1% of all malignant breast neoplasms, and are a highly heterogeneous group. There are few reported cases of MFH of the breast confirmed by immunohistochemical investigation. We report a case of giant cell MFH of the breast and literature review.

**Material and Methods:** A 31 years-old woman presented with a voluminous firm mass in the left breast. Mammography and ultrasonography revealed a well-circumscribed mass in the upper outer quadrant. Fine needle aspiration biopsy was non diagnostic. Breast-conserving surgery was performed. Histological examination showed primary MFH of the breast. At 3 months for evidence of local recurrence the patient underwent radical mastectomy with axillary lymph node dissection. No metastases were identified in the axillary lymph nodes with free surgical margins.

**Results:** Postoperative radiotherapy was given. Patient is disease free at 12 months.

**Conclusion:** MFH is a common tumors of the soft tissues, but its primary occurrence in the breast is rare: only 30 cases have been reported. The review of the literature evaluates the histopathological and biological features of MFH of the breast, for which there are no prospective trials, owing to the rarity of this kind of neoplasm. The extent of surgery or role of axillary lymph nodes dissection and multimodality therapy are discussed.

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### Axillary Dissection Using a New Ultrasonic Device

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**Aims:** Axillary Seroma is the most frequent complication of axillary lymph- nodes dissection. First of all the aim of this study is to estimate the importance of the new ultrasonic device "Harmonic Focus" in the reduction of seroma after axillary dissection and in the second place to estimate the different time of surgery with the two techniques.

**Methods:** Since March 2008 to March 2009 we enrolled in our study 100 patients with breast cancer requiring axillary dissection (positive nodes at the beginning or after positive sentinel-node biopsy). We randomized the patients in two arms: A) 50 axillary dissection using Harmonic Focus and B) 50 axillary dissection not using Harmonic Focus. We recorded the following data of the patients enrolled: age weight, height BMI. Two closed suction drains were placed; they were removed in the second or in the third postoperative day. Drain volume was daily recorded.

**Results:** The median age of the sample was 56 (range 33-89). The BMI calculated was 20.06 (range 19.53-42.97). We had 5/50 (10%) seroma in the A group and 3/50 (6%) in the B group. Clinical seroma was treated by needle aspiration and medication with steroid. We recorded reduction of bleeding and of time of surgery

**Conclusion:** The results are encouraging. This new ultrasonic device is ergonomic, comfortable. It allows to dissect, coagulate, cut and it reduces damage of vital structures. It's very useful and safe in patients with pacemaker.

## Laparoscopic Surgery

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### Minimal Invasive Treatment of Acute Infected Necrotizing Pancreatitis (AINP): A Case Report

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**Background:** Open surgical treatment for AINP is associated with high morbidity. A laparoscopic approach has been recently tried with satisfying results. We shows a successful case treated at our Institute.

**Method:** A 54 years old male with known gallbladder stone, was admitted at our Institute for acute pancreatitis (abdominal pain, iperamylasemia: 2543 U/L, leucocytosis: 17670 10<sup>3</sup>/uL). Abdominal CT scan confirmed a pancreatic edema of the head and body. A conservative treatment was carried out without any benefit. Further CT scans demonstrated the presence of AINP and 10 days after admission the patient underwent a laparoscopic surgery. The procedure (190 min performed with 3 trocars) consisted in necrosectomy, lavage of the necrotic area and of the abdominal cavity. Drainages were left near the necrosectomy, in the Douglas and along the parietocolic spaces.

**Results:** The post-operative days were characterized by the remissions of symptoms and the patient has been discharged 1 months after surgery. A laparoscopic cholecistectomy has been performed 4 months later.

**Conclusion:** AINP is a severe life-threatening condition and the surgical treatment needed is associated with high morbidity. A minimal invasive approach could reduce the surgical stress in those patient and could be associated with lower morbidity. Further study with statistical analysis are needed to confirm these data.

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### Laparoscopic Surgery for Inflammatory Bowel Disease: Our Early Experience

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**Introduction:** In the last fifteen years laparoscopic surgery for IBD has been proved to be feasible and safe, even though the inflammatory nature of the disease, the need for reoperative surgery and the presence of fistulas make it challenging. The authors review their initial experience with 19 laparoscopic procedures for both Crohn's disease and ulcerative colitis over the past 3 years.

**Material and Methods:** This study is a retrospective analysis of a prospective database from the abovementioned institution.

**Results:** Since 2005, 19 selected patients with CD and UC in the current series have undergone laparoscopic resection. In most cases the indication for surgery was abdominal mass, severe intractable colitis or intestinal obstruction. The unique laparoscopic procedure performed for CD were 9 primary ileocolic resection as well as were the 10 restorative proctocolectomy with IPAA for UC. The maturation of a temporary loop ileostomy was always achieved in the setting of UC surgery. Median times to passage of flatus and bowel movement were both 3 days (range 1 - 6), the mean length of hospital stay was 6 days (4-16), the mean operative time was 360 min overall (range, 120-520 min). There were no mortalities. The complications were primarily bowel obstruction, anastomotic leak and postoperative bleeding.

**Conclusion:** Our early experience with the laparoscopic approach to IBDs is proved to be safe and effective in selected patients at least as the open approach. Further study is needed to

determine the superiority of the laparoscopic surgery in the long term setting.

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### Laparoscopic Appendectomy for Complicated Appendicitis

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**Introduction:** The role of laparoscopic appendectomy (LA) in the management of complicated appendicitis (CA) remains undefined and the operative approach choice is mostly at surgeons' discretions. In this prospective study we evaluated safety and efficacy of the laparoscopy for CA.

**Materials and Methods:** Consecutive patients who underwent appendectomy (OA or LA) from 01/03 to 03/09 at our Institution were studied. Patient's data was prospectively analyzed including demographics, short-term (including surgical site infections-SSI) and longer-term complications, length of stay. Data from patients who underwent OA or LA for CA was compared, and then also matched with OA or LA for uncomplicated appendicitis (controls). CA was defined as gangrenous or perforated (+/- abscess). Student's *t*-test and Fisher's exact test were used for statistical analysis.

**Results:** A total of 159 patients (73 M, 86 F, age 29±16 years) were studied. Fifty-two were CA: 15 underwent OA, 37 LA. Conversion rate to OA for CA was increased compared to uncomplicated without statistical significant difference (9.6% vs 0.9%; *p*=0.08). No significant differences were observed in terms of length of stay between OA and LA for CA and results were similar to control group. Overall incidence of SSI was 3.8% and they were equally distributed between groups (complicated vs uncomplicated: 1.9% vs 4.7%; OA vs LA: 4.1% vs 3.5%). Two patients experienced incisional hernia, one for each group.

**Conclusion:** CA is associated with increased need of conversion rate to open technique. However this study failed to show significant differences between LA and OA performed for CA.

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### Laparoscopic Right Hemicolectomy: Intracorporeal or Extracorporeal Anastomosis?

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**Introduction:** Demonstrate the oncological and the safety feasibility of right laparoscopic hemicolectomy with intracorporeal anastomosis.

**Materials and Methods:** Patients were divided in two groups:

**Group A:** extracorporeal anastomosis (LAC)

**Group B:** intracorporeal anastomosis (TLC)

Data on the patients' demographics, medical comorbidities, colorectal pathologies, locations of the tumors, operative details, postoperative outcomes and histopathology were collected and entered into a prospectively maintained database. The study end point was the short-term outcome at three months after surgery.

**Results:** Between October 2004 and March 2009, 46 patients have been submitted to laparoscopic right hemicolectomy, 22 with extracorporeal and 24 with intracorporeal anastomosis. No differences were observed for histopathological findings, median length of stay (5 days) and Non Surgical Site Complications ( $p > 0.05$ ). No mortality was observed. Surgical site complications were 36.36% for LAC and 8.33% for TLC ( $p < 0.05$ ). Anastomosis leakage were two in group A and one in group B ( $p > 0.05$ ). They were all submitted to surgical reintervention. We observed in LAC group six delayed gastric emptying with vomit while in TLC group only one ( $p < 0.05$ ).

**Conclusions:** TLC is feasible, without modification of operating time and oncologically safe. Moreover TLC improves significantly the quality of short term outcome.

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### Laparoscopic vs Laparotomic Primary Tumour Resection in Patients with Colorectal Cancer and Unresectable Metastases

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**Introduction:** The appropriate surgical treatment of patients with colorectal cancer (CRC) with simultaneous unresectable liver metastases (ULM) is controversial. Resection of the primary tumour is the traditional approach and is associated with improved survival. The aim of the study is to compare laparoscopic and laparotomic approach in these patients.

**Methods:** A review of our hospital database over a 7-years period of 848 patients with CRC revealed 62 patients with ULM.

**Results:** All 62 patients with ULM were operated on. 21 received a laparoscopic resection (LR) and 41 a laparotomic approach (LTR) of the primary CRC.

51 patients were treated with adjuvant chemotherapy (AC). Of these 51 patients, 16 (4 women, 12 men) received LR and 35 (12 women, 23 men) received LTR. 15 patients received right hemicolectomy (2 LR, 13 LTR), 32 received left hemicolectomy (13 LR, 19 LTR) and 4 received segmentary resection (2 LR, 2 LTR). In LR and LTR group no difference in morbidity, mortality and operating time was observed. Hospital stay and return to normal food intake were shorter in LR patients ( $p = 0.0005$ ,  $p = 0.0001$  respectively). AC was started 31 days after surgery in LR group respect to 51 days in LTR group ( $p = 0.012$ ).

**Conclusion:** LR of primary tumour in patients with CRC and ULM has proved a safe and effective procedure with reduced hospital stay. Besides, when indicated, AC could be started earlier on.

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### Pediatric Laparoscopic Splenectomy. Single Center Experience

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**Purpose:** Splenectomy is frequently required in children for hematologic pathologic findings. The objective of this report is to present a monocentric experience and to evaluate the efficacy of and complications observed after laparoscopic splenic procedures.

**Methods:** 47 consecutive LS has been performed between January 2000 and December 2008. There were 28 females and 19 males with a median age of 13ys. Indications were: hereditary spherocytosis 29 cases, ITP 10, Sickle Cell Disease 5, thrombocytopenic thrombotic purpura 2 and NHL 1 case. Patients were operated on using right semilateral position, employing Ligasure in 40 cases and EndoGIA in 7. In 18 patients (38.3%) a cholecystectomy was associated

**Results:** 1 patient required conversion to open splenectomy (2.1%). Accessory spleens were identified in 3 patients (6.4%). Complications (11%) included bleeding (3), abdominal collection (1) and pleural effusion (1). Mortality was zero. Average operative time was 132 min (range 80-220). Average length of stay was 3.9 days (range 3-8). Mean blood loss was 180 ml (range 50-800) with a transfusion rate of 2.1%.

**Conclusion:** LS is safe, reliable and effective in children with hematologic disorders and is associated with minimal morbidity, zero mortality, and shorter length of stay. So we consider laparoscopic approach the gold standard for the treatment of these patients.

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### Natural Orifice Transluminal Endoscopic Surgery (NOTES) Tranvaginal Cholecystectomy. Our Experience of First 15 Cases

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**Introduction:** NOTES is considered the newest frontier in minimally invasive surgery, using the oropharynx, rectum or



vagina as the access to the peritoneal cavity avoiding incisions on the abdominal wall. The advantages of this technique include reduction of postoperative pain, complications of abdominal wall incision, leading to a better aesthetic result with no visible scars.

**Methods:** From March 2008 to January 2009 a transvaginal cholecystectomy was performed in 15 woman with symptomatic cholelithiasis. An hybrid technique was used placing 5mm trocar to mantein pneumoperitoneum and to insert harmonic scalpel and clip-applicator. Trough the vagina we inserted a 45mm laparoscopic grasper and the colonoscope.

**Results:** The mean operation time was 65 minutes and all the patients were discharged within 24 hours with no pain or vaginal discomfort.

**Conclusions:** Incision in the vagina had been used for a variety of procedures for decades, and proved safe with no long-term consequences. It may offer earlier benefits than the transgastric route of lack of danger of fistula and peritonitis. Today the indication of NOTES is limited but futher studies regarding instrument development and physiology of natural orifice surgery are ongoing, possibly bringing solutions for more advanced procedures.

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### **Objective Assessment of Esophageal Bolus Transit after Total Fundoplication by the Mean of Combined Impedance and Manometry (MII-EM)**

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**Introduction/Aim:** Several series believe that total fundoplication expose the patient, especially the one with abnormal esophageal motility, to bolus transit slowdown resulting in dysphagia. To date, few studies have been conducted to evaluate a well-standardized bolus transit after total fundoplication surgery. Aim of this study was to verify if total fundoplication represents an obstacle to normal bolus transit, deteriorating the esophageal motility.

**Material and Methods:** The study population consisted of 15 patients that underwent laparoscopic Nissen-Rossetti fundoplication for GERD. All patients were investigated with Combined Impedance-Manometry (MII-EM) and Combined Impedance and pH-metry (MII-pH) before and after surgery.

**Results:** At a one-year follow-up all patients showed a clinical reduction of GERD symptoms. Manometry comparison shows no modification in esophageal motility; therefore LES pressure resulted increased significantly. Impedance comparison showed no alteration in liquid bolus transit and in the total bolus transit time, instead of an improvement of the viscous bolus transit.

**Conclusions:** Total fundoplication does not increase the incidence of dysphagia, even in patient with abnormal esophageal motility, assuring normal esophageal bolus transit.

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### **The Effects of Total Fundoplication in Patients with Extra-Esophageal Symptoms Evaluated by the Mean of Combined Impedance-Ph-Metry (MII-pH) Before and After Surgery**

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**Introduction/Aim:** Identifying and treating patients with extraesophageal symptoms is challenging. When the patient is not able to control his symptom with only pharmacological therapy, it could be indicated submitting to antireflux surgery. Aim of this study was to evaluate the outcomes of total fundoplication on relieving extraesophageal symptoms and to verify the changes in Combined Impedance-pHmetry (MII-pH) monitoring before and after surgery.

**Material and Methods:** From January 2007 to December 2007, 26 patients complaining with extra-esophageal symptoms related to GERD were referred at our Institution. All patients underwent to outpatient 24h MII-pH before and after surgery. All patients selected for antireflux surgery underwent to the same procedure (Laparoscopic Nissen-Rossetti fundoplication). Data were collected prospectively at 6 and 12 months after surgery.

**Results:** Among 26 patients, 12 were eligible for the study. At a one-year follow-up after surgery, GERD symptomatology was significantly reduced in all patients. The esophageal exposure percentage time with pH<4 was very low. A statistical significance ( $p<0.05$ ) was found in pre and post operative number of reflux detected at MII and in the number of refluxes detected proximally.

**Conclusions:** Laparoscopic total fundoplication is a safe and effective procedure to protect against GERD and extraesophageal symptoms.

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### **First Single-Port Simultaneous Laparoscopic Cholecystectomy and Left Adrenalectomy**

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**Introduction:** Simultaneous laparoscopic procedures combining interventions on right and left hypocondrium can be needed more than three classic trocars. Herein is presented the

first case of single-port simultaneous laparoscopic cholecystectomy and left adrenalectomy.

**Case Report:** A 51-year old woman was referred for the presence of a not-secreting left adrenal incidentaloma (30x18mm) and asymptomatic gallbladder stones. On February 10<sup>th</sup>, 2009 combined simultaneous laparoscopic left adrenalectomy and cholecystectomy were performed through a single-port using ASC Tri-Port that needed a 2.5 cm underumbilical access and allowed insertion of three instruments (2, 5 mm and 1, 12 mm sized) having a separated insufflation line. Standard instruments were used to complete first left adrenalectomy then cholecistectomy. The interventions lasted 4 hours. The post-operative course was uneventful except for fever from post-operative day 2 to 6 (without leukocytosis) treated with paracetamole. She did not require any other painkiller. This is the first single-port laparoscopic intervention combining procedures on superior abdomen of left and right side.

**Conclusions:** Although this is the report of a technique at the cocoon stadium it seems feasible, efficient and safe (also using any dedicated instruments) as the standard one. Larger experience is needed to confirm this first preliminary report.

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## Endoscopic Surgery

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### Effect of Transvaginal Notes Cholecystectomy to the Oxidative Stress Parameters

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Natural orifice transluninal endoscopic surgery (NOTES) is considered the new frontier for minimally invasive surgery. This work examined the oxidative stress parameters during transvaginal NOTES cholecystectomy in animal model.

Transvaginal NOTES cholecystectomy was performed with rigid instruments on 6 domestic pigs. Peripheral blood samples were collected before operation (control), on the 1st, 3rd, and 7th postop days (POD). To monitor oxidative stress we determined malondialdehyde (MDA), reduced glutathione (GSH) and SH groups concentrations, and the activity of superoxide dismutase (SOD) by spectrophotometry.

Our results showed, that lipidperoxidation marker, MDA concentration remained on the control level (80.06±5,6 nmol/ml). SH-groups and GSH concentration slightly elevated on the 1st POD (165.8±7,9 and 778±10,9 nmol/ml) and they decreased back to the control value (117±10,2 and 614±8,9 nmol/ml) on the 3rd POD. Endogenous antioxidant SOD activity increased on the 1st POD (851,6±15,2 IU/l), and after it its activity normalised on the

7th POD (623±5,9 IU/l). These changes were slightly, significantly differences were not founded compare to controls.

**Notes:** Cholecystectomy causing minimal surgical trauma less invasive than open or laparoscopic cholecystectomy, whereof data have been published previously in the literature by our group. However, further studies are needed to approve our results of an initial evaluation.

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### Early Experiences with Notes in Animal Model

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**Introduction:** The Natural Orifice Transluminal Endoscopic Surgery (NOTES) is the newest trend of the minimal invasive surgery. This technique is preferred because of less pain, shorter hospitality, quicker recovery and procedures can be performed without skin incision. The aim of this study was to carry out transvaginal cholecystectomy (TC) and transgastric bowel resection (TG).

**Materials and Methods:** The first NOTES procedure - transvaginal cholecystectomy - in Hungary was performed in our Institute in 2008 on 4 domestic pigs, and in the beginning of this year transgastric small bowel resection was performed on 7 animals. Both procedures were carried out with hybrid technique using laparoscopic and endoscopic instruments.

**Results:** In the TC group the average operation time was 78 minutes (40-145) and in the TG group was 95 minutes (60-130). One animal died on the 6th postoperative day in the TG group because of mechanical large bowel ileus, however during the operations and follow-up period (3 months) surgery related complications and mortality were not detected.

**Conclusions:** According to our experiences both procedures can be safely carried out on animal model, but further refinement of devices is necessary.

### A Prospective Single Center Experience with Wallflex Colonic Stent for Treatment of Malignant Colorectal Obstruction

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**Introduction:** Self-expanding metal stents (SEMS) can solve malignant colonic obstruction and avoid emergency decompressive surgery. Aim of the study is to evaluate prospectively in a single center the outcomes of a large-diameter SEMS (WallFlex) placement.

**Materials and Methods:** Between January 2005 and December 2008 all patients who underwent endoscopic SEMS placement for malignant colorectal obstruction were prospectively enrolled.

**Results:** Forty-seven patients (26M and 21W; mean age 72±11.7 years, range 50-91) were enrolled. The distribution of malignant stenosis was rectum in 3 cases, recto-sigmoid junction in 8, sigmoid colon in 19, descending colon in 12, splenic flexure in 3 and transverse colon in 2. Causes of obstruction were colorectal cancer in 42 patients (89.4%), direct invasion of gastric cancer in 2 (4.2%) and others causes in 3 (6.4%). SEMS were placed with palliative intent in 27 patients and as a bridge to surgery in 20. SEMS placement failed in two cases in palliative group and the patients underwent to palliative surgery. Technical success was achieved in 93.7% and clinical success in 89.4%. There were 4 major adverse events, 2 procedure-related perforations successfully managed conservatively, one stent migration and one stool impaction. In palliative group late obstruction occurred in six patients and stent patency duration was 235±97.2 days (range 70-370). In bridge to surgery group the time from SEMS placement to elective surgery was 5.4±1.4 days.

**Conclusion:** In our experience large-diameter SEMS placement in malignant colorectal obstruction is a safe and effective treatment for palliation and for bridge to surgery.

### Different Aspects of Human Notes: Surgical and Endoscopic Access

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**Introduction:** Human NOTES is following, at present, two different philosophies: one descending from therapeutic endoscopy (trans-gastric, colic or vesical access), and the other from

laparoscopy (mainly trans-vaginal or umbilical single trocar surgery). We refer to the former as Endoscopic Access-Natural Orifice Surgery (EA-NOS) and to the latter as Surgical Access-Natural Orifice Surgery (SA-NOS).

**Methods:** An analysis of literature up to 2008 is indicative of these two paradigms. EA-NOS is limited by the safety of visceral perforation and defect's closure. SA-NOS instead is in expansion, due to secure access and closure performed by means of open surgery, rendering it similar to laparoscopy. Both require the aid of supplemental miniports for tissue retraction.

**Results:** Most of reported human cases (cholecystectomy, appendectomy and others) might be classified in SA-NOS and imply minimal adjustments in technology. EA-NOS clinical series are scarce (cholecystectomy, diagnostic coelioscopy, pancreatic necrosectomy) and still need substantial technology's improvement to be applicable.

**Conclusion:** The insertion of human cases in NOTES surgery registers demands precise nomenclature and uniformity in order to be useful for future comparative studies in an area of growing surgical interest. The division in EA-NOS and SA-NOS cases might contribute to this aim.

## Orthopaedic and Trauma Surgery

### "A Critical Review of the Guyon' S Ulnar Neurovascular Space"

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**Introduction:** In Literature ulnar neurovascular space was delimited by pisiform medially and hamate radially and the piso-hamate ligament was the roof of this space. The aim of our study was to reinvestigate the boundaries of this space.

**Material and Methods:** The study was made under surgical findings and sequences of MRI. 20 healthy patients without peripheral nervous pathology were subjected to MRI of the wrist.

**Results:** After our work we delimited new boundaries: the hook of hamate is dorsal to the neurovascular bundle. The roof has three segments: a proximal segment founded by antibrachial fascia, a central segment that contains only adipose tissue and a distal fascial layer that includes the palmaris brevis muscle. The floor of the space consists of the muscle of the hypothenar eminence, their fibers of origin, and the flexor retinaculum. So the piso-hamate ligament is part of the floor and not of the roof. The radial side consists of the junction of the roof to the transverse carpal ligament. The ulnar side consists of the junction of the roof to pisiform proximally and of the roof to hypothenar muscle distally.

**Conclusions:** This study underlines important clinical consequences such as the pathogenesis of hammer syndrome, the role of bone callus in hamate fracture's result and overall the absence of

a protection (hamate) on the radial side during endoscopic carpal tunnel surgery.

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### Effectiveness of a Mucolytic Agent As a Local Adjuvant in Revision Lumbar Spine Surgery

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**Introduction:** Aim of the current study is to analyze the effectiveness of MESNA in chemical dissection of peridural fibrosis during revision lumbar spine surgery.

**Materials and Methods:** 30 patients undergoing revision lumbar spine surgery were enrolled in the study. Patients were randomly assigned to a study group (A) and a control group (B). Once peridural fibrosis was exposed, MESNA (Uromixetan MESNA, 50mg/ml) was intraoperatively applied on the fibrous tissue (group A) in order to ease tissue dissection and enter the canal. In patients of group B saline solution was used. Surgical time, pre-operative and one week postoperative haemoglobin (Hb), length of hospitalization (days), and incidence of perioperative complications were evaluated, together with scoring on intraoperative difficulty in dissecting the fibrous tissue.

**Results:** Average surgical time and decrease in Hb postoperatively were significantly higher in group B. Moreover, surgery was easier in the MESNA group and associated to significantly less complications.

**Conclusion:** When used in revision lumbar spine surgery in our study population, MESNA contributed significantly to reduce the operative complications, with a diminution of the surgical time and the grade of difficulty for the surgeon, confirming its ability as chemical dissector also for epidural fibrosis in revision lumbar spine surgery.

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### New Orthobiologic Regenerative Strategies for Osteochondral Tissue Repair

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Osteochondral tissue, frequently, suffers damage of traumatic or degenerative origin, as in osteoarthritis. Current cartilage regenerative strategies, such as autologous chondrocyte transplantation,

and osteochondral autografts, have two drawbacks: the need of two operations and the high costs. Whereas a plethora of experimental efforts has been done for the reparation/regeneration of bone or cartilaginous tissues, the production of osteochondral tissue is still a goal far to be attained, not an accomplished fact.

Tissue engineering offers an attractive approach to regenerate living tissue. This is achieved using a combination of cells and biomaterial scaffold mimicking extracellular matrix (ECM) of the osteochondral tissue, to form a tissue engineering construct (TEC).

Three different new biological strategies are now under investigation to generate TEC for osteochondral regeneration:

1) “Smart” scaffolds: 3D scaffolds exposing, on their surface, biologically active molecules (cytokine, growth factors;

2) TECs “one step”: scaffolds seeded with bone marrow mononuclear cells concentrate;

3) TECs “two steps”: scaffolds seeded with bone marrow MSC isolated and expanded following an ex vivo protocol.

This paper will describe the state of the art of these three different regenerative strategies for osteochondral tissue regeneration

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### Management of Acute and Chronic Ankle Instability

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Acute lateral ankle ligament injuries are common. If left untreated, they can result in chronic instability. Nonsurgical measures, including functional rehabilitation, are the management methods of choice for acute injuries, with surgical intervention reserved for high-demand athletes. Chronic lateral ankle instability is multifactorial. Failed nonsurgical management after appropriate rehabilitation is an indication for surgery. Of the many surgical options available, anatomic repair of the anterior talofibular and calcaneofibular ligaments is recommended when the quality of the ruptured ligaments permits. Anatomic reconstruction with autograft or allograft should be performed when the ruptured ligaments are attenuated. Ankle arthroscopy is an important adjunct to ligamentous repair and should be performed at the time of repair to identify and address intra-articular conditions associated with chronic ankle instability. Tenodesis procedures are not recommended because they may disturb ankle and hindfoot biomechanics.

### Tendinopathy and Sports

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Tendon disorders are frequent, and are responsible for much morbidity both in sport and the workplace. Although the presence of degenerative changes does not always lead to symptoms, pre-existing degeneration has been implicated as a risk factor for acute tendon rupture. The term tendinopathy is a generic descriptor of the clinical conditions in and around tendons arising from overuse. The terms “tendinosis” and “tendinitis/tendonitis” should only be used after histopathological examination. Disordered healing is seen in tendinopathy, and inflammation is not typically seen. In acute injuries, the process of tendon healing is an indivisible process that can be categorized into three overlapping phases for descriptive purposes. Tendon healing can occur intrinsically, via proliferation of epitenon and endotenon tenocytes, or extrinsically, by invasion of cells from the surrounding sheath and synovium. Despite remodeling, the biochemical and mechanical properties of healed tendon tissue never match those of intact tendon. Tendon injuries account for considerable morbidity, and often prove disabling for several months, despite what is considered appropriate management. The basic cell biology of tendons is still not fully understood, and the management of tendon injury poses a considerable challenge for clinicians.

### Hallux Valgus Correction in a Patient with Metatarsus Adductus with Multiple Distal Oblique Osteotomies

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Metatarsus adductus is a structural foot deformity that is rarely associated with hallux valgus deformity. Surgical treatment is challenging and often requires multiple osteotomies, in order to correct both deformities. However, surgical impact must be considered, especially in elderly patients. We present a clinical case of a 76-year-old woman affected by hallux valgus and metatarsus adductus deformity. Multiple distal oblique osteotomies were performed on the first, second and third metatarsal, coupled with a Z-lengthening of extensor digitorum longus tendons.

### Comparison of Biplanar Austin Osteotomy and Triplanar Boc Osteotomy for the Management of Patients with Mild Hallux Valgus

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The Boc modification of the Austin procedure is a distal triplanar osteotomy that allows the shortening and the plantarization of the first metatarsal head with a lateral shift of the metatarsal head. Patients were divided into two groups: 30 Austin and 30 Boc osteotomies with a mean follow-up of 37 months (29-56 months). Sixty patients, with a mild hallux valgus deformities and central metatarsalgia, took part in the study. The average postoperative AOFAS score of Austin group was 81.9 and 86.4 of Boc group. The pressure distributions under the fourth and fifth metatarsal head were comparable in both groups ( $p > 0.05$ ). Austin Group showed a decreased load bearing under the hallux ( $p = 0.01$ ), joined together with a persistent overloading of the second and third metatarsal head ( $p > 0.05$ ). Also Boc group showed a decreased weight bearing load under the hallux, whereas with better load distribution beneath the second and third metatarsal head ( $p < 0.05$ ). Correlation of AOFAS score and pressure variables confirmed a significant negative correlation with hallux and central metatarsal heads loading ( $p < 0.01$ ). Proper forefoot loading is imperative for an improved outcome of the procedures. Distal triplanar Boc osteotomy of the first metatarsal head, compared with the biplanar Austin osteotomy, produces a better load distribution on the metatarsal heads.

### Osteoclasts Behaviour After Static (Generated by Corrosion Spinal Devices Impalants) and Pulsed Electromagnetic Fields: A Comparative Morphological, Istochemical and Biological Studies

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In this study we aimed to investigate the biological effects of a very low static magnetic fields (SMFs) on human osteoclast cultures. Moreover we investigate not only the effects of SMF but even the effects of pulsed electromagnetic fields (PEMFs) on osteoclast too, and compare the biological effects of the two different type of fields. Primary osteoclastic cells were isolated from Primary human Osteoclast Precursors (Lonza Walkersville, Inc.) cultured in Osteoclast Precursor Growth Medium (Lonza

Walkersville, Inc.). Osteoclast cultures were exposed to SMF and PEMF respectively and its morphology and its tartrate-resistant acid phosphatase activity was evaluated in the osteoclast cultures at different time points. The SMF-treated cells shows a progressive increase in morphology, and TRAP activity, while this features decrease at the third point of observation, when the majority of cells were going in apoptosis. The PEMF-treated cells instead shows at the first two points of observations an hypotrophic morphology, while at the third point activated osteoclasts were found. In contrast PEMF act on osteoclast cells, explained their actions particularly on adhesion cellular mechanism (which are slowed-down), and do not act on growth and differentiation pattern.

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### Gladiator's Diet

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Historically, a gladiator was a sort of sport hero, and gladiator's medicine probably one of the first forms of organised sports medicine. Considering the modern diets of strength athletes, we should expect that gladiators had a high protein diet. However, analysis of their bones has put forward the hypothesis that gladiators were vegetarian athletes. Levels of strontium in the gladiators' bones were two times as high than the bones of contemporary Ephesians (Kanz and Grossschmidt, 2007). The legionnaire's daily ration consisted of 78% carbohydrates, mainly from wheat or barley. This diet has the advantages to provide slowly absorbed carbohydrates, to be provide high energy, and to be easily digestible. It provided good intestinal ballast, and was able to restore the energy reserves of the organism (Fornaris and Aubert, 1998; Lemon et al., 1992). The best fighters in the ancient world were essentially vegetarian.

The question of whether vegetarianism is associated with beneficial or detrimental effects on athletic performance has also been considered (Nieman, 1988, 1999). Observational studies of vegetarian and non-vegetarian athletes (Hanne et al., 1986) have found no differences in performance or fitness associated with the amount of animal protein consumed.

In line with these findings, previous reviews of the scientific literature have concluded that a well-planned and varied vegetarian diet can meet the needs of athletes, as it was for Roman gladiators or legionnaires.

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### Spondylodiscitis in Childhood

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**Introduction:** Spondylodiscitis represent 2-4% of all osteomyelitis of whole skeleton. Our aim was to investigate the actual incidence of the pathology, correct tools for diagnosis and treatment.

**Patients and Methods:** From 1986 and 2008 we selected 24 patients with age between 14 months and 18 years old, the average 8.4 years old. In 6 cases had pneumonia before the diagnosis of the disease. 2 patients had bladder infection hydronephrosis have been reported. In 1 patient spinal surgery for lumbar disk herniation has been reported. Clinical findings are impossibility to stand up and walk, low back pain with impossibility to bend foreword in older patients. Casting immobilization must be carried out to the end of symptoms and brace is recommended longer after the end of symptoms. Teicoplanine has been administrated twice a day (6/10mg pro Kg), clindamicine has been administrated twice a day (15/30 mg pro Kg), ciprofloxacin in a dosage of 500/750 until the end clinical and radiological findings.

**Results:** In our study all patients had healing of the lesion after casting and therapy at least after two months of treatment. In one case (post-surgery discitis) the treatment has been carried out for 90 days.

**Discussion:** In our study with early diagnosis and antibiotics administration we found out a low incidence of vertebral deformity on the sagittal plane. Only one patient developed a thoracolumbar scoliosis close to the skeletal maturity.

**Conclusion:** Casting and early administration of antibiotics are the golden standard of treatment and we recommend to prolong the second at least on month after the end of clinical symptoms and radiological findings. Casting must be maintained longer after end of symptoms. Bracing is strongly advised in order to prevent spine deformities.

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### Flebologic Surgery

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### Selective vs Radical Crossectomy of GSV

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**Introduction:** The study is to keep again the incidence of groin recurrences at 5 years follow-up, on two groups of patients operated with a technique of selective and radical crossectomy of

GSV, to verify the importance of the collateral veins of S-V junction in groin recurrences.

**Materials and Methods:** Non concurrent prospective study, the selected casuistry concerns in 300 patients (220 F-80 M), operated from January 2002 to December 2006, choosed with random method, divided in two groups (150 treated by SC and 150 by RC), 60 patients for every year was considered. All these patients were submitted to clinical venous examination and to Duplex scanning of the lower limbs, by an independent operator, at different times from the operation.

**Results:** On 300 patients controlled with Duplex has been seen in the group of selective crossectomy 1 groin recurrence (0.6%), in the group of radical crossectomy 14 groin recurrences (9.3%).

**Conclusion:** Based on the clinic experience done on examined 300 patients, we can observe like the internal selective crossectomy, saving the tributary veins coming from the abdominal wall, joint to the convenient treatment of saphenous insufficiency, revealed an efficacious therapy, giving results of undoubtable validity from the point of view prognostic and the rate of groin recurrences at 5 years.

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### **Obliteration of SSV with Scleromousse**

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**Introduction:** The scleromousse treatment represents an effective alternative to the surgery. The procedure consists of finding the vein by ultrasound and then closing through an injection of the scleromousse.

**Materials and Methods:** 137 patients (113 W – 24 M) were enrolled in a clinical trial between January 2003 and November 2007. In all cases the patients were injected the scleromousse to close the SSV. The scleromousse used in the trial had a 3% Polidocanolo content and a 1:4 drug/air ratio. After the treatment was performed the patients were asked to wear II° class knee socks. The protocol did not foresee the administration of anesthesia. All patients were treated and were able to leave the medical office after 10 minutes.

**Results:** Before the treatment all patients were subject to a medical and ultrasound examination. There have been no morbidity or thromboembolic events. 101 patients have had need a only one injection, while the other 36 patients have had need a second injection. The treatment did not succeed in the initial 5 cases, but only 2 patients were advised to pursue traditional surgery, because the other 3 patients have had a reduction of the lumen of vein and, consequently, of the symptomatology.

**Conclusion:** The scleromousse treatment represents a valid alternative to surgery, because of the excellent aesthetical and therapeutic results.

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### **Chronic Venous Ulcers and Complicated Wounds of the Lower Third of Leg: Sixty Consecutive Sural Flaps**

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**Introduction:** The sural flap is considered as one of the best treatment for the complicated wounds of the lower third of leg, but also for chronic venous ulcers and, particularly, for those complicated ulcers require the excision of the ulcer with the surrounding lipodermatosclerotic skin, and the covering of the defect with healthy tissue.

**Materials and Methods:** Herein we reported the results of 60 (39M; 21F) consecutive patients, between 12 and 83 years-old; twenty-eight patients showed chronic venous ulcers of leg, 25 with outcomes of burn and 7 of electrocution. All patients were previously treated with surgical escarectomy and autologous dermal-epidermic graft. Most of lesions were localized in the inferior third of leg. Surgical procedure provides the rotation of the sural flap to cover the lesion.

**Results:** Postoperative course was uneventful in all cases but two (previously reported in early series), with a transitory suffering of the flap, spontaneously resolved.

**Conclusion:** The distally based superficial sural artery flap is an easily and versatile procedure, perfect for young surgeons, useful in reconstruction of lower third of leg, heel and malleoli defect.

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### **Local Anesthesia for Surgical Debridment**

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**Introduction:** We present our experience about local anesthesia for the surgical dedridment of leg ulcers.

**Material and Methods:** We compared 3 different anesthetic products for the local utilization in debridment of leg ulcers. We utilized liquid lidocaine at 2% (Lidocaina Cloridrato – Bioindustria), liquid mepivacaine (Carbosen® – Galenica Senese) at 2% and a cream of lidocaine 2,5% + prilocaine 2,5% (EMLA® – AstraZeneca). Anesthetic liquid was put on a gauze (10cc for 100cm<sup>2</sup>), and all type were covered with Tegaderm® (3M). The time of anesthesia was 20 minutes.

We performed three consecutive surgical debridments of the same ulcers at one week of interval time. The pain was measured with Visual-Analogical Scale (VAS) at the end of every debridment.

**Results:** The 30 ulcers treated were of multiple etiopathogenesis, most of which mixed (13 lesions). The mean area was of 8,7 cm<sup>2</sup> (range 0,75 – 32,5). In all patients was possible to perform the surgical debridement. VAS score showed a mean of 1,5 points with lidocaine, 1,8 points with mepivacaine and 1,5 points with EMLA. It was not possible to use electric coagulator in all anesthesia.

**Conclusions:** All this anaesthetic demonstrated to be useful in the local treatment for the surgical debridement.

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### **Idrofiber (Aquacel Ag®) Support for Platelet Gel in the Treatment of Distal Ulcers**

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**Introduction:** We evaluated efficacy of the idrofiber (Aquacel Ag®) as a support of platelet gel in the treatment leg ulcers distal to point B (A-F-toes).

**Material and Methods:** Platelet gel meals in few hours at contact with the human temperature. Aquacel Ag® is an optimum absorbent of ulcer secretion, transforming itself in gel and defending the margins of the lesion by maceration. We treated 37 distal ulcers of 27 patients of multiple etiology. The area media treated was of 6,07 cm<sup>2</sup> (range 0,25-96 cm<sup>2</sup>).

Platelet gel characteristics were: homologous blood derived, platelet concentration of 1,2 millions/mL in absence of leucocytes. We performed a weekly medication and gel was put on after surgical debridement.

**Results:** We considered the result only after four consecutive applications of platelet gel, and all of them (32/37) presented improvements.

The healing rate was of 71,8% (23 lesions), with mean time of healing was 6,6 months.

Aquacel Ag® permits to reach our endpoint and to extend the interval time of control at 7 days.

No host reaction, collateral effects or platelet activity reduction were notice.

**Conclusions:** Aquacel Ag® demonstrated to be an optimum support for the platelet gel.

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### **Treatment of Skin Cancer with Homologous Graft**

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**Introduction:** We describe our experience about the treatment of resistant leg ulcers transformed in cutaneous cancers by homologous skin.

**Material and Methods:** Cutaneous cancer presents an incidence of 1,6% of the resistant ulcers, which are the 9,6% of the total skin lesions treated in the Phlebolympological Center of the University of Siena.

We performed a biopsy of the resistant ulcers, which are present from almost 6 months and non respond at all kind of treatment.

If biopsy results positive for cancer, we performed an echo-colordoppler of the groin lymphonodes, followed by RMN. Surgical exeresis remaining almost at 2 cm from the edge, followed by homologous graft with de-epidermized derma (DED). An histological study is done in the anatomical piece to pointed out margins free from neoplastic cells.

A control biopsy is made before the healing of the skin lesion.

**Results:** We treated 4 patients (2 F, 2 M, mean age 73,5 y.o) with cutaneous cancer in leg ulcers. Skin lesions were presented from 2 to 10 years, range of area, 1 to 85 cm<sup>2</sup>. We used cryoconserved DED. In two cases the homologous graft consumed itself producing many granulation tissue, while in the other was trasformed in scaffold, reducing healing time without host reaction.

**Conclusions:** Homologous skin is optimum for the reconstruction after surgical treatment for skin cancer.

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### **Crossectomy and Foam Sclerotherapy in the Treatment of the Chronic Venous Insufficiency**

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**Introduction:** We evaluated the results of crossectomy and foam-sclerotherapy in a group of patients visited to the Phlebological Center of the University of Siena, with chronic venous insufficiency (IVC).

**Material and Methods:** From January 2001 to April 2009, 70 eligible patients (48 women; mean age 53 years, range 22-84) were treated with crossectomy and foam-sclerotherapy of distal saphenic log with injections of polidocanol foam, for a total of 82 limbs treated. All patients were symptomatic, and the majority (65%) had class 2 or higher clinical disease (CEAP classification).

**Results:** The great 30 (42.8%), short 25 (35.7%), and accessory 15 (21.5%) saphenous veins were ablated in the immediate post-operative period. Complications were few and well tolerated. Deep venous thrombosis (DVT) evaluated with duplex ultrasound it has been taken place in 5 patients (7.1%). After 5 years, the total occlusion rate of saphenous trunks has been 76.4%, 23,6% recanalized and asymptomatic.

**Conclusions:** This experience with crossectomy and foam-sclerotherapy based on pre-operative, and post-operative duplex control. Crossectomy and foam sclerotherapy offers advantages of low cost, quick patient recovery, with patients satisfaction at mid/long-term, aesthetically and functionally; as such, it is an important tool for modern vein treatment.



## The Role of Crossectomy in Ascending Superficial Thrombophlebitis of the Saphenous Veins

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**Introduction:** We evaluated the results of crossectomy in 30 patients visited to the Phlebological Center of the University of Siena, with ascending thrombophlebitis of the saphenous veins.

**Material and Methods:** From Jan. 05 to Apr 09, 30 pat. (25 F. mean age 69) with ascending thrombophlebitis of the great saphenous vein (28; 93,3%) and of the small one (2; 6,7%) were treated by the ligation and resection of the proximal part of the saphenous veins (crossectomy). Average hospitalization was 2 days without complications. LMWH was used for 21 days after surgical treatment. Risk factors was: presence of varicose veins (90%), obesity and age over 60 years. All patients were symptomatic and most of them (55%) was included into the second class of the CEAP classification.

**Results:** Post-operative complications were few and well tolerated; only one case of deep venous thrombosis (3.3%).

**Conclusions:** Acute superficial thrombophlebitis is a common vascular disease, generally considered as a benign pattern, which sometimes may cause thrombo-embolic complications. Duplex scann was a highly reliable, precise, fast non-invasive diagnostic method which is necessary to evaluate the best therapy. After heparin therapy, in 74,8% of cases, the superficial thrombophlebitis was recanalized and finally the patients were treated by stripping, in the other cases, the veins remain closed.

## ORL Surgery

### Glottic Carcinoma (Tis-T2): Endoscopic Resection, 10 Years Experience on 345 Patients

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**Introduction:** Traditional approaches to Tis-T2 glottic carcinoma were open neck surgery or radiotherapy. In last decades endoscopic surgery strongly emerged as a valid alternative, with comparable results in long-term survival and local control. 345 patients who underwent laser cordectomy between 1999-2009 were retrospectively analyzed in this study

**Material and Methods:** Between June 1999 and April 2009, 345 patients with glottic carcinoma were surgically treated in our Institution by a single surgeon. Specifically, we performed as initial treatment, 25 type I cordectomies, 45 type II, 60 type III, 102 type IV, 92 type V, 27 type VI (ELS classification). Mean follow up time was 84 months (range: 2-120 months).

**Results:** Hystology was: Tis in 64 cases, T1 in 257 patients (T1a in 165 cases, T1b in 92) and T2 in 24. The overall 5-year actuarial recurrence-free survival rate was 86.9% (Tis: 96.8%, T1a: 90.3%, T1b: 79.9%, T2: 66.6%) and the 5-year actuarial disease-specific survival rate was 95.6 % (Tis: 100%, T1a: 96.9%, T1b: 92.4%, T2: 87.5%). In recurring cases (45 patients) we performed a second endoscopic procedure in 20 patients, a subtotal laryngectomy in 11 and a total laryngectomy in 14. The ultimate rate of laryngeal preservation was 95.9 %.

**Conclusions:** According to our data, endoscopic CO2 laser surgery is an effective treatment for Tis-T2 glottic cancer.

### Salivary Duct Carcinoma: A Rare Malignant Neoplasm Case Report and Review of the Literature

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**Introduction:** Salivary duct carcinoma (SDC) is a rare malignant neoplasm that in 78% of cases arises from parotid gland. We present here, the clinical, radiological and histopathologic features of a case of a SDC.

**Case Report:** A 60-year-old healthy male presented with history of silent mass in the left parotid-masseterine area. Upon palpation, a painless, mobile on superficial plane, round mass, with no facial nerve dysfunction, was detected.

The patient underwent Ecotomography and CT which showed a lesion, growing in the parotid lobes with signs of masseter muscle infiltration. Fine needle aspiration cytology was not diagnostic.

Excision was performed via enlarged preauricular-cervical approach, facial nerve identified and spared (negative frozen section). Final pathology report showed a Low-Grade SDC with focal infiltration of nasal branch perineural tissue, preauricular lymph node and surgical margins were negative.

Patient underwent 6FDG-PET (no neck lymphadenopathies) and started radiation therapy.

**Conclusion:** SCD is a rare parotid lesion according to the literature, an exhaustive pre-operative algorithm is required, the surgical approach should pursue radical excision, adjuvant radiation therapy may be used to improve survival rate in case of perineural invasion or positive surgical margins.

### Multidisciplinary Approach to Surgical Treatment of Hypervascularised Neoplasms of the Lateral Skull Base

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**Introduction:** Preoperative embolization is helpful to surgical procedures of the *glomus jugulare* with some limitations because of properties of embolizing substance, difficulties in dominating the site and angiostructure of tumours. We evaluated embolization with Onyx, a mixture of ethylene vinyl alcohol co-polymer (EVOH) dissolved in dimethyl sulfoxide (DMSO) and micronized tantalum powder to provide fluoroscopic visualization.

**Materials and Methods:** We treated a 24 years old patient, male, with sensoryneural hearing loss and dysphagia as onset of symptoms. Neuroimaging found a paraganglioma of the jugular foramen classified as C3Di2 according to Fisch classification. Three hours after embolization with Onyx, the oto-neurosurgical combined approach consisted in a transjugular approach: lateral craniotomy, partial and translabyrinthine petrosectomy, resection of the sigmoid sinus and the jugular gulf, invaded by tumour, exposure of the facial nerve without rerouting.

**Results:** Subtotal resection of the intra- and extracranial components of the tumour was performed. We leaved a small nodule next to internal carotid artery and jugular foramen because of extensive necrosis that embolization grant to avoid iatrogenic damage of mixed cranial nerves. Where Onyx didn't reach bleeding areas were found. With treatment of few arterial feeders wide areas of tumour were embolized. Vessels can be easily demonstrated by their dark colour, easily manipulated, and cauterized because of the low interaction of the material with bipolar cauterization.

**Conclusion:** An expert oto-neurosurgical team can provide a safe and effective surgical technique. Combined with invasive radiology, surgery would be considered the first choice, even in large paragangliomas, for a single-stage procedure.

### Management of Advanced Mucosal Melanoma of the Sinonasal Region

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**Introduction:** Mucosal melanoma is limited to the 1% of all melanomas and represent less than 4% of the sinonasal tumours. The most commonly related symptoms are non specific nasal obstruction and epistaxis followed by swelling and pain. The prognosis remains poor despite the management option that is chosen.

**Material and Method:** We describe the case of a 65 years old female presenting 5 month history of nasal obstructive symptoms and epistaxis followed by painful tenderness and anaesthesia. red eye and proptosis. Left emimaxillectomy was performed, extended to the orbital floor and to the left nasal cavity, and exenteratio orbitae. The reconstruction was performed in the same surgery by temporalis muscle flap and autologous bone graft.

**Results:** Eleven month after surgery we report disease free patient, with important reduction of the related symptoms and improvement of the quality of life.

**Discussion and Conclusion:** Maxillary sinus melanoma have often a fast fatal course respect oral cavity, pharyngeal and intranasal. Probably due to the late presentation and the problems occurring with the surgery. Multiple treatment options are available but the surgical excision with clear margins is the treatment of choice. The surgery with margin free has a little impact on the survival rates, but may have a big impact on the quality of life.

### Rationale of an "Open" Technique Rhinoplasty with Extraction, Remodelling and Repositioning of Quadrangular Cartilage in the Treatment of Twisted Nose. Our Experience

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**Introduction:** The treatment of twisted nose should consider not only the correction of structural anomalies, but also the tendency to the re-establishment of the ante quo anatomy. In fact the "retraction" due to scar formation during healing and the elastic forces exerted by nasal septum are often the cause of a new deviation: therefore it seems critical to correct adequately the bony component of nasal septum.

**Materials and Methods:** Fifteen patients (M/F:9/6; age:11-40 yrs) presenting with twisted nose underwent an open technique rhinoplasty including the extraction, remodelling and repositioning of nasal septum. All the patients underwent a complete history, physical examination including photo documentation of the nose and total nasal resistance (TNR) measurement by means of anterior active rhinomanometry, both pre- and post-operatively.

**Results:** All patients reported a satisfactory nasal respiratory function at the 1st, 3rd and 18th month after surgery and a satisfactory aesthetic result at the 1st month, not confirmed in 1 patient at the 3rd and 18th month after surgery. All patients showed a significantly decreased TNR at the 1st, 3rd and 18th month after surgery ( $p < 0.05$ ).

**Conclusion:** A good aesthetic and functional result after surgery of twisted nose highly depends on the correction of each anatomic condition anchoring the nasal septum to the rest of the nose.

### Overlay versus Underlay Tympanoplasty. Report of Outcomes Considering Perforation Closure and Hearing Function

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**Introduction:** In tympanoplasty, the most common two techniques for positioning the graft relative to the remnant of both the tympanic membrane and of the annulus, are the "overlay" and the "underlay" techniques. Each technique has advantages and disadvantages.

**Methods:** One hundred fifteen patients who undergone a tympanoplasty for tympanic membrane perforation secondary to chronic otitis media and/or trauma were included. All patients had a minimum 1-month postoperative otoscopic and audiometric follow-up.

**Results:** of 115 cases, 63 underwent an overlay miryngoplasty and 52 an underlay miryngoplasty. In the first group five cases were anatomically unsuccessful, whereas in the second group we had two failures. The air bone gap improved significantly in both groups with a better hearing function in the underlay group.

**Conclusion:** In our series the underlay or overlay positioning of the graft does not significantly influence the rate of postoperative perforations or complications, with a better hearing gain in the underlay group.

### Four Hands Approach to the Sellar and Parasellar Region: Our Experience

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**Introduction:** The endoscopic transanal four hands technique approach in the treatment of lesions of sellar and parasellar region is increasing its role due to the minimally invasiveness and optimization of the efficacy of surgical procedure. Such approach require a dual training and a steep leaning curve in order to improve the efficacy and perform more extensive procedures.

**Material and Methods:** Since June 2007 we observed and treated 61 sellar and para sellar lesions with pure endoscopic approach. The population comprises 53 adults (47 pituitary adenomas, 2 giant adenomas, 1 clivus chordoma, 1 fibrous dysplasia) and 8 children (2 microadenomas, 3 craniopharyngiomas, 1 epitheliod sarcoma of the clivus, 1 clivus chordoma and 1 histiocitosis of the sphenoid sinus).

**Results:** We obtain a complete removal of the lesion in 50/61, a subtotal in 7 and in the 2 cases was performed just a biopsy.

We observed 3 cases of rhinoliquorrea 2 solved with the use of lumbar drain and 1 case with revision and duralplasty. The mean hospitalization time was 5 days with good patients tolerance and reduction postoperative pain.

**Conclusions:** The endoscopic endonasal transsphenoidal approach to the sellar and parasellar region for the removal of pituitary adenomas and of other neoplasms has proved its reliability and effectiveness also in our experience. The minimal invasiveness makes it ideal for the treatment of several pediatric pathological conditions of the sellar region, in which it is essential to preserve the integrity of the hypothalamic-pituitary axis and of the naso-facial structure in order to assure the correct growth of the child.

## Oncologic Surgery

### Whipple Operation Due to Duodenal Metastasis from Kidney Carcinoma: Case Report

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**Introduction:** Kidney carcinoma represents 2-3% of adult's neoplasias and results in terms of frequency, the third genitourinary neoplasia. It involves preferentially the males and occurs typically in the adult age with a peak of incidence between 50 and 70 yrs of age.

**Case Report:** Male, Caucasian, 56 yrs old, affected by diabetes mellitus, already underwent right nephrectomy due to clear cells carcinoma, admitted at our unit in November 2008 with endoscopic diagnosis of "ulcerated infiltrating neof ormation, with apical-bulbar localization on the anterior wall of the duodenal knee". He reported anorexia, abdominal pain and melena. At the admission he showed sideropenic anemia. The patient underwent surgical operation of duodenocefalopancreasectomy. The histology showed "duodenal metastasis of kidney clear cells neoplasia. Resection borders, gallbladder, pancreas and stomach without metastasis evidence and neoplastic invasion". The post-operative course was without complications. The patient was discharged in 12<sup>th</sup> day after operation. Five months later, the patient is live and well and disease-free.

**Conclusions:** Renal tumor determines metastasis in 25% of cases (0,3% at duodenum); generally they appear yrs later from nephrectomy for the primitive tumor. This case report allow us important considerations: it remember us that the renal carcinoma metastasis are frequent and they can occur also in unusual

sites. Moreover, the sideropenic anemia accompanied by melena in patients underwent nephrectomy should induce the suspect of secondary intestinal localization, not always detectable by traditional endoscopic techniques. Regarding our demolitive therapeutic option, the literature shows comforting data, reporting a considerable improvement of the quality of life of these patients (about 15% at 5-years) despite further studies are required, considering this rare disease.

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### **Surgical Complications After Resection for Rectal Cancer: Comparison Between Two Colic Reconstruction Without Reservoir**

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**Introductions:** This study analyzed the postoperative complications after anterior resection (AR) for rectal cancer with colorectal/coloanal reconstruction with side-to-end anastomosis (SEA), compared with those recorded with straight anastomosis (SA).

**Materials and Methods:** 697 patients with rectal adenocarcinoma were randomized to receive a SA (355 cases) or SEA (342 cases). Age, sex, ASA, BMI, level of primary neoplasm, neo-adjuvant treatment, were similar between the two groups. All surgeries were performed in accordance with uniform technical procedures.

**Results:** The overall rate of complications was 30.2% (17% SA, 13.2% SEA). Significant differences revealed in favor of SEA for anastomotic stenosis and evacuation symptoms associated, while in favor of SA a lower incidence of surgical wound infection was noticed. As to SEA, a lower incidence of leakage, anastomotic dehiscence, bowel obstruction, bleeding, delayed emptying was recorded. Even in the postoperative period (more than 30 days), SEA group shows minor uro-sexual problems and incisional hernias.

**Conclusions:** Colorectal/coloanal reconstruction with SEA are beneficial to the patient, the rate of early and late complications being reduced, if compared with the results obtained with SA. SEA can be performed with a minimal technique and short operative time. In addition, low resections, not requiring the construction of a neo-ampulla, make surgery easier, no surgical complications rising there from.

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### **Functional Results After Resection for Rectal Cancer: Comparison Between Two Colic Reconstruction Without Reservoir**

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**Introduction:** This study assessed whether, after anterior resection (AR) for medium-low rectal cancer, as to postoperative functional outcome, some advantages result with colorectal/coloanal reconstruction with side-to-end anastomosis (SEA) compared with those recorded with straight anastomosis (SA).

**Materials and Methods:** 235 patients with medium-low rectal cancer received a SA (152 cases) or SEA (83 cases). All the responses obtained from 165 patients (70% of patients) through a questionnaire at 6, 12 and 24 months after surgical treatment, were considered valid.

**Results:** Constipation, tenesmus/incomplete evacuation, soiling were frequently complained. In both groups the total number of defecation decreases gradually after 12 and 24 months. Significant differences revealed in favor of SEA for reduction of total number of defecation/day and lower number of defecate during the day and night. No significant difference as to pad, drugs, clustering, calculated scores, were recorded, even if the best results are obtained in case of SEA.

**Conclusion:** Colorectal/coloanal reconstruction with SEA are beneficial to the patient, due to an improved anorectal post-operative functionality compared with the results obtained with SA. SEA can be performed with minimal technique and short operative time. In addition, low resections, not requiring the construction of a neo-ampulla, make surgery easier, no surgical complications arising there from.

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### **Value of a Protective Stoma (Ileostomy Versus Colostomy) in Low Anterior Resections for Rectal Cancer**

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**Introductions:** This retrospective study investigates whether a protective stoma (ileo or colostomy) can reduce the anastomotic leakage rate and compare the two procedures in a group of patients operated by election for rectal cancer.

**Materials and Methods:** 335 patients underwent curative surgery from 1999 to 2007 achieved by low (149) and very low (186) anterior resection; in this last group, 103 underwent a loop colostomy and 89 a loop ileostomy to defunction a low anastomo-

sis. Age, obesity, tumor stage, and timing of closure of stoma (2-6 months) were similar between the two groups. 163 stoma were closed. All the stoma-related complications, occurred after construction and after closure of the stoma, were recorded.

**Results:** Symptomatic leakage: 8%; subocclusion: 0.6%; haemorrhagia: 2.3%; reoperations: 0.6%; exitus: 1.3%. About stoma, after construction, the morbidity rate was significantly higher after loop colostomy (19%) than after loop ileostomy (14%); after closure, the complication rate was significantly higher in the colostomy group (24%) than in the ileostomy one (18%).

**Conclusions:** A diverting stoma does not reduce the post-operative anastomotic leakage rate, but reduces the catastrophic effects of an anastomotic leak. The stoma-related morbidity was significantly lower after loop ileostomy than after loop colostomy. Loop ileostomy in our experience is the best procedure for defunctioning colorectal elective anastomoses.

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### **Peri-Operative Chemotherapy for Locally Advanced Gastric Adenocarcinoma: Preliminary Experience**

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**Introduction:** Gastric cancer is a neoplasm with a poor prognosis, often diagnosed in advanced stage of disease. Peri-operative chemotherapy (POC) may increase the possibility of complete surgical resection, improving progression-free and overall survival as shown in the MAGIC Trial.

**Material and Methods:** We enrolled 8 patients affected by gastric adenocarcinoma (cT2N+M0 or cT3-4NxM0) in POC. The neoplasia was diagnosed and staged by gastroscopy, endoscopic ultrasonography and total body <sup>18</sup>FDG-PET-CT. The patient underwent three cycles of pre-operative chemotherapy with Epirubicine, Cisplatin and 5-Fluorouracil (ECF) as MAGIC Trial showed. Fifteen days after the end of ECF the patients underwent endoscopic ultrasonography and total body <sup>18</sup>FDG-PET-CT to evaluate the tumor response to chemotherapy, then surgery. Thirty day after surgery they started the first of the three post-operative ECF.

**Results:** All patients completed the pre-operative chemotherapy with a III-IV grade toxicity of 12%. Radical surgery was performed in 7 patients. No peri and post-operative mortality were observed. Chemotherapy was started one month after surgery in all patients. Post-operative chemotherapy III-IV grade toxicity was 30%.

**Conclusion:** Although surgical resection remains the key component in the treatment of gastric cancer, improved outcome depends of multidisciplinary treatments. POC may be a valid option in downstaging the primary tumor and increasing resectability rates. Our preliminary experience shows that peri-operative chemotherapy with ECF has low toxicity and it could represent a good integrated treatment for locally advanced gastric carcinoma.

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### **Small Bowel Metastasis From Lung Cancer: A Possible Cause of Acute Abdomen**

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**Introduction:** Lung cancer represents the leading cause of tumor death in the world with 50% of patients presenting metastatic disease at the time of diagnosis. Gastrointestinal (GI) lung cancer metastases were thought to be extremely rare (< 14%) and their clinical relevance is low, but can increase with the efficacy of systemic chemotherapy in advanced stages, causing acute bleeding or perforation of metastatic site.

**Materials and Methods:** A 79 y.o. man, affected by lung cancer of the superior left lobe with bilateral adrenal metastasis, was admitted following the acute onset of diffuse abdominal pain. Physical examination revealed abdominal tenderness and diffuse peritonism. Plain abdominal RX and CT scan confirmed bowel perforation. At emergency laparotomy the evidence of proximal jejunal perforation required limited intestinal resection. Post-operative course was complicated by sepsis, respiratory failure, massive left pleural effusion and acute on chronic renal failure, which lead him to death on the X post-operative day. Histopathologic examination and immunohistochemistry of the resected jejunal loop demonstrated the presence of large cells lung cancer metastasis.

**Results:** GI metastasis from lung cancer may occur within the clinical course of the disease and require surgical treatment followed by a poor outcome. Large cells carcinomas causing kidney and adrenal metastasis are more likely associated with GI localization of the disease.

**Conclusions:** Identification of clinical indicators of GI metastasis may help in the therapeutic strategy.

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### **Determinants of Morbidity and Postoperative Hospital Stay in Colorectal Cancer Surgery**

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**Introduction:** Knowledge of clinical factors influencing length of postoperative stay and development of complications could allow an early identification of patients subgroups requiring different postoperative care and surveillance. Aim of this study was to identify factors that can predict morbidity, mortality and hospital stay after colorectal cancer surgery.

**Materials/Methods:** The charts of 391 patients who underwent different operations for colorectal cancer between Jan 03 and Dec 08 were reviewed. Surgical, patient and tumor-related variables, were recorded. The study endpoints were postoperative morbidity, mortality and the length of hospitalization.

**Results:** No mortality have been recorded. Overall morbidity rate was 20,7%. Thirty-one severe complications, 9 anastomotic leakages and 10 postoperative bowel occlusions were identified. Rate of severe complications was higher in male patients and ASA III-IV. Anastomotic leakage was associated with extraperitoneal anastomosis. Surgical complication, rectal and left colon tumor localization, ASA, extraperitoneal anastomosis, presence of stoma, neoadjuvant therapy and advanced age were associated with a postoperative stay greater than 10 days.

**Conclusions:** Severe postoperative complications were more frequent in male, ASA III-IV patients who underwent anterior resection. Postoperative complications were not the only factor associated with prolonged hospitalization: a critical review of these results allowed us to identify several clinical factors that unduly lengthened postoperative stay and could theoretically lead us to a meaningful shift in postoperative protocol after colorectal surgery

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### **Treatment of Peritoneal Carcinomatosis with Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy (HIPEC): Personal Experience of the First 100 Cases**

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**Introduction:** Intraperitoneal hyperthermic chemoperfusion has been proposed for treatment of peritoneal carcinomatosis from abdominal neoplasms.

**Methods:** Data from the first 100 HIPEC carried out in our institution are prospectively revised.

**Results:** Among 95 pts primary tumor was ovarian cancer in 52, gastric cancer in 16, colorectal carcinoma in 22, pseudomyxoma/mesothelioma in 6. A complete cytoreduction was obtained in 61% of cases. Postoperative complications occurred in 35% and haematological toxicity in 23%. The most frequent complications were wound infection (10 cases), pleural effusion (9 cases), intestinal fistula (9 cases) and medical complications (5 cases). Reoperation was necessary in five cases (5%). All complications solved favourably, except one postoperative mortality (1%). Five-yr survival rates were 51% for ovarian cancer, 47% for colorectal cancer, and 23% for gastric cancer. Long-term survival was also primarily related to the absence of residual tumor after cytoreduction.

**Discussion:** Cytoreductive surgery combined with HIPEC is associated with a high risk of postoperative complications, and should be only performed in specialized centers. With an adequate

management, complications solved favourably in the majority of cases. High survival rates were observed in patients with PC from primary ovarian cancer and colorectal cancer with optimal cytoreduction.

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### **Preoperative Value of Serum CA 19-9 Levels in Predicting Resectability and Prognosis in Pancreatic Cancer**

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**Introduction:** The study was aimed at evaluating the value of preoperative CA 19-9 serum level in the prediction of curative resectability in pancreatic cancer and its utility as a prognostic marker.

**Methods:** Data from 200 consecutive patients referred to our Institution for pancreatic cancer were retrospectively revised. Resectability was determined from a complete preoperative clinical and instrumental examination and/or intraoperatively at laparotomy. A ROC curve was constructed for the CA 19-9 levels with the aim to assess the best cut-off value in determining non-curative surgery.

**Results:** There were 84 (42%) resectable and 116 (58%) unresectable pancreatic cancers. The median CA 19-9 level was 59.1 (range 1-9905; IQR 8-233) U/ml in patients submitted to curative resection, 260 (range 6-8496; IQR 113-970) U/ml in non-curative resections, and 684.1 (range 1-63650; IQR 127-5078) U/mL in unresectable group (KW test:  $p < 0.001$ ). ROC analysis identified a cut-off value of 514 U/ml to be associated with curative (R0) resectability (sensitivity 53%, specificity 89%; AUC 0.75). Univariate analyses of 5-year survival revealed that preoperative CA19-9 level was significantly associated with clinical outcome.

**Discussion:** Preoperative CA 19-9 levels, other than a useful prognostic marker, may be valuable in identifying unresectable disease or patients candidate to non-curative surgery.

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### **Petersen Index Score in Dukes' B Colorectal Cancer. Our Experience on 210 Consecutive Patients**

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**Introduction:** Dukes' B cancer represents a wide spectrum of disease from early penetration through the bowel wall to aggres-

sive and extensive tumors with extramural venous spread and involvement of the serosa, surgical margins, or adjacent organs. Among Dukes' B cancers, Petersen index (PI) allow a stratification in order to identify those patients for whom chemotherapy may be of benefit.

**Population under Study:** 210 resected patients with CRC Dukes' B were included prospectively in a database and considered in the present study. According to PI, a score (from 0 to 4) for each patients was calculated on the basis of peritoneal and margin involvement, venous invasion and tumor perforation.

**Results:** 49 out of 210 tumors were located in the Rectum and 161 in the Colon. According to PI score 169 patients had a score of 0, 26 of 1 and 15 of  $\geq 2$ . The overall R0 resection was achieved in 94.2% of cases and the majority of patients with PI score of  $\geq 2$  were R1-2. The mean of harvested lymph nodes was 16.9 with no difference according to the PI score. Patients with PI score of 0 had a 5-year survival rate of 92.3%, significantly higher if compared with those with PI score 1 (71.4%) and  $\geq 2$  (46.7%).

**Conclusion:** Even though in our experience the influence of PI score on survival is confirmed, we underline that a comparison with additional clinical and histological prognostic factors should be needed

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### A New Stool Test for Colorectal Cancer Screening

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**Introduction:** Given the increasing incidence of colorectal cancer (CRC), performing new and cost-effective stool tests is of particular importance for early diagnosis and treatment. Clusterin is a pleiotropic protein involved in pro-survival and apoptosis processes that are carried out by two different isoforms. In colorectal cancer there is an increased expression of sCLU. In the current report, we investigated if sCLU is released in blood and in stool of colon cancer patients resulting as a potential diagnostic molecular marker for colon cancer screening.

**Methods:** We assessed sCLU levels by Dot blot immunodoseage in serum and stool of colorectal cancer patients (n=63) and healthy individuals (n=50).

**Results:** We evidenced a significant increase of sCLU in serum and stool of CRC patients ( $p < 0.00$ ) as compared to healthy individuals. sClusterin stool levels were shown to positively correlate with the tumor stage.

**Conclusions:** These studies indicate the potential applicative role of Clusterin detection in stool to improve the effectiveness and efficiency appeal for large scale clinical cancer screening, with an ideal balance between sensitivity and specificity.

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### Cloacogenic Tumor of the Anal Canal: What is the Role of Surgery?

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**Introduction:** Tumours of the anal canal and anal margin are rare. Cloacogenic tumor is the second type for frequency, after squamous carcinoma. We report a case of cloacogenic tumor, we discuss the role of surgery in this disease.

**Methods:** In November 2008, 83 years-old-woman was admitted for anal bleeding, pain and tenesmus. Colonoscopy revealed neof ormation near to the dentate line and biopsy was positive for anal cloacogenic cancer. Imaging techniques didn't show metastasis or lymph nod involvement. Because of difficulties of patient to getting an other hospital to chemoradiotherapy, she accepted abdominoperineal resection (APR) like alternative.

**Results:** APR was performed. Histological exam confirmed cancer infiltrating internal sphincter muscle and showed 2 lymph node metastasis. No postoperative complications were observed. Adjuvant radiotherapy was indicated. At present, patient is disease free.

**Discussion:** Although chemoradiotherapy is the standard treatment for anal cancer, surgery is reserved for failure of therapy, and it could be considered when chemioradiotherapy isn't accessible. Surgical resection, revealed, in our patient, the presence of lymph node metastasis, didn't discover from CT, with risk of cancer' downstaging. Local trans-anal excision, for some authors, could be considered for small superficial lesions (< 2 cm), also if it is associated with variable survivorship.

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### Gold Standard in Surgery for Colorectal Cancer: Laparoscopic versus Open Approach

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**Introduction:** Like in other fields of general surgery, laparoscopy is new option in colorectal surgery.

**Methods:** In the last years, prospective, randomized clinical trials (COST, CLASICC, COLOR) were performed to compare laparoscopic to open surgery in treatment of colorectal cancer.

**Results:** Complication, outcome, distant and local recurrence rates for patients with colorectal cancer treated by laparoscopic surgery do not differ significantly from those by open surgery. Still, laparoscopy for curative treatment of rectal cancer is still controversial, few data are available, and higher positivity of the circumferential resection margins was reported after laparoscopic anterior resection. Besides, laparoscopic surgery requires

high cost, operative long surgical times, difficult and extended learning curve and important conversion rate.

**Discussion:** Evaluation of laparoscopic surgery impact on immunological functions compared with open technique is necessary. Laparotomic option can be used like first choice, also because new instruments (ligasure, ultracision, new staplers) make it even more safe. In locally advanced and bulky cancer, open approach is unavoidable. Longer follow up studies will further define outcomes comparing the two techniques. Also if all modern surgeons should know both approaches.

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### **Colo-Rectal Cancer (CRC) in Elderly Patient: Biological Age As a Determinant Key for a Radical Surgery**

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**Introduction:** Determine whether the biological age of the patient and ASA score are discriminatory for a radical surgical approach in colo-rectal cancer.

**Materials and Methods:** Monocentric case record about 135 patients undergoing surgery for CRC between June 2004 and April 2008. Patients were divided into two groups: (A: <70 years, n = 44,27 and B: >= 70 years, n = 91) comparing clinical, surgical and pathological data.

**Results:** The average age of A is 59.6 years; for B it is 78.6 years. Oncological radicality was achieved in 41 (93%) and 76 (83%) patients respectively; ASA score was distributed in this way in A: I = 2, II = 40, III = 2 and IV = 1, so in B: I = 1, II = 23, III=54 and IV= 13. The average time of hospitalization was of 11.7 in A and 10.16 days in B. The post-operative complications were divided into major (4 in A -9.1% -, 10 in B -10.9% -) and minor (2 in A -4.5% -, 7 in B -7.6%). The mortality during the first 30 days after surgery was of 1 patient (2.3%) in A, and 4 patients (4.3%) in B.

**Conclusions:** Not age, but the physical condition (ASA score) and the patient's biological age, meaning co-morbidity, are the factors conditioning the choice of a surgical approach with radical intent. The stage of the disease significantly influence survival rates.

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### **Gastric Cancer in the Great Elder: What Surgical Approach?**

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**Introduction:** We retrospectively reviewed our experience with gastric cancer and compared patients younger than 75 years old to elderly ones to see if there is any difference in clinicopathological features and early-term outcomes between the two groups.

**Materials and Methods:** All cases of gastric cancer, from January 2005 to May 2008 were reviewed.

70 patients with gastric cancer underwent gastric resection at our center in this period. Among these, 38 (54.3%) were 75 years old or older and 32 (45.7%) were aged 74 years or younger. Of the 70 patients undergoing surgery 56 (80%) had radical intervention purposes, while 14 (20%) underwent palliative surgery. In the younger group 17 (70.8%) patients had a total gastrectomy with D2 linfectomy and a subtotal gastrectomy with linfectomy D2 in 7 patients (29.2%) In the second group had 12 total gastrectomy-D2 (37.5%) and 20 subtotal-D2 gastrectomy (62.5%).

We had 3 postoperative complications in the first group (12.5%); in the second group 5 patients (15.6%) had complications.

**Conclusions:** Our findings support the conclusion that gastric cancer in older patients warrants surgical resection because the benefit to these patients is the same as it is for younger patients, elderly patients did not present with more aggressive and advanced gastric carcinoma; and age alone should not preclude gastric resection in elderly patients.

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### **Matrilysin Expression in Different Stages of Colorectal Tumors**

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**Introduction:** MMP-7, Matrilysin, is associated to cancer with a possible role in invasion and diffusion. Aim of this study was to demonstrate MMP-7 expression in different stages of colorectal tumors.

**Materials and Methods:** 28 patients affected by adenomas with low-moderate dysplasia and adenocarcinomas were enrolled after surgery into three groups: adenoma, cancer without and with metastases. Serum, lymph nodes, neoplastic and mucosal samples were analysed for Matrilysin expression by immunohistochemistry and ELISA, nodes where furthermore double-checked by west-



ern blotting. Clinical-pathological variables were also evaluated. Analysis of variance ANOVA was used for statistics.

**Results:** Significant increased expression of MMP-7 was observed in cancer ( $p < 0.001$ ) vs adenomas. Lymph nodes showed significant higher level of protein in advanced ( $p < 0.001$ ) and in not metastatic cancer ( $p < 0.05$ ) vs adenomas. In the serum metastatic cancer showed significant higher level of Matrilysin ( $p < 0.01$ ) compared to not metastatic carcinoma and adenomas.

**Conclusions:** There is a clear correlation between Matrilysin expression and colorectal cancer growth and spreading. MMP-7 dosage in serum, tumor and lymph nodes might help in predicting the biological behaviour and suggesting different prognosis. Furthermore Matrilysin might eventually represent a possible target for molecular therapy or for selective inhibition by TIMP.

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### Sweat Glands Eccrine Spiroadenocarcinoma of the Scalp: A Case Report

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**Introduction:** Carcinoma of sweat glands are very rare tumors. Even if some histotypes appear incontestable (porocarcinoma, adenoid-cystic carcinoma, mucinous carcinoma, malignant mixed tumor, cylindrocarcinoma and spiroadenocarcinoma), all the others forms have problems in order of classification. Two classes are recognized: eccrine and apocrine; benign and derived malignant forms. An important but not diriment aid for histopathological differentiation of sweat gland tumors is the histochemical and immunohistochemical markers for human eccrine and apocrine sweat glands. Spiroadenocarcinoma represents the malignant form of spiradenoma, with 33 cases in Literature.

**Case Report:** A 44-year-old man presented a scalp mass of 2cm in diameter in occipital area. He underwent surgery. The diagnosis was apocrine carcinoma. Thorax-Abdomen CT-scan detected visceral suspect lesions. He underwent lung biopsy for the suspicion of pulmonary primitive neoplasm, but histopathological and immunohistochemical features confirmed the cutaneous adnexial origin. The mass relapsed rapidly up to 5cm in diameter, the patient underwent radical exeresis of the lesion - size 5,5x2,3 cm- and the occipital wound was replaced with hyaluronan based matrix. The histopathological and immunohistochemical diagnosis was eccrine ulcerated adnexial spiroadenocarcinoma of the scalp sweat glands, CK 7+, CK 20, GCFPD-15, TTF-1-. Adjuvant therapy was performed.

**Discussion:** Spiroadenocarcinoma is an extremely rare neoplasm that usually develops in areas with eccrine glands. It can be very aggressive and often metastatizes to lymph nodes, bones and viscera. The histopathological and immunohistochemical features are fundamental for the differential diagnosis from other tumor's

metastases. Because of its rarity, appropriate adjuvant therapy remains to be defined.

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### Short Term Outcome of Colorectal Resection for Cancer: Report of 1000 Cases

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**Introduction:** Colon cancer is the second most relevant cause of death, in Italy, among cancer. The purpose of this study was to evaluate postoperative mortality and complications.

**Material and Methods:** All patients with adenocarcinoma of the colon diagnosed between 1999 and 2008 were registered prospectively. Postoperative mortality (perioperative: 30 days from surgery) and complication rates in elective patients were compared. Logistic regression analysis was used to identify independent risk factors for postoperative complications.

**Results:** A total of 1000 patients underwent surgical treatment: 42% patients had anterior rectal resection, 25.7% left hemicolectomy, 32.3% right hemicolectomy. Perioperative mortality rate was 3%. Multivariate analyses demonstrated that increasing age, advanced tumour stage and ASA class IV were independent risk factors for postoperative mortality. Complication rate was 20%. 60 patients (6%) developed anastomotic fistula. Of these group, 35 pts were treated conservatively while 25 needed new laparotomy.

**Conclusions:** Despite the risk of perioperative mortality and postoperative complications, colorectal resection for cancer, in a large volume hospital, is feasible and safe with very good results and outcome.

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## Gynecological Surgery

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### Laser Ablation of Vulvar Paget's Disease Recurrence: A Case Report

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**Introduction:** Vulvar Paget's disease (VPD) is a rare neoplasm showing itching, burning, and bleeding. The findings include a brick red, scaly, eczematoid plaque with a well marked

borders. The lesion is of apocrine origin and confined to the epithelium.

**Material and Methods:** A woman (age 86) was admitted to our Department on Feb. 2009. History: 1995-2006 multiple radical surgical excisions of VPD with positive surgical margins. Clinical picture: After confirming diagnosis of VPD recurrence through histological examination, the lesion is brushed, 3 mm deeply, by CO<sub>2</sub> high power laser vaporization (40 watt), besides lesion's edges for ~20 cm<sup>2</sup> surface. Follow-up at 1 and 3 mos. showed good scarring without symptoms and negative biopsies.

**Conclusions:** Surgical radical excision is the standard treatment for VPD. It was associated with significant disfigurement and persistent local recurrence rate (31-43%). Positive surgical margins is a frequent finding, but recurrence is common regardless of margin status, that is not a sign of complete or partial excision.

In the case above reported a CO<sub>2</sub> Laser vaporization was exploited to treat a Paget's relapse in a patient previously submitted to multiple surgical excisions that deeply compromise patient's quality life. Paget's cells, source of recurrence, were found in superficial ends of hair follicles and sweat ducts, sinking in derma for a depth of 8-10 mm. Laser vaporization is not always an useful treatment, destroying epidermis, superior tract of sweat duct and a part of reticular derma for a depth of 2-3 mm. Moreover it preserves vulvar anatomy, with reduced period of recovery and improved quality of life.

In conclusion, primary treatment of VPD is surgical excision, joined with laser vaporization to treat microscopic areas, recurrence or surgery unsuitable lesion.

showed a complete resolution of SUI, two patients (6.9%) an objective improvement, while in 2 patients (6.9%) SUI was unchanged. No intraoperative or postoperative complications were reported.

**Conclusion:** MiniArc™ seems to be a safe and effective approach to SUI.

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### Robotic Radical Hysterectomy with Pelvic Lymph-Node Dissection for Cervical Cancer: Single Institution Experience

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**Introduction:** We conducted a feasibility study employing the da Vinci Robotic Surgical System in the treatment of cervical cancer.

**Material and Methods:** We performed 40 consecutive radical hysterectomies with pelvic lymph node dissection using the four arms da Vinci Robotic System. Patient demographic data, operative details, complications, pathology results and post-operative course were documented prospectively.

**Results:** The patient mean age was 44.1 years. The mean BMI was 24.16 Kg/m<sup>2</sup>. FIGO stage included IA2 (3), IB1 (27), IB2 (9), IIA (1). The mean blood loss was 78 cc and operative time was 272.2 minutes. The mean docking time was 4.5 minutes. Mean hospital stay was 3.7 days. 43% of the patients were analgesic-free on postoperative day 2. Three patients required blood transfusion post-operatively. The average number of pelvic nodes recovered was 20.4. Intra-operative complications consisted in an enterotomy, an obturator nerve injury, and a vascular damage of an ovarian artery: they were successfully repaired robotically. Bladder dysfunction was observed in 82% of the patients at the time of discharge. There were 26 early complications and 15 late complications.

**Conclusions:** Robotic radical hysterectomy is feasible with good surgical outcomes and low complication rate. Further randomized prospective trials are needed.

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### Short Term Results of Miniarc™ in the Treatment of Female Stress Urinary Incontinence

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**Introduction:** MiniArc™ is a single incision, tension free, trans-obturator tape device for the treatment of female Stress Urinary Incontinence (SUI). Aim of this study is to evaluate short term efficacy (objective cure and complications rate) of MiniArc™.

**Materials and Methods:** Since March till October 2008, 30 patients (mean age 56 y.o.) eligible for surgical treatment of SUI were consecutively admitted to this study after giving written consent (exclusion criteria: occult SUI, previous surgical treatment for SUI, voiding difficulties). Preoperative assessment included clinical history, physical examination and urodynamic study including cough stress test. Postoperative assessment included a clinical and physical evaluation with cough stress test 1, 2, 6 and 12 months after the operation.

**Results:** In 8 patients SUI was associated to pelvic organ prolapse (POP) which was corrected. Preoperatively SUI was rated medium (leakage after 3 coughs) in 14 patients (46.7%) and severe (leakage after 1 cough) in 16 patients (53.3%). Mean follow up was 7.7 months and one patient was lost. Twenty-five patients (86.2%)

### Perioperative Pelvic Hemorrhage Management with Surgicel Fibrillar During Transvaginal Mesh Sacrospinous Ligament Fixation in Severe Pelvic Organ Prolapse Repair, A Case Report

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Acute hemorrhage following pelvic reconstructive surgery is a complication requiring immediate evaluation and treatment. Most researches agree describe the perioperative morbidity associated with sacrospinous ligament fixation repair of pelvic organ prolapse; while few studies on management of perioperative acute hemorrhage have done. We show a video demonstrating hemostasis control with surgicel fibrillar of acute bleeding during sacrospinous ligament fixation of severe utero-vaginal prolapse.

Hemorrhage is one of the most common complication of vaginal sacrospinous ligament fixation in pelvic organ prolapse repair. The potential for life-threatening pelvic hemorrhage exists during the sacrospinous ligament fixation procedure if the vasculature posterior to the ligament is injured, because of pertinent structures in this anatomic plane include the obturator vessels as well as the plexus of veins within the endopelvic fascia. Venous oozing is better controllable than arterious hemorrhage. The problem is the procedure is done blindly with finger-guidance throughout each trocar pass in a zone (around the buttock hip) in which the vascular network is very rich to allow articulation and movement.

The video shows hemostasis control with surgicel fibrillar of acute bleeding during sacrospinous ligament fixation of uterus in big utero-vaginal prolapse. Surgicel Fibrillar Adsorbable hemostat is a sterile adsorbable fibrous material prepared by the controlled oxidation of regenerated cellulose, the seven layers of each Surgicel fibrillar allows the surgeon to grasp with a forceps any amount of the product needed to achieve hemostasis. To examine the current clinical problem of life-threatening hemorrhage during sacrospinous vaginal vault suspension, define a management solution. Current report are investigating the life-threatening

### Ovarian Lesions in Children and Adolescents: Surgical Management

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**Study Objective:** Ovarian pathology, although rare in the pediatric age, must be included in the differential diagnosis of all girls who present abdominal pain or an abdominal mass. The aim of the study is to analyze various clinical presentations and the surgical management of ovarian pathologies in pediatric girls.

**Materials and Methods:** We retrospectively reviewed the cases of ovarian masses in children treated in our Institution over a 6-year period. Age at presentation, presenting symptoms, diagnostic studies, surgical procedure, pathology findings and outcome of all patients were analyzed.

**Results:** A total of 67 children and adolescents with 72 ovarian masses (5 patients had bilateral pathologies) were found. The median age at surgery was 16,1 years (range 6 months to 18 years). The most common presenting symptom was abdominal pain (65,7%). All patients underwent trans-abdominal US, 40,3% had trans-vaginal US and 20,9% had abdominal CT scan or MRI. Conservative surgery was performed in majority of cases (58,3%) to preserve fertility. 38 lesions (52,8%) were non neoplastic pathologies, 31 were benign tumors (43,0%) and 3 were malignant tumors (5,4%). The most common ovarian lesions treated were functional cysts (only symptomatic or sonographically complex lesion) (30,6%) and mature cystic teratoma (26,4%). All patients (except for one with yolk sac tumor) are now alive disease-free.

**Discussion:** In pediatric population, adnexal masses are estimated to occur at an annual rate of 2,6 cases per 100.000 girls. So ovarian lesions are a rare indication for surgery in pediatric patients. As most of these lesions are benign, ovarian-preserving surgery should be performed whenever feasible to minimize the risk of decreased fertility.

### Use of Laparoscopic Ultrasonography for Conservative Treatment of Recurrent Borderline Ovarian Tumor

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**Introduction:** Surgical removal is the cornerstone in the management of ovarian borderline tumors; management has changed from radical surgery to a more conservative therapy and fertility-sparing surgery is now considered an adequate treatment for all stages disease. Conservative surgery is complicated by a 10.60% rate of relapse. Laparoscopic ultrasound (LUS) is a new tool that combines the laparoscopic approach with intraopera-

tive ultrasonography of the ovarian cyst. Using this technique the surgeon is able to detect small intraovarian recurrences and fully resect the recurrence, and spare the healthy ovarian tissue.

**Materials and Methods:** Patients with relapsing ovarian borderline tumor with uncompleted pregnancy program were treated by laparoscopic surgery: intraoperatively LUS procedure was performed. Topography of the tumor, possibility to proceed with fertility sparing surgery, postoperative menstrual cycles, and postoperative fertility were assessed with the use of a laparoscopic ultrasonography.

**Results:** By using the intraoperative sonographic assessment of the ovarian tumor, 7 cases were treated by cystectomy and 2 cases by unilateral oophorectomy. Patients menstruations resumed in all patients. Subsequent relapses were observed in 3 cases (33%). Pregnancies were obtained in 4 patients (44%).

**Discussion:** Laparoscopic ultrasonography for relapsing ovarian borderline tumor is a valuable tool for performing a fertility sparing surgery.

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### Treatment of Advanced Ovarian Cancer by Neoadjuvant Chemotherapy Followed by Surgical Debulking and Intraperitoneal Chemohyperthermia

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**Introduction:** Ovarian cancer is particularly prone to peritoneal carcinomatosis (PC). Intraperitoneal chemohyperthermia (HIPEC) has been proposed for treatment of PC from ovarian cancer with different results.

**Aim of the Study:** This study was aimed at evaluating the effectiveness of HIPEC in primary ovarian cancer with PC.

**Methods:** Between January 2000 and January 2009, HIPEC has been performed in 51 patients affected with advanced ovarian cancer; three patients were submitted to double treatment, for a total of 54 procedures. Forty-three patients were treated for primary ovarian cancer (group A), and 11 patients for tumor recurrence (group B). In group A, the stage of the disease was classified as stage Ic in 1 case, IIa-IIc-IIIa in 2 cases respectively, IIIb in 1 case and IIIc in 35. After diagnosis and clinical staging, most of patients in group A were submitted to neoadjuvant chemotherapy with taxol and platinum schedule (6 cycles), and then they underwent surgery, according to a phase II protocol which is ongoing. Surgical treatment included hysterectomy, appendectomy, removal of greater omentum and para-aortic lymphnodes, pelvic lymphadenectomy, and peritonectomy in abdominal regions with peritoneal metastases. After surgical debulking, HIPEC was carried out throughout the abdominopelvic cavity for 60 minutes, using a closed-abdomen technique. Intra-abdominal temperature ranged between 41°C and 43°C; mitomycin C (25 mg/mq) and cisplatin (100 mg/mq) were the anticancer drugs generally used, and they were administered with a flow rate of 700-800 ml/min.

**Results:** Mean hospital stay was  $11 \pm 6$  days (range 7-49). At the end of the operation, a complete cytoreduction (CCR-0) was obtained in 36 cases (67%); residual tumor < 2.5 mm (CCR-1) was observed in 8 cases (15%), and > 2.5 mm (CCR-2/3) in only 10 patients (18%). Postoperative complications occurred in 39% of cases. The most frequent complications were pleural effusion (6 cases), wound infection (5 cases), intestinal fistula (2 cases) and medical complications (5 cases). Grade-2 or more hematological toxicity occurred in 23 cases. Reoperation was necessary in two patients (4%). All complications solved favourably, and no perioperative or postoperative mortality was observed. With a mean follow-up period of  $34 \pm 21$  months (range: 5-92), cumulative survival was 51% at five years; it was 54% in patients with primary tumor, whereas all patients with recurrent ovarian cancer died within 6 years from treatment. Long-term survival was also related to the absence of residual tumor (group A: 77% in CCR-0 vs. 16% in CCR+,  $p < 0.005$ ).

**Conclusions:** Neoadjuvant chemotherapy followed by surgical treatment combined with HIPEC is an effective treatment for primary ovarian cancer with peritoneal dissemination; this approach is associated with a high rate of complete cytoreduction and long-term survival. Due to the high risk of postoperative complications, this treatment should be performed in specialized centers only.

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### Continent Ileocolonic Urinary Diversion (Rome Pouch) for Gynecologic Malignancies: Technique, Feasibility, Complications and Urodynamics Evaluation

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**Introduction:** Continent urinary diversions are the most commonly techniques adopted by gynecologic oncologists. We describe the technique, feasibility, early complications and urodynamics evaluation of "Rome pouch" urinary diversion.

**Materials and Methods:** Between February 2000 and January 2009 in our centers, an ileocolonic urinary diversion (Rome pouch) was carried out in 42 patients affected by advanced or recurrent gynecologic malignancies. This technique uses a non detubularized low-pressure colonic reservoir with a tapered ileum and pursestring suture to reinforce the ileocecal valve as its continence mechanism [11] *J Urol* **140** View Record in Scopus Cited By in Scopus (44).

**Results:** The average operative time to complete the anterior and total exenteration including reconstruction procedure was 285 (range, 230-350) and 320 (range 280-415) min, respectively. The average time in performing the Rome pouch technique was 60 min (range, 45-90). Overall postoperative complication rate (major and minor complications) was 82% (34 patients).

Urodynamics performed 12 months postoperatively showed that the mean maximum reservoir capacity was 439.9+/-58.9 cm H<sub>2</sub>O. Continence was excellent for 39 (93%) and 38 (92%) patients at 3 and 12 months respectively. A total of 13 (32%) and 10 (24%) patients suffered late complications at 3 and 12 months follow-up respectively. However only one patient with pouch leakage underwent surgical pouch revision.

**Conclusions:** The simplicity of performing the procedure and the short operating time are the best goals reached by Rome pouch technique. Our experience demonstrated that Rome pouch technique represents a valid alternative in gynecology oncology for continent urinary diversion.

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### Use of Macroplastique as an Alternative Treatment of Female Stress Urinary Incontinence in Elderly Patients

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**Introduction:** to evaluate use of Bulky Agents (Macroplastique) as an alternative treatment of female stress urinary incontinence in elderly patients.

**Materials and Methods:** From January 2005 to January 2008, women with age > 75 years old, affected by stress urinary incontinence, presenting to our institution were considered for eligibility in this prospective study. During postoperative follow up, performed at 6 and 12 months after surgery, we evaluated objective and subjective cure rate.

**Results:** A total of 27 consecutive patients were enrolled. Median age of patients was 77 years (range, 75-85 years).

At 6 month after surgery urogynecological examination 15 (55%) patients were cured, while 4 (15 %) patients referred none improvement of their symptoms. 8 (29.6 %) patients referred de novo urge incontinence or other overactive bladder symptoms; all these patients were submitted to a medical treatment based on anticholinergic drugs for 6 months.

After 12 months of surgery the objective cure rate was 44,4% (12 of 27 patients), the improvement rate was 33,3% (9 of 27) and the failure rate was 22,2 % (6 of 27). No patients referred de novo urge incontinence or other overactive bladder symptoms.

The overall success rate was 77 % (12 patients cured and 9 improved). All the 6 patients who failed treatment suffered preoperatively of urethral hypermobility.

**Conclusion:** Macroplastique should be considered as alternative treatment of SUI in elderly patients because this procedure may be done in high risk patients with a good objective and optimal subjective cure rate.

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### The Use of Novel Matrix Hemostatic Sealant (FloSeal) in Gynaecologic Oncology

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**Introduction:** Bleeding control during surgical procedures, especially in case of neoplastic tissues that are often easy bleeding and crumbly, may be difficult or ineffective. In these cases a topical haemostatic agents (FloSeal®) may be used instead of conventional methods of haemostasis. FloSeal® is a novel matrix haemostatic sealant composed of collagen-derived particles and topical bovine-derived thrombin. We propose its use in gynaecologic oncology procedures to achieve haemostasis on easy bleeding and crumbly tissue.

**Materials and Methods:** We use FloSeal® in cases of difficult haemostasis on neoplastic tissue during gynaecological open or vaginal surgery.

**Results:** We utilized FloSeal® to achieve haemostasis in 5 cases of biopsy on vaginal relapse of primary cervical cancer, in 2 cases of resection of bladder tumours in advanced cervical cancer and on biopsy on vulvar cancer. In all case the neoplastic tissue was easy bleeding and crumbly and haemostasis was difficult with conventional methods. Haemostasis was obtained in all cases into 3 minutes beginning from the first blood appearing.

**Conclusion:** This preliminary data suggests that FloSeal® may represent a valid alternative solution for obtaining haemostasis on neoplastic tissue.

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### Intraoperative Laparoscopic Ultrasound for Characterization and Management of Ovarian Cysts

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**Introduction:** The recent rapid development of video-assisted surgical techniques has prompted a new interest in intraoperative laparoscopic ultrasound (LUS).

**Materials and Methods:** The aim of the study is to compare the diagnostic accuracy of laparoscopic vs transvaginal ultrasound in the evaluation of adnexal masses.

All patients underwent transvaginal ultrasound before the procedure and LUS during endoscopic surgery. The diagnostic accuracies of preoperative transvaginal sonography and LUS were

compared to the final pathological diagnosis. Moreover the presence of healthy residual ovarian tissue was evaluate by preoperative transvaginal and intraoperative ultrasound.

**Results:** Twenty five women were enrolled in the study. Transvaginal sonography showed 30 adnexal masses and laparoscopic ultrasonography evidenced 35 adnexal lesions.

The diagnostic accuracy of LUS in the characterization of adnexal masses was 87% whereas for transvaginal sonography it was 65% ( $P < 0.01$ ). In addition, LUS was able to demonstrate the presence of residual ovarian tissue within pathological site in the 78% of patients compared with 60% using transvaginal sonography ( $P < 0.05$ ). With laparoscopic visualization, the exact location of the ovarian tumour could be demonstrated in 60% of the cases, whereas LUS precise visualization of the ovarian mass was achieved in all cases.

**Conclusion:** LUS shows more precise and specific characterization of known adnexal masses, and detects new lesions. LUS evaluation of residual healthy tissue within a pathological ovary allows a more precise surgical indication to either cystectomy or oophorectomy. Finally, LUS is useful to locate the correct incision site in order to prevent unnecessary trauma of the ovary.

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### Use of Myocet as a Valid Drug in Patients affected by Gynecological Cancer with Doxorubicin Chemotherapy Side-Effects

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**Introduction:** Doxorubicin has a wide spectrum of cytotoxic activity in gynecological cancer. Moreover this drug is associated with chronic cardiac toxicity, often irreversible, which limits life-time dose.

A new liposomal formulations has been developed in the past decades to limite side-effects of doxorubicin: Liposome Encapsulated Doxorubicin Citrate (LEDC). In the present study we report our experience with LEDC (Myocet®) in patients affected by advanced/recurrent gynaecological cancer, suffering from chemotherapy side effects.

**Materials and Methods:** From 2000 to December 2007, 41 patients entered the study. Concerning primary disease, 33 patients were affected by ovarian, 6 by endometrial cancer, and 2 by cervical cancer. All patients had received prior chemotherapy. LEDC was employed as third or fourth line. The median number of courses was 3.

**Results:** In 4 patients (10%) the treatment was suspended for febrile neutropenia. In 10 patients (25%) a reduction dose by 25% was required. Most of these 14 patients had already experienced severe bone marrow toxicity during previous chemotherapeutic treatments. Suspension of treatment was required for only one

patient because of an episode of palmar-plantar erythrodysesthesia (PPE) G3. There were no episodes of cardiac dysfunction.

**Conclusion:** LEDC is a valid drug in patients affected by gynaecological cancer, suffering from doxorubicin chemotherapy side-effects.

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### Quality of Life and Sexual Function in Women Affected by Locally Advanced Cervical Cancer: A Prospective Randomized Study

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**Introduction:** To evaluate the sexual function in cervical cancer patients treated with neoadjuvant chemotherapy (NACT) plus type 3 radical hysterectomy (RH).

**Materials and Methods:** Sexually active patients, who underwent a planned RH as a primary treatment for FIGO stage IB2-IIIIB cervical cancer were recruited. Two consecutive assessments were recorded: at first evaluation postoperatively (T1), at 12 months follow-up visit (T2). Included patients were interviewed with EORTC QLQ-CX24 Questionnaire. Results were compared with a benign gynecological disease group and with an homogeneous control group from the general population.

**Results:** From April 2004 to December 2007, 42 patients were included in the oncologic group (OG), 37 patients in the benign gynecological disease group (BG) and 35 patients in the healthy control group (HG). After surgery, sexual activity has been resumed by 76% of the OG patients and 83.7% of the BG group's ones ( $p = ns$ ). In the multi-item scales, cancer survivors had clinically significant worse problems with symptom experience, body image and sexual/vaginal functioning than controls ( $p < .01$ ). Survivors reported more severe lymphedema and menopausal symptoms, peripheral neuropathy and sexual worry ( $p < .01$ ). Concerning sexual activity assessment, we found that score difference between patients with cervical cancer and women treated for benign gynecological disease is not statically significant ( $p = ns$ ). Also for sexual enjoyment our study shows good results for OG and BG.

**Conclusion:** NACT plus RH could be a valid option, with minor impact on QoL and sexual function, to treat and improve well being of young cervical cancer patients.

### Effectiveness of Flogofort in Resolution of Post Surgical Hematoma

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**Introduction:** Incidence of haematoma after abdominal surgery is between 0.1 and 1.3% and it is closely correlated with the risk of surgery itself. A conservative approach is preferred. Flogofort is composed by natural substances being useful in the treatment of edema and inflammation. **Materials and Methods:** All patients in which laparotomy was performed have been considered. They underwent abdominal ultrasound 24 hours after surgery, and patients with evidence of haematomas were considered. They were randomised to receive or not therapy with flogofort (2 cpr/die; 2 applications/die) and divided into two groups that underwent ultrasound scans to control the rate of haematoma's reduction.

**Results:** Eleven patients had subcutaneous hematoma as post-surgical complication, they were randomised in the treatment group (6 patients) and in the control group (5 patients). The mean volume of hematomas at time 0 was of 54,6 cm<sup>3</sup> in the treatment group and 52,9 cm<sup>3</sup> in the control group, after 7 days it was of 38,6 cm<sup>3</sup> and 32,3 respectively, after 14 days 22,5 cm<sup>3</sup> in the treatment group and 29, 2 cm<sup>3</sup> in the control one, after 21 days 7,2 cm<sup>3</sup> and 21,1 cm<sup>3</sup> respectively; finally after 28 days the ultrasound evaluation showed hematomas with a mean volume of 3,2 cm<sup>3</sup> in patients who assumed flogofort and of 8,2 cm<sup>3</sup> in the control group. In all cases, difference is not significant, but there is a more gradual reduction of haematoma's size in the treatment group.

**Conclusion:** Flogofort should be considered for the management of haematomas after surgery.

### Quality of Life and Urinary Function After Radical Vulvectomy With or Without Flap Repair

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**Introduction:** This study evaluate the quality of life and urinary function in patients submitted to vulvectomy with or without perineal flap repair.

**Materials and Methods:** Fifty-one patients referred to Department of Gynecology and Obstetrics of S. Orsola-Malpighi Hospital between January 1997 and May 2008 submitted to surgery for vulvar carcinoma. The patients were divided into two

groups: the first composed by 45 patientes submitted to radical vulvectomy and inguinal linfadenectomy; the second includes 6 women treated with radical vulvectomy and inguinal linfadenectomy associated to vulvar flap repairs. After surgery all patients were submitted to VWB questionnaire; moreover the urinary flow quality was scored.

**Results:** Patient's quality of life was lower in the group of patients submitted to radical vulvectomy compared to patients submitted to flap repairs vulvectomy (p=0.025). Quality of life was not related to stage of disease (p=0.078), Post-operative radiotherapy was significantly related to low quality of life (p=0.003). The items of quality of life mostly associated with lower results were legs' swelling (p= 0.021) and inguinal pain (p=0.021).

**Conclusions:** The patients that underwent to vulvectomy without flap repair showed lower results compared with patients with flap repair, that represent a severe alteration of quality of life, of self body image and sexual and urinary functions.

### Long Term Outcomes After Laparoscopic Treatment of Endometrial Cancer: Analysis of Risk Factors

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**Introduction:** The aim of this study was to evaluate the outcome of patients undergoing laparoscopic treatment of early stage endometrial cancer and to identify those factors that mostly influence survival.

**Materials and Methods:** Interrogation of a prospectively maintained data base. Comprehensive surgical staging was performed through a laparoscopic approach. Uni- and multivariate analyses were performed to establish which variables were associated with a poor prognosis (upstaged, recurrence, DOD). Kaplan-Meyer curves were built for survival outcomes.

**Results:** A total of 108 patients were included. The median (range) operative time, blood loss, lymph node harvest and days of hospitalization were 180 (110-375) min, 100 (10-400) mL, 18 (6-39), 2 (1-15) days, respectively. Median follow-up was 38 (2-83) months. 27 patients (25.0%) were included in the poor prognosis sub-group. Multivariate analysis showed that both elderly age ( $\geq 65$  years) (OR 3.52; 95% CI 1.3-9.6; p =0.01) and unfavorable histology (non-endometrioid) (OR 4.5; 95% CI 1.4-14.5; p=0.01) were independent predictors of a poorer prognosis. No differences were found between surgical variables and long term cancer outcomes. The 5-year overall and disease-free survival results differ between patients under and over 65 years-old, namely 97% vs 84% (p=0.003) and 92% vs 76% (p=0.003), respectively.

**Conclusions:** Laparoscopy appears to be effective for the treatment of endometrial cancer. Age  $\geq 65$  years represents an independent risk factor for survival outcomes.

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### **Adnexal Masses in Pregnancy: Maternal and Fetal Haemodynamic Changes During Laparoscopic Surgery**

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**Introduction:** The aim of the study was to evaluate changes in uterine arteries and umbilical arterial Doppler velocimetry in pregnant women undergone to laparoscopic surgery for adnexal masses.

**Methods:** 21 pregnant women were studied since 1997 to 2008 during laparoscopic surgery. In all cases an adnexal mass was diagnosed with ultrasound during the first trimester of pregnancy. Pain or suspect for malignancy were considered criteria for surgical treatment. In just 9 cases among our 21, uterine and umbilical arterial Doppler velocimetry (RI and PI) and fetal heart rate were obtained through ultrasound the day before surgery, during surgical procedure at different times (induction of anesthesia, pneumoperitoneum, enucleation of the cyst and at the end of pneumoperitoneum) and the day after surgery. Data were compared to a control group of 7 non pregnant women with the same clinical characteristics who underwent laparoscopic surgery for adnexal masses.

**Results:** No changes in uterine arterial PI and RI were found in pregnant women during surgery at the opposite in control group uterine arterial RI significantly increased during surgical procedure (enucleation time  $p < 0,001$ ). No changes in umbilical artery PI were observed during the surgical procedure. Fetal heart rate decreased during the surgical act after anesthetic administration remaining however into a safe range of frequency (mean HFR  $144 \pm 17$  bpm).

**Discussion:** Laparoscopic approach in pregnancy was not associated with significant changes in maternal and fetal circulation and represents a safe procedure for the management of adnexal masses.

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### **Laparoscopic Management of Apparently Early Stage Ovarian Cancer: Our Experience**

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**Introduction:** the aim of this study was to evaluate the feasibility and safety of laparoscopic approach for the management of apparently early stage ovarian cancer (EOC).

**Materials and Methods:** Prospective cohort study. Comprehensive laparoscopic staging, or re-staging, included peritoneal washing, total laparoscopic hysterectomy with bilateral salpingo-oophorectomy, omentectomy, appendectomy, multiple

random peritoneal biopsies, systematic pelvic and para-aortic lymphadenectomy.

**Results:** Between January 2003 and April 2009, a total of 26 patients were included. Mean age and BMI were  $50.8 \pm 16$  years and  $24 \pm 3.8$  kg/m<sup>2</sup>, respectively. The median operative time was 348 minutes (range: 255-450). The median estimated blood loss was 250 mL (range: 50-3000). The mean number of pelvic and para-aortic lymph nodes harvested was  $24.5 \pm 6.3$  and  $9.8 \pm 7.1$ , respectively. No conversion to laparotomy or intraoperative complications occurred. Post-operative complications occurred in one (3.8%) patient. Median hospital stay was 4 days (range: 2-8). Adjuvant chemotherapy was administered in 19 (73.1%) patients. The median follow-up period is 30.4 months (range: 6-87). Disease-free survival was 96.1%.

**Conclusions:** Laparoscopic staging of EOC is feasible and it's a safe option in select cases in skilled surgical teams. Larger series and longer follow-up are needed to establish long term outcomes.

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## **Pediatric Surgery**

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### **Dorsal Inlay Graft for Failed Urethroplasties**

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**Introduction:** Complications in reoperative urethroplasties are far greater than in primary repairs because the residual tissue is often abnormal.

Snodgrass tubularized incised plate urethroplasty has reached worldwide acceptance for primary repairs and reoperative purposes, but it may be considered only when the urethral plate is preserved and supple, despite previous surgery.

Hayes and Malone first proposed an “inlay” grafting to fill the defect due to a dorsal incision, creating a graft-augmented Snodgrass (“snod-graft”) repair.

We evaluated the medium term outcome of the dorsal inlay graft in 7 cases of failed urethroplasties.

**Material and Methods:** From January 2004 to December 2008 seven boys (mean age 5,4 years) were referred to our institution for complications after one or more urethroplasties.

Physical examination revealed a recurrent urethrocuteaneous fistula in 3 patients, a recurrent hypospadias in 3 patients and a dysmorphic glans in 1.

All the patients underwent a “snod-graft” repair, with the graft harvested from the residual foreskin (4 cases) and from the buccal mucosa (3 cases).

**Results:** Mean follow up was 34,1 months. All patients had normal urinary stream; an apical slit-like meatus was achieved in 5 patients, due to a glans dehiscence observed in 1 patient and a



less than optimal aesthetic result was obtained in the patient with previous glans ischaemia.

**Conclusion:** The optimal management after failed hypospadias repair remains uncertain, especially when the urethral plate is scarred or previously excised.

Despite the limited number of cases we consider the dorsal inlay graft a useful tool in the armamentarium of the hypospadiologist.

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### **Hormonal Treatment in Undescended Testes: Why Not Try It?**

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**Introduction:** The optimal mode of treatment of cryptorchidism has been discussed for decades without reaching a worldwide consensus. Today, two principally different approaches to treatment of undescended testes exist; surgery (orchiopexy) and hormonal treatments (GnRHa, LH-RHa and HCG). The purpose of this study is to underline that the need of the surgical procedure after hormonal therapy has not to be considered a real failure due to the possible surgical advantages of a previous hormonal somministration.

**Materials and Methods:** Over a 2-year period, 80 orchiopexy-candidate boys, with an average age of 3,8 years (range 16 months–7 years), were split into 2 homogeneous groups: 40 boys received only surgical treatment and 40 patients received hormonal therapy with gonadorelin in form of a nasal spray (1.2 mg per day) for 4 weeks before and 4 weeks after surgery.

**Results:** After the first month of hormonal therapy, 9 (22.5%) children of did not need surgery anymore. Of the other 31 (77,5%) boys, 25 (62.5%) underwent an inguinal access, while in 6 (15%) cases a trans-scrotal approach has been possible. According to the surgeon who performed all the procedures, gonadorelin made the surgical execution easier in almost 21 out 25 cases (84%) respect to the only-surgery group. A better testicular volume has been echographically showed.

**Conclusions:** A gonadorelin hormonal treatment should be recommended because, even if “failure”, it results in a better operative procedure and surgery outcome in terms of testicular volume, tropisms, and so, potential future fertility.

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### **Extralobar Pulmonary Sequestration Presenting with Torsion and Associated Hydrothorax**

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**Introduction:** The most common presentation of a broncho-pulmonary sequestrations is recurrent respiratory infection. In the literature only one case of pulmonary sequestration presenting with torsion of the mass is reported; in this case a 13 year-old girl presented with chest and back pains.

The current report describes the case of a 12-years-old girl with two left extralobar broncho-pulmonary sequestrations, one with torsion and associated to hydrothorax.

**Case Report:** The patient presented with abdominal pain and vomits. The abdominal X-ray showed occasionally a left hydrothorax, that was drained. The thoracic-MR showed a left paraspinal mass suspected for a malformation etiology. The thorascopic exploration demonstrated two extralobar broncho-pulmonary sequestrations, one of these congested by torsion. The two masses were removed thoracoscopically. Pathological examination of the thoracic masses revealed: an extralobar broncho-pulmonary sequestration and an hemorrhagic pulmonary parenchyma consistent with an infarcted extralobar sequestration.

**Results:** The post-operative course was uneventful and nowadays the patient is in good clinical condition.

**Conclusions:** Considering both literature and our own experience, it is wise to reckon the torsion of the mass, demonstrated with acute pain, as a rare but possible manifestation of a broncho-pulmonary sequestration.

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### **Intrauterine Torsion of a Wandering Spleen Presenting As an Abdominal Mass**

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**Introduction:** Wandering spleen is a rare clinical condition and consist of a hypermobile spleen due to congenital or acquired absence of splenic ligaments or their abnormally length. Therefore spleen is freely movable within peritoneal cavity and may twist around its vessels. Most common wandering spleen clinical presentation is splenic infarction secondary to torsion of splenic vascular pedicle. Wandering spleen usually occurs at 20 to 40 years of age; in pediatric and neonatal ages is very rare and in neonatal period is extremely rare. Splenic torsion may also occur in pregnancy and appear in neonatal age as splenic haemorrhage, an abdominal cystic mass or a small-bowel obstruction. An intrauterine torsion of a wandering spleen presenting as an abdominal mass is reported in a 8-days-old newborn.

**Case Report:** Patient was transferred to our hospital after an ultrasound abdominal mass diagnosis. A new abdominal ultrasound and an abdominal-MR were performed and suggestive of mesenteric cyst. On laparotomy a big splenic cyst as a result of splenic torsion around its vessels, and a small additional spleen were found: abdominal mass was removed while the additional spleen was left. Pathological examinations of the cyst revealed a massive necrosis of splenic tissue with intact capsule. Nor antibiotics prophylax neither vaccinations was performed because of presence of additional spleen.

**Results:** No complications occurred in post-operative course.

**Conclusions:** Wandering spleen, even if very rare in neonatal period, may be considered in differential diagnosis of neonatal abdominal mass.

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### **Prenatal Catheter Placement for Fetal Cystic Adenomatoid Pulmonary Malformation: A Case Report**

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**Introduction:** Congenital cystic adenomatoid malformation (CCAM) is a polmonary malformation arising from an overgrowth of the terminal respiratory bronchioles. Fetal hydrothorax may be related to CCAM and a thoracoamniotic shunt can be placed to preserve a normal lung growth and development. We describe a case of intrathoracic displacement of thoracoamniotic shunt placed in fetal hydrothorax secondary to CCAM in a newborn.

**Case Report:** At 25 weeks' gestation ultrasound examination revealed a hydrothorax associated to mediastinal shift: a left thoracoamniotic shunt were placed without complications. At 30 weeks' gestation both conditions was healed while a displacement of the stent was noted. At birth clinical examinations of newborn revealed no scar at the site of shunt insertion. Neonatal plain chest X-ray revealed shunt within left hemithorax and an ipodiaphanic imagine. Chest-CT confirms presence of thoracoamniotic stent within left hemithorax and revealed a CCAM in apical segment of the left lower pulmonary lobe. At 2 days of age a thoracoscopic removal of the stent therefore was performed without any problems. At 9 months of age a toracotomy and an atipycal lower pulmonary lobe resection were performed.

**Results:** In the post-operative course no complication occurred and nowadays the patients is in good conditions.

**Conclusions:** The complication of intrathoracic displacement of pleuroamniotic shunt can be recognized antenatally by ultrasound. Even if conservative management is described as a safe way to deal with a stent inside an infant chest, in our opinion, thoracoscopy removal of an intrathoracic drainage represents the best choice.

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### **The Laboratory Findings and Postoperative Evolution in Cases with Pathological Meckel's Diverticulum Versus Noncomplicated Meckel's Diverticulum Cases**

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**Introduction:** The aim of the present study was to determine the evolution of the cases of complicated Meckel's diverticulum by comparison with non complicated Meckel's diverticulum and the differences observed by comparing the laboratory results between these two groups.

**Material and Methods:** 26 patients were enrolled in the study. A prospective 4 years study was realized at the Clinic of Pediatric Surgery in Cluj-Napoca, during 2005-2008, based on the laboratory tests, intraoperative findings and postoperative evolution of the patients with Meckel's diverticulum.

**Results:** The mean age of patients was  $10,18 \pm 1,3$  years. Regarding gender 57,7% were boys. In 72,7% of the cases presenting pathological changes of Meckel's diverticulum were observed on boys. The laboratory tests showed leucocytosis higher by 28,02% in the cases that presented complications due to Meckel's diverticulum, compared with cases without Meckel's diverticulum pathological changes. Regarding red blood cells, in the complicated Meckel's diverticulum cases the tests showed a decrease in the erythrocytes number by 4,31% and hemoglobin was lower by 17,87%, compared with cases without Meckel's diverticulum pathological changes. The postoperative hospitalization period was longer by 19,4% in cases found with complicated Meckel's diverticulum. There wasn't registered any postoperative major complication, during hospitalization.

**Conclusions:** The most frequent Meckel's diverticulum involving pathology was observed in boys. The complicated Meckel's diverticulum cases presented leucocytosis and a decrease in the number of the erythrocytes and the hemoglobin, compared with cases without Meckel's diverticulum pathological changes. In cases presenting pathological changes of Meckel's diverticulum the post-hospitalization period was longer.

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### **Neonatal Adrenal Masses: Do We Have Reliable Criteria for Differential Diagnosis and Expectant Management?**

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**Introduction:** Differential diagnosis of pre and postnatally discovered adrenal masses is sometime based on emphyric crite-

ria. The expectant management is based on demonstrating spontaneous regression or cystic evolution of a previously solid mass. As spontaneous regression has been described either in neuroblastoma cases as in adrenal hemorrhage, clear evidence of diagnosis is missing in most of the cases.

**Methods:** We analyzed the following data set of all patients (1993-2008): sex, age at diagnosis, clinical features, obstetric history, imaging, laboratory data, surgical findings and histology, outcome.

**Results:** 8 masses were detected prenatally at mean gestational age of 32 weeks. In 15 patients had occasional postnatal discovery of their lesion within first month of life. Sonographic pattern at diagnosis was solid in 8 cases, complex in 6 cases and cystic in 9 cases. Urinary catecholamins resulting elevated in 5 cases. MIBG scintigraphy was performed in 14 cases demonstrating high uptake by the adrenal mass in 8 newborn. Conservative management after informed consent by families was interrupted in 6 cases and was performed surgical excision of neuroblastoma, as confirmed by histological examination. In the remaining 14 adrenal lesions, the spontaneous involution is demonstrating in a mean period of 3 months.

**Conclusions:** Clear criteria for distinguishing between adrenal hemorrhage and neuroblastoma are not currently available. The evaluation of data set and sonographical follow-up, so reliable in order to avoid unnecessary investigations, long follow-up and unnecessary surgery.

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### **The Fate of Prenatally Diagnosed Primary Nonrefluxing Megaureter: Do We Have Reliable Predictors for Spontaneous Resolution?**

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**Introduction:** To compare predictive values of current morphologic parameters with congenital renal damage associated with severe megaureter.

**Methods:** A retrospective analysis was performed using records of 37 patients (50 megaureters) referred before birth for a primary megaureter. Mean follow-up was 26 months (range, 1 to 8 year).

**Results:** Dilatation resolved spontaneously in 46 of 50 ureters. Only 4 of 37 patients required surgery (10,8%) after a mean follow-up of 58 months (range, 32 to 80 months). Average time to resolution was 24 months (range, 1 to 82 months) and was independent from sex, side and bilaterality. A weak correlation was found with initial anteroposterior pelvic diameter, ureteral diameter, and separate function at renogram. A significant correlation ( $P < 0,02$ ) was found between megaureter type and time elapsed to spontaneous resolution. As far as differential function

was concerned, mean values were significantly lower among type III megaureters, which had the lowest rate of resolution.

**Conclusions:** The fate of severe megaureter seems strongly influenced by congenital renal damage secondary to a developmental abnormality of the ureteric bud. A poor resolution rate has to be expected in these cases; surgery must be reserved for symptomatic cases but has no influence on pre-existing renal damage.

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### **Prenatal Midgut Idiopathic Volvulus: Is Really the Killer of Newborn? Report Two Cases and Review the Literature**

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**Introduction:** Fetal midgut volvulus is a rare event more often associated with anomalies of intestinal rotation and fixation. Occurrence of an idiopathic volvulus, unassociated to malrotation, has rarely been described. Early prenatal ultrasonographic detection is crucial to reduce intestinal losses and perinatal deaths.

**Material and Methods:** We report two cases of idiopathic volvulus of the last period of pregnancy admitted at our Division and a review of the literature.

**Results:** In our patients and those extrapolated from the literature, is the frequent reporting of prenatal dilated loop with worsening of the fetal vital signs, the presence of abdominal ascites and in some cases the presence of pathognomonic ultrasound signs. All patients underwent surgery early and survived.

**Conclusion:** We recommend in utero transfer to a tertiary Center in all suspected cases to reduce time between induced delivery and treatment.

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### **Non Seminomatous Germ Cell Tumors in Young Patient: Prognostic Factors and Surgical Management**

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**Introduction:** Testicular germ cell tumors represent the most common malignancies in young males under the age of 25; according to our experience 83% of those are Non Seminomatous Germ Cell Tumors (NSGCT). Therapeutic options following radical orchidectomy comprise nerve-sparing retroperitoneal lymph-node dissection (RPLND) or simple surveillance. The aim of this study is to present an updated picture of the surgical management according to prognostic factors of testicular NSGCT.

**Materials and Methods:** We retrospectively reviewed the cases of NSGCT in children treated in our Institution over a 12-year period. Information recorded for each patient included age, clinical presentation, diagnostic procedures, pathology findings, treatment methods, follow-up and outcome. All patients are staged according to UICC's TNM staging system.

**Results:** A total of 30 patients underwent surgical resection for testicular NSGCT. Clinical stage at presentation was: 8 (26,6%) IA, 6 (20%) IB, 10 (33,3%) II and 6 (20%) stage III. 56,7% of cases (17 patients) presented high levels of serum tumor markers. A radical inguinal orchiectomy was performed in every case. 14 (46,6%) children underwent RPLND; 4 (10%) for retroperitoneal tumefactions, 9 (30%) for post-chemotherapy residual and 1 (3%) patient, with double component GCT (SGCT/NSGCT), for serum tumor markers positization. According to pathology findings vascular invasion was present in 20 (50%) children (7 stage I, 8 stage II and 5 stage III). After a median follow-up of 7 years (range 6 months-12 years), all 30 patients are alive (OS=100%) and 5 (15%) patients relapsed (2 stage I and 3 stage II).

**Conclusions:** According to our study, positivity of serum tumor markers, infiltration of venous blood vessels or lymphatic infiltration by the primary tumor are the most important prognostic indicator for occult metastases and should be assessed in all patients. According to prognostic factors, patients can be split in two different groups; low-risk and high-risk NSGCTs. The low-risk group includes tumors without vascular invasion and with normal serum tumor markers; in these patients the radical orchiectomy in association with a simple surveillance protocol should be performed. The high-risk one includes children with vascular invasion or/and positivity of serum tumor markers; in these patients a RPLND is indicated due to the higher risk of relapse of the disease.

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### Long-Term Outcome of Laparoscopic Nissen Procedure in Pediatric Patients with GERD

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**Introduction:** Laparoscopic antireflux procedure (LARP) represents the gold standard for surgical treatment for pediatric patients with gastroesophageal reflux disease (GERD). However there are few reports in literature about long term outcome of pediatric patients underwent LARP.

**Material and Methods:** We report the results about long term outcome of 36 patients underwent at laparoscopic Nissen fundoplication from January to December 1998, with a follow-up of at least 10 years. The patients were telephonically invited to have a clinical control. All patients underwent at the modified questionnaire QPSG Roma III of the ESPGHAN. Out of 36 patients only 18 patients accepted to be controlled (11 boys and 7 girls), with an average age of 16,2 years.

**Results:** 16/18 (89%) patients were completely recovered also at instrumental examination; 2/18 patients (11%) had a light per-

sistent GER treated sometimes by pharmacological therapy; 5/18 patients (28%) referred a light dysphagia for some solid foods; 12/18 (67%) patients can belch and only 5/18 (28%) patients can vomit. The weight/height ratio according to the age was satisfactory in 16/18 (89%) patients. The cosmetic result was good in 17/18 (94%) patients. The quality of life was good or optimal in 16/18 (89%).

**Conclusions:** Our experience shows that laparoscopic Nissen fundoplication is safe and effective procedure in pediatric patients with GERD. The long term follow-up shows a good clinical results and a good or optimal quality of life ten years after LARP.

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### Total Colectomy in Children with Familial Adenomatous Polyposis (FAP): Totally Laparoscopic Approach with Transanal Rectal Mucosectomy

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**I:** Familial adenomatous polyposis (FAP) is an inherited precancerous condition of the colorectum. Prophylactic proctocolectomy is recommended in the early adolescence. Aim: to estimate, in children with FAP, short/long-term complications, functional outcome and cosmetic results of associated laparoscopic and transanal technique to perform proctocolectomy.

**M&M:** From May 2008, 3 female with FAP, mean age: 12yrs (10-14yrs) underwent proctocolectomy. Pre-operative evaluation: definition of nutritional status, complete endoscopic assessment, study of extraintestinal manifestations. Surgical procedure: laparoscopic total-colectomy with 3 trocars; transanal rectal mucosectomy; endoanal colon pull-through with ileal-J-pouch reconstruction and ileo-anal hand-made anastomosis; temporary ileostomy (reversed 2 months later). Follow-up (1-3-6 months): clinical, nutritional and haemathochemical examination.

**R:** Pre-operative: 1pt asymptomatic, 1pt rectal bleeding and 1pt abdominal pain; all pts had hundreds of colonic adenomatous polyps with mild dysplasia; 2pts gastric polyps and 1pt ileal polyps. No intra/early post-operative complications were documented. Fifteen days later, 1pt had small bowel subocclusion caused by intestinal infection. After the closing of ileostomy, all patients had voluntary ileal movements (mean: 4 stools/day) and no soiling, improving with diet and psyllium. Gradual weight increase was observed in 2 patients.

**C:** Laparoscopic total colectomy with transanal rectal mucosectomy assures low rate of complications, good functional outcome and excellent cosmetic results.

### Short Bowel Syndrome in Rats: An Experimental Study

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**Introduction:** Short Bowel Syndrome (SBS) is a common event after large small bowel resection and it presents with malabsorption, diarrhoea, loss of electrolytes and ponderal weight.

**Material and Methods:** 50 Wistar rats were used and divided into three groups: group 1 as control with ten rats, group 2 with Benzalkonium Chloride solution 0,1% (BACs) somministrazione and group 3 with plication performed in 20 rats each one. In all rats small bowel has been resected from 20 cm after Traitz to 10 cm before reaching ileo-cecal valve.

Histological analyses were performed in all groups both at the time of surgical procedure and when sacrificed. Before being killed, all rats received an oral barium solution to measure ITT (Intestinal Transit Time).

**Results:** Groups:

**Control:** Mean ponderal weight gain (PWG) 20,66%, SD 11,47. mean distance from the ileo-cecal valve (DICV) 3,75 cm. Mean transit Bario rate (TBR) 11,07 cm/min, SD 0,13.

**Plication:** mean PWG 28,13%, SD 11,39. Mean DICV 35,5 cm. Mean TBR 0,62 cm/min, SD 0,13.

**BACs:** mean PWG 24%, SD 9,56. Mean DICV 15,25 cm. Mean TBR 1,06 cm/min, SD 0,13.

**Conclusion:** Differences in mean PWG among the three groups are not significant,  $p$  value  $<0,05$ . Significant differences in ITT have been shown between groups 1 and 2, 2 and 3, but not between groups 1 and 3. The mucosa adopts a colic-like phenotype in response to shortening and plication treatment. This phenotype permits to avoid massive degenerative aspects, flogistic events and disepithelization which are present instead in the other two groups.

### Minimally Invasive Removal of Urachal Remnants

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**Purpose:** Urachal remnants are rare congenital anomalies generally treated with open surgery. In the last decade laparoscopic treatment of these anomalies has become more frequent. The Authors report their experience about three cases of urachal remnants

**Methods:** Three children 1, 7 and 11 years old respectively, underwent minimally invasive removal of urachal remnants. In the first two patients, with complicated urachal cyst, a video-assisted excision was performed; in the last one, with uncomplicated urachal remnant, the excision was totally laparoscopic.

**Results:** Radical videoassisted excision of the remnant was easily performed in the first two cases via the umbilical incision. In the third case the procedure was performed laparoscopically. Operative time was 90 minutes in the first case, 40 minutes in the second one and 70 minutes in the last one. Intra- or post-operative complications and recurrences did not occur and the cosmetic result was very good.

**Conclusion:** Laparoscopic or laparoscopic assisted approach for urachal remnants is reliable and is diagnostic and therapeutic at the same time. The minimally invasive treatment of urachal remnant allows a radical excision with all advantages of this procedure.

### Testicular Ptosis Associated with Fragile X Syndrome in Paediatric Age: Description and Surgical Therapy

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**Introduction:** Fragile X syndrome (FraX) affects 1 in 1250 to 1 in 4000 individuals, making it the most common cause of inherited mental retardation. The clinical syndrome is characterized by mental retardation, macroorchidism and typical behavioural and facial features. We describe the first case of testicular ptosis (TP) associated with FraX.

**Case Report:** A 13-year-old boy with a FraX diagnosed 7 years earlier was admitted to our hospital. This patient presented bilateral macroorchidism associated to left TP. The scrotal ultrasound of testes revealed asymmetrical macroorchidism (right testicular volume = 25 ml, left testicular volume 35 ml). The left testis reached to the middle third of the thigh and it was subjected to testicular traumatism with pain during the gait. For this reason the boy was submitted to operation. A lozenge of left scrotal skin was excised and Shoemaker left orchiopexy (fixing the testis with stitches) was after performed. On 1<sup>th</sup> postoperative day the patient was discharged asymptomatic. At 2 years follow-up neither recurrence nor other complication was observed.

**Discussion:** The TP has never been reported in patients with FraX, although macroorchidism has been recognized as a cardinal feature of this syndrome. We think that the full weight of testis and the connective tissue dysplasia associated with FraX cause the TP. The treatment of symptomatic TP is based on surgery. Our surgical technique appears safe and easy to perform and shows a good outcome.

### Necrotizing Enterocolitis in Multiple Gestations: Clinical and Surgical Observations

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**Introduction:** The aim of this study is to describe incidence of Necrotizing enterocolitis in multiple gestations, determining the risk factors and neonatal outcome.

**Materials and Methods:** A retrospective review of the discharge records of multiple-gestation infants admitted into the neonatal intensive care units between January 2000 and January 2008 was performed. Inclusion and exclusion criteria were created. The risk and co-morbid factors of two main groups (developing NEC and not developing NEC) were analyzed. We considered infants from the same set of multiple gestation who did not develop NEC as control group.

**Results:** During the study period 302 infants from multiple gestations were admitted to the Neonatal Intensive Care Units. Five triplets and 12 twins were enrolled. The percentage of infants with NEC in multiple gestation (8.2%) was higher than singleton prematurity at the same Hospital (3.8%) ( $p < 0.05$ ). Patients with suspected or advanced NEC showed longer time of meconium evacuation if compared to the others (mean 5.2 vs. 1.8 days,  $p < 0.05$ ). Mortality was associated with lower gestational age and lower Apgar score at 1 minute ( $p < 0.05$ ).

**Conclusions:** The analysis of data showed that the incidence of NEC increased with respect to singleton pregnancies only when considered in relation to a higher prematurity rate.

### Subclinical Varicocele: The Role of Bioflavonoids

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**Introduction:** Varicocele is a developmental condition; the aim of this study is to identify the role of bioflavonoids in the management of subclinical varicocele.

**Materials and Methods:** The Authors analyzed the medical charts of patients treated for subclinical varicocele with bioflavonoids between 1999 and 2005; before treatment inclusion criteria were created. Short and long-term results after treatment

were studied and compared with untreated patients. Semen analysis was performed on 18-year-old patients.

**Results:** Bioflavonoids were useful to stop the progression of subclinical varicocele if compared to the control group, but they did not show any protective factor against testicular growth arrest. Semen analysis of patients treated with bioflavonoids showed better results if compared to others; this data should be interpreted only in relationship with the lower percentage of progression into clinical palpable varicocele.

**Conclusions:** Subclinical varicocele should be considered as the starting point of varicocele, and although the use of bioflavonoids in patients with subclinical varicocele could reduce the development of palpable varicocele, it can not prevent the onset of testicular growth arrest.

### A Rare Case of Pararectal Abscess

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**Introduction:** We present the case of a 8 -month -old infant boy with a huge pararectal abscess and anal stenosis of still unknown etiology.

The patient presented six recurrences until final operation carried out six months ago.

**Case Report:** A 8-month-old infant boy was admitted because of pelvic mass discovered by CT scan in another hospital, associated to fever, vomiting and rectal emission of purulent material.

Physical examination revealed anal stenosis and muco-purulent material in the anal canal. History of severe constipation, treated with repeated enemas, was present. Endoscopic studies of rectal and urinary tract, associated to laparoscopic exploration of abdominal cavity excluded neoplastic nature of the mass. With the idea of a pelvic abscess, originating from the anal canal, we performed a left colostomy.

The patient presented multiple recurrences; when imaging demonstrated a posterior displacement of the abscess, he was treated by posterior sagittal ano-rectal approach.

Histological examination of abscess wall revealed cronic inflammatory tissue.

He underwent successive surgical revisions until he was 16-month-old. When the MRI showed only residual areas of necrotic tissue, we performed the recanalization. Anal dilatation was performed in the post-operative period.

**Results and Conclusion:** Six month after recanalization the baby is well and he has daily normal stool emissions.

Our first pathogenetic hypothesis is that he had a congenital anal stenosis which caused a severe constipations. Stool stasis associated with repeated enemas caused little injuries and subsequent infection and abscess formation.

Differential diagnosis with anal canal duplication was escluded on the basis of histology.

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## Endocrine Surgery

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### Management of Secondary Hyperparathyroidism in Transplanted Patients: Retrospective Study

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**Introduction:** Transplantation is an effective therapeutic approach used for terminal organ pathologies like hepatic, renal, cardiac and pulmonary diseases.

The main complication is osteoporosis which is detected in over 55% of patients after transplantation, determining a secondary hyperparathyroidism.

**Material and Methods:** In the Dept. Of Surgical Science, University La Sapienza of Rome, 108 patients underwent an operation for Hyperparathyroidism from January 1999 to January 2009: 86 primary, 18 secondary, 1 tertiary and 3 recidive hyperparathyroidisms.

In the group of 18 patients with secondary hyperparathyroidism, 8 underwent a previous organ transplantation (6 renal and 2 hepatic transplantations).

**Results:** In these patients, secondary hyperparathyroidism could be related to immunosuppressive therapy (Cyclosporine A, Tacrolimus), but above all glucocorticoids which inhibit osteoblasts, reduce intestinal and renal absorption of calcium increasing parathormone levels.

**Conclusion:** The management of hyperparathyroidism in transplanted patients requires preoperative imaging study and an accurate surgical exploration of parathyroids associated with intraoperative parathormone measurement.

A preventive administration of bifosfonates could be considered in order to reduce the incidence of secondary hyperparathyroidism.

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### Combined Thyroid and Cardio-Vascular Surgery: Results of a Series

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**Objective:** Thyroid nodular disease is frequently found in patients with cardiac disease that needed surgery. Aim of this study is to evaluate the results of combined interventions in heart and thyroid surgery.

**Methods:** Among 2000 cardiac and vascular operations achieved between April 2004 and December 2008 at the Catholic University of Sacred Heart of Campobasso, seven patients underwent thyroidectomy combined with cardio-vascular surgery. The medical records of these patients were reviewed.

**Results:** five males and two females were operated on for coronary artery disease, valvular disease or both, carotid endarterectomy (in 3 cases) and for thyroid disease. Pre-operative diagnosis was multinodular goiter in 5 cases, toxic goiter in 2. Ischemic heart disease was considered the main indication for cardio-vascular surgery in all patients. All patients had anti-coagulation with intravenous heparin peri-operatively and then post-operatively. Six total thyroidectomy and one thyroid lobectomy were performed. Two cases of wound infection and four transient hypocalcemia were registered. Final histology showed benign disease in all patients.

**Conclusion:** Report of combined thyroid and cardiovascular surgery is rare, however in our Institution it didn't yield to an increased morbidity or mortality for both operations. Furthermore accurate intra-operative haemostasis must be carried out.

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## Obesity Surgery

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### Laparoscopic Roux-Eny Gastric Bypass with Linear Staplers

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The video shows Laparoscopic Roux-en-Y Gastric Bypass. Patient is placed in reverse Trendelenburg position. The operator stands between patient's legs. The pneumoperitoneum is created through a trans-umbilical open procedure and other 5 trocars are positioned. The first stage involves dissection of the phrenogastric attachments and the preparation of the angle of His, therefore the lesser omentum is dissected against the lesser gastric curvature by ultrasonic scalpel, in order to approach the retrocavity. The gastric transection is performed with linear staplers in order to create a 30ml gastric pouch. Once the Greater Omentum is transected and the Treiz is identified, 45cm of biliopancreatic limb can be measured and dissected with a linear cutter stapler. A side-to-side antecolic antegastric gastrojejunal anastomosis is performed with a linear stapler on the anterior or posterior gastric-pouch wall. The residual opening is repaired with a continuous reabsorbable suture. Methylene blue test is performed to assess suture line integrity. Therefore the alimentary limb is measured and is confectioned a side-to-side anastomosis 100cm far from the gastrojejunal anastomosis. The enterotomy can be closed with either an additional firing of the linear stapler or hand-sewn running suture. Mesentery defects are closed with non-absorbable suture and para-anastomotic drainage catheters are placed.

## Young Surgeon and Bariatric Surgery in Italy

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**Introduction:** In recent years, obesity surgery has developed steadily in Italy. The increasing number of Bariatric Surgery Centers both in Hospitals and Universities, makes possible for Italian resident to learn about obesity surgery. The aim of this study is to analyze the presence and the role of young surgeons in the Italian Bariatric Surgery Centers.

**Material and Methods:** Nowadays in Italy there are 103 Centers, acknowledged by the Italian Society of Obesity Surgery (SICOB). Official data were collected from SICOB and “young” were considered members under 40 years of age.

**Results:** Currently SICOB has 356 members enrolled, of these 279 are surgeons, 28 surgeons in training and 49 are Allied Health professionals (psychiatrists, nutritionists etc). Among the 356 members 94 (94/356=26.4%) are young; of these, 21 (21/356=5.9%) are Allied Health professionals (21/49=42.8%); 45 (45/356=12.6%) are surgeons (45/279=16.1%) and 28 (28/356=7.8%) are surgeons in training. Of 45 young surgeons, 9 (9/45=20%) are Head of the Bariatric Center where they work (9/103=8.7%).

**Conclusion:** More than a quarter of the SICOB members are under 40. Young surgeons together with surgeons in training (73/307=23.7%) have a significant role inside the Italian Bariatric Centers. Although bariatric surgery is considered of medium/advanced technical complexity, 20% of young Surgeons are Head of the bariatric Centers where they work.

## The Effect of Bariatric Surgery vs a Medical Treated Cohort: A Prospective Study

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The aim of this study was to evaluate the role of bariatric surgery in a population of morbidly obese patients versus a medical treated cohort.

**Materials and Methods:** We divided patients into two groups: not operated (group A) and operated (group B). 244 patients entered the study, 80 in group A and 164 in group B. The incidence of mortality, BMI and comorbidities have been evaluated in both groups.

t-student and Fisher exact test were used for statistical evaluation.

**Results:** Initial BMI was 42.6 Kg/m<sup>2</sup> for group A and 44.8 Kg/m<sup>2</sup> at last visit (p=0.6).

Two patients in group A (2.5%) died during follow-up.

The difference of comorbidities:

	First visit	Last visit	P
Glucose Tolerance Impairment	10%	13.7%	P=0.3
Diabetes	8.8%	12.5%	P=0.45
Hypertension	20%	23.7%	P=0.50
Obstructive Sleep Apnea Syndrome	4%	6.2%	P=0.62

Initial BMI for group B was 46.6 Kg/m<sup>2</sup> and 25 Kg/m<sup>2</sup> three years after surgery (p<0.001).

Variation of comorbidities:

	First visit	Last visit	P
GTI	9.1%	0%	P<0,001
Diabetes	15.2%	3.1%	P<0,01
Hypertension	28%	4.8%	P<0,001
OSAS	15.2%	1.8%	P=0,001

**Conclusion:** We observed no significant statistical changes in weight loss and comorbidities in group A. In group B we observed a significant statistical weight loss and reduction of all comorbidities taken in exam. We observed significant statistical changes in BMI and comorbidities variation between groups.

## Laparoscopic Gastric Bypass Versus Laparoscopic Sleeve Gastrectomy in the Treatment of Morbid Obesity: Prospective Study

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**Background:** Two bariatric procedures were compared prospectively to assess the effectiveness and safety of the treatment of morbid obesity.

**Methods:** 50 patients (similar for age, sex, morbidity and BMI) underwent alternatively Laparoscopic gastric bypass (A group, LRYGB) and Laparoscopic sleeve gastrectomy (B group, LSG). Postoperative complications, conversion to laparotomy and weight loss were evaluated in a follow-up of 3-6-12 months.

**Results:** 25 patients underwent LRYGB and we performed LSG in 25 patients. Conversion to laparotomy was performed in 2 patients (8%) of group A and in 1 patient (4%) of group B. Postoperative complications were wound infection in 2 patients of group A (8%), and postoperative bleeding in 1 patient of group B (4%). There was no statistical difference in terms of weight loss in group A and B respectively at the following time intervals: pre-operative (48±6.4 vs 49±10.8; p=0.3); 3 months (41±7.4 vs 42±4.3; p=0.4); 6 months (38±7.3 vs 38±2; p=0.9); 12 months (32±5.9 vs



33±4,5; p=0,7). Mean operative time was 147,7±33' for group A and 90±30' for group B (p< 0,01). Hospitalization was longer for group A (7,6±2,3 days) compared to group B (42±1,7 days).

**Conclusions:** There was no difference in terms of postoperative complications and weight loss between two groups. LSG group needs of lower operative time and lower length of hospital stay compared with LRYGB group.

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## Abdominal Wall Surgery

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### Migrating Mesh Mimicking Bladder Malignancy After Laparoscopic Hernioplasty

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**Introduction:** Prosthetic hernioplasty is the gold standard in inguinal hernia repair. Migration of mesh and/or plug after open or laparoscopic operation is rare but possible complication.

**Methods:** A 52 years old man was admitted to the urology unit in September of 2008 for hematuria. His medical history was significant for left laparoscopic inguinal herniorrhaphy in 2002 and for left open groin hernioplasty for recurrence in 2003. Ultrasonography and cystoscopy showed 2 stones near to the neoformation of bladder left wall. Transurethral resection was programmed, but during examination in bladder left wall it is revealed inflammatory reaction involving mesh and metallic clips of 2002 operation. Procedure was interrupted and patient was admitted in December of 2008 in our unit.

**Results:** Migrated mesh was removed by laparotomy. No complications was occurred and patient was discharged from the hospital on the 6th postoperative day.

**Discussion:** Even though they are few reports in literature, mesh or plug migrations are likely underestimated. Intestinal perforation, small bowel volvulus, sigmoid fistula are also described. Surgeon should well understand potential risks and prosthesis should be secured (if possible with reabsorbable clips) to reduce the possibility of migration.

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## Anesthesia

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### The Role of Preincisional Port Site Local Anesthesia to Reducing Postoperative Pain in Laparoscopic Surgery

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**Introduction:** Laparoscopic surgery is today performed in many center in Italy and his advantages is well known. In the minor laparoscopic procedures, such as Cholecystectomy or Appendectomy, the early post-operative pain is the most prevalent complaint. In this study we want to investigate the impact of preincisional port site local anesthesia on postoperative pain.

**Methods:** From January 2006 the ASA I or II patients who underwent to laparoscopic minor procedure was randomly placed in 2 group, A (with) and B (without) preincisional local anesthesia with 20 ml of Ropivacaine 1%. We included on the study only the single procedure with three trocars technique and an operative time less than 90 minutes. A pain intensity was evaluated with analgesic use monitoring and a VAS.

**Result:** From January 2006 to January 2009, at our institution, we perform a in 212 ASA I-II patients, 136 women and 76 men, with mean age of 48 (19-75) years and mean BMI of 31 (20-38). We perform Cholecystectomy in 161 cases, appendectomy in 21, Nissen antireflux plasty in 11, lymph nodes biopsy in 8 and in 7 a bilateral inguinal hernioplasty. In group A 106 pts the consumption of analgesic was statistically significant less than group B and the mean VAS was 3,2 against 5,4.

**Discussion:** This result demonstrate that the port site preincisional local anesthesia is effective in postoperative pain reduction.

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## Ophthalmic Surgery

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### Amniotic Membrane Transplantation in Severe Corneal Disorders

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**Introduction:** Amniotic membrane transplantation (AMT) is used to treat several corneal surface disorders.

**Material and Methods:** Retrospective, non-randomized, observational case series. AMT was performed in 20 eyes of 20 patients with erosions or ulcers (6 after PK surgery, 5 herpetic keratitis, 2 chemical burns and 7 severe dry eye).

A two layers MA technique was used for all cases with nylon 10-0 sutures. Patients were examined preoperatively and 1 day, 15 days and 2 months postoperatively. Main outcome measures were epithelium closed within 4 weeks and recurrence of epithelial defects during the first two months.

**Results:** The mean rate of surgical success was 80% after 15 days. In 4 eyes epithelium defect remained unclosed. In others 3 eye there was a recurrence of the erosion at the end of the second month.

**Conclusions:** AMT must be considered a useful therapeutic option in case of severe corneal defects.

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### Ocular Surface Reconstruction with Buccal Mucosa in a Case of Lyell Syndrome

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**Purpose:** We report a case of Lyell syndrome (toxic epidermal necrolysis) in a 34 years old female patient showing severe bilateral ocular surface involvement with dry eye, symblepharon, cicatricial entropion with misdirected lashes, limbal stem cell deficiency, corneal opacification and neovascularisation. Patient was approached in the right eye with full-thickness autologous buccal mucosa graft to reconstruct the conjunctival fornices.

**Materials & Methods:** A 0.5-mm-thick oral mucosa sheet measuring 4 cm in width was obtained from the lower lip of the patient. Following lysis of symblepharon and complete removal of subconjunctival scarring, the buccal mucosa was grafted to the superior and inferior conjunctival fornices. A custom-designed conformer was applied to the eye and held in place for two weeks.

**Results:** Cicatricial entropion was resolved after symblepharon lysis and conjunctival fornix reconstruction. After removal of the conformer, conjunctival fornices remained free of cicatricial recurrences at 6-months follow-up, resulting in normal eye movements in all directions of gaze.

**Conclusion:** In patients with severe ocular surface involvement in Lyell syndrome, autologous buccal mucosa grafting appears to be an effective approach to optimize the ocular surface before contemplating limbal stem cell transplantation and keratoplasty to restore vision.

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### Modifications of Ocular Surface After Phacoemulsification: Possible Pathogenetic Role of Eye Drop Preservatives

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**Introduction:** The aims of this study are to evaluate the modifications of ocular surface after cataract surgery and to investigate the effect of post-surgical therapy on ocular signs and symptoms.

**Materials and Methods:** 20 patients undergoing cataract surgery received antibiotic-steroid eye drops either containing benzalkonium chloride (BAK) or without BAK for 1 month. Signs, symptoms, conjunctival and corneal staining, tear break-up time (BUT), Schirmer I test and corneal sensitivity were evaluated before (t0) and 1 (t1), 7 (t2), 30 (t3), 90 (t4) days after surgery. Quality of Life and dry eye symptoms were investigated by using a National Eye Institute Visual Function Questionnaire (NEI-VFQ25) and Ocular Surface Disease Index (OSDI). Conjunctival goblet cell density and MUC5AC expression were also evaluated.

**Results:** 45% of patients complained of ocular discomfort symptoms and showed increased OSDI (18±12 at t0 vs 22±13 at t2) and Oxford score (2±1,6 at t0 vs 3,1±1,6 at t1), associated with decreased BUT (5,5±2,1 at t0 vs 2,8±1,3 at t2) and conjunctival goblet cells density (28±17,5 at t0 vs 15,7±8 at t4). The modification of these parameters was significant only in patients treated with BAK containing eye-drops.

**Conclusions:** Changes of the ocular surface observed in this study suggest that post-surgical therapy with eye drop preservatives may cause evaporative dry eye.

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## Day Surgery

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### Experience of Young Surgeons in Tension Free Hernioplasty

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**Introduction:** Groin hernia is common in general population and its repair is one of the most frequently done procedures in general surgery. From the beginning of surgical education, young residents are getting very familiar with the technique of hernia repair. The aim of the study is to show results of tension-free repair done by young surgeons as day surgery.

**Patients and Methods:** Prospectively, we analyzed 145 patients (ASA I-III) with primary or recurrent unilateral or bilateral groin hernia (Nyhus III-IV) that underwent hernia repair as described by Lichtenstein. Young surgeons (less than five years of surgical experience) did all operations. We have analyzed choice of anesthesia, operating time, postoperative complications, and the need for analgesics and time before returning to work.

**Results:** There were 129 male and 16 female patients average age of 59 (21-70). Regional anesthesia was used in 35 and local in 110 patients. Average operating time was 35 minutes (25-65 minutes). Postoperative complications were recorded in 7.6% patients (seromas and haematomas), all treated conservatively. 51 (35.1%) patients needed analgesics postoperatively. They returned to work after seven (5-13) days. There was one recurrence in postoperative follow up of 6-60 months.

**Conclusions:** Tension-free hernioplasty is a safe and feasible method with minimal operative trauma, insignificant postoperative pain and short period of working disability. It can be practiced as day surgery by the less experience surgeons.

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### Semi Closed Method in Chronic Pilonidal Disease Treatment

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**Introduction:** Pilonidal sinus (PS) is a common chronic disorder of the sacrococcygeal region. Many surgical methods have been described for the treatment of pilonidal sinus disease.

The aim of this study is to show the results of the treatment of 26 patients who had pilonidal disease with recurrent abscess for more than one year.

**Patients and Methods:** We have analyzed 23 males and 3 females, disease duration, complications during the disease (incision, phlegmone, and dermatitis), operating time, hospital stay, number and frequency of bending in the postoperative period, time until full epithelisation. Young surgeons with less than 5 years of surgical experience performed operations. PS was excised, and back wall is sutured to surrounding skin.

**Results:** Average age of analyzed patients was 29.85±7.20 years, with disease duration of 2.96±1.59 years; 92.31% have previously had incision, 38.46% phlegmone, 69.23% had dermatitis as complication of a disease. Operating time was 38.77±2.67 minutes. Hospital stay was 3.81±0.69 days. Average number of bending was 19.85±2.31 times. Average time to complete epithelisation was 39.42±5.14 days.

**Conclusion:** Chronic pilonidal disease treatment has to be adapted for each patient. Semi closed method is a low cost method, ease and feasible in the hands of less experience surgeon, when all other disease complications are taken into consideration.

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### Histological Investigations of Host Reaction to Polypropylene Surgical Mesh in New Zealand White Rabbits

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**Introduction:** The polypropylene meshes used for abdominal hernia repair induce chronic inflammation, leading to excessive scar and connective tissue formation, with clinical consequences from peritoneal adhesion formation, abdominal discomfort, pain, to ileus formation.

**Materials and Methods:** Hi-tex<sup>®</sup> polypropylene mesh was implanted into 20 New Zealand White rabbits. The animals were divided into 2 groups according to the time of mesh-removal. Ten rabbits were sacrificed after 1 week (Group I) and the rest after 3 weeks (Group II). The adhesion formation was scored macroscopically with the covered mesh surface represented in percentages. Histological investigations were carried out. The slides were stained with HE to detect inflammatory and foreign body reactions and immunohistochemistry was carried out with monoclonal antibodies for tissue proliferation (Ki-67) and neovascularization (VEGF) and keratinization (CK).

**Results:** Aggressive adhesion formation was detected even after one week (54,9%) with moderately decreasing tendency by the 3<sup>rd</sup> week (44%). In most of the cases the cranial edge of the mesh was affected with an adhered large intestine loop. The formed neoperitoneum was good visible after 3 weeks, which could be followed by the CK staining. There was chronic inflammation, and disorganized connective tissue seen with HE. The amount of ki-67 positive cells showed no difference in time (Group I: 3,7 Group II: 3,4), while the VEGF positivity was higher after 3 weeks.

**Conclusion:** Pure polypropylene mesh induces unacceptable adhesion formation even after one week, which can be followed with histological analysis.

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### Use of Progrid™ in the Inguinal Hernia Repair According to Lichtenstein Procedure in Day Surgery

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**Introduction:** Lichtenstein procedure comes close to an ideal for hernia repair. The targets of the ideal tension free technique are simplicity, safety, rapid return to unrestricted activities, low recurrence rate and low rate of chronic pain. In this report we include the preliminary result about the use of PROGRIP in the

groin hernia repair according to Lichtenstein procedure in Day Surgery.

**Patients and Methods:** Between October 2007 and December 2008, 136 consecutive patients (123 male, 13 female) underwent to open Lichtenstein hernia repair with Parietene((R)) Progrid in the Day Surgery Unit of Tor Vergata University Hospital, Rome. Average time of operation, difficulties of surgeon, post-operative pain, duration of incapacity for work, and postoperative complications were recorded.

**Results:** Mean operation time was 45,48 minutes (range 15-120). Time of first mobilization was about 2 hours after the operation. All patients were discharged within 6 hours. No complication were detected after a month of follow-up. The mean time to resumption of work was 9 days (range 5-15).

**Conclusion:** Chronic pain is the most serious adverse outcome after inguinal hernia repair. Using PROGRIP without sutures, the lack of tension on surrounding tissues and around the spermatic cord may reduce chronic pain in particular on nerves and spermatic cord. Our results show that PROGRIP repair is an effective therapeutic option for inguinal hernia repair; it allows safety, simplicity and reproducibility, reducing the incidence of postoperative chronic pain. Moreover a multicentric prospective randomized controlled trial of Lichtenstein's procedure with long-term follow up is ongoing.

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### Complications and Results of Lateral Internal Sphincterotomy for Chronic Anal Fissure

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**Introduction:** Chronic anal fissure (CAF) is associated with extension through the submucosa, exposing internal anal sphincter fibres, a sentinel perianal skin tag, and a hypertrophied anal papilla. It is characterized by postdefecational pain and bleeding. The treatment of chronic anal fissure has been directed to the reduction of internal anal sphincter tone and different treatment options have been reported. Lateral internal sphincterotomy has been considered the gold standard approach. Nevertheless, the procedure is associated with a risk of faecal incontinence.

**Patients and Methods:** Between January 2004 and December 2006, 200 consecutive patients with chronic anal fissure, non responsive to previous treatment with nitroglycerin ointment or nifedipine, underwent LIS. Duration of operation, postoperative pain, duration of hospital stay, postoperative complications, time to resumption of work, recurrence and time to recurrence were assessed in all patients.

**Results:** Median operative time was 11 minutes (range 5-20); median postoperative pain VAS score was 2 (range 0-4); every patient was mobilized on between 2 and 4 hours after surgery; the median hospital stay was 8 hours (range 7-10); the median time off work was 11 days (range 5-20 days). Neither impairment of faecal incontinence nor relapse was detected in all patients.

**Conclusion:** Once again, SLI appeared as a high successful tool to treat chronic anal fissure after failure of chemical sphincterotomy. Furthermore if technical guidelines are rigorously respected and the device is correctly applied, feared late complications, i.e. faecal continence impairment, are largely reduced.

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### Sutureless Tension-Free Hernia Repair with Human Fibrin Glue: Our Initial Experience

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**Introduction:** The Lichtenstein procedure is a widely practiced method with successful results. However, chronic pain remains a disabling problem after inguinal hernia repair. Although iatrogenic neurectomy has been proposed as a possible main cause for chronic pain it could be also related with tension or nerve compression connected with fixing sutures. Therefore mesh fixation using fibrin sealant seems an effective treatment option to reduce or prevent this risk.

**Patients and Methods:** Between February 2006 and December 2007, we employed a sutureless Lichtenstein technique in 97 consecutive patients with primary unilateral inguinal hernia. Human fibrin glue (TISSUCOL Duo®) was used in place of conventional sutures to secure the mesh. Operation details, post-operative outcome -including postoperative pain, length of hospital stay, postoperative complications (bleeding, nausea, vomiting, urinary dysfunction, local infection, seroma and haematoma)-wound healing time and convalescence were noted.

**Results:** The mean age of the patients was 56 years (range 19-81). Median operating time was 50 minutes and all patients were discharged within 7 hours after the operation. The median postoperative VAS score was 0,3 and no postoperative complications were observed. All patients resumed normal life activities within 5 days. No recurrence were recorded at a median follow up of 11 months.

**Conclusions:** On the basis of our initial experience mesh fixation using fibrin sealant can be recommended as an effective, feasible and easy to perform alternative to sutures in order to secure the mesh and decrease chronic inguinal pain. However larger randomized trials with longer term follow up are warranted.

### Safety and Efficacy of I.V. Acetaminophen for Post-Tonsillectomy Analgesia in Children – Preliminary Study

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**Introduction:** Tonsillectomy is usually associated with moderate to severe pain and is a useful model to study postoperative pain in children. Acetaminophen for ENT surgery does not lead to increased bleeding or occurrence of PONV. Aim of the study is to evaluate the efficacy and safety of acetaminophen for postoperative analgesia after day case pediatric tonsillectomy.

**Materials and Methods:** 50 children, age 2–7 yr, ASA I/II, scheduled for elective tonsillectomy were studied. Patients with neurological, renal or hepatic dysfunction, history of allergy to drugs were excluded. Patients were premedicated with oral midazolam 0.3 mg/kg 30 min before the procedure; anaesthesia was induced with propofol 2–3 mg/kg or sevoflurane, sufentanyl 0.2 mcg/kg, mivacurium 0.15 mg/Kg and maintained with sevoflurane, O<sub>2</sub>/Air.

After induction of anaesthesia, patients received acetaminophen 15 mg/kg i.v. Meperidine 5±10 mg i.v. was used as rescue analgesia for a pain score (VAS) over 4. In PACU ECG, SpO<sub>2</sub>, HR, sedation level (Ramsey Score), pain (VAS), Aldrete Score were monitored every 10 minutes until discharge.

**Results:** In all cases mean pain scores were low (VAS 3.2±0.6); only five (10%) children needed meperidine; mean Ramsay sedation score was 2.8±0.4; fifteen (30%) patients had an Aldrete Score of 10 on arrival at PACU. No PONV or postoperative bleeding were recorded.

**Conclusion:** Intraoperative i.v. acetaminophen provide good postoperative analgesia after tonsillectomy with low sedation and early readiness for discharge. The main problem is the ability to assess pain in pediatric patients because the normal agitation at awakening is often mistaken for pain.

### Randomized Comparison of Limberg Flap versus Modified Primary Closure for the Treatment of Pilonidal Disease

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**Introduction:** The best surgical technique for sacrococcygeal pilonidal disease is still controversial and no clear consensus regarding the optimal treatment for pilonidal disease has been reported. The aim of this randomized prospective trial was to compare both the results of Limberg flap procedure and primary closure.

**Patients and Methods:** From January 2004 to December 2005, 260 patients with pilonidal sinus disease were randomly assigned to undergo Limberg flap procedure or “tension free” primary closure according to our method, in the Day Surgery Unit of Tor Vergata University Hospital, Rome. Duration of operation, postoperative pain, time to first mobilization, length of hospital stay, duration of incapacity for work, postoperative complications and recurrence were recorded.

**Results:** Mean follow up was 47.83 ± 6.6 months in primary closure group and 45.74 ± 7.6 in Limberg flap group. Success of surgery was achieved in 84.62% of Limberg flap patients versus 77.69% of primary closure (p=0.0793). Operating time for primary closure was shorter. Wound infection was more frequent in the primary closure group (p=0.0254) that experienced less postoperative pain (p<0.0001). No significant difference was found in time off work (p=0.672) and wound dehiscence. Recurrence was observed in 3.84% vs. 0% in the Primary closure v. Limberg flap group (p=0.153).

**Conclusion:** Our results do not demonstrate a clear benefit for surgical management by Limberg flap or primary closure. Limberg flap showed less convalescence and wound infection, besides our technique of tension free primary closure was a day case procedure, less painful and shorter than Limberg flap.

### Day-Care Setting: Management and Rules

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**Introduction:** Day-care surgery is an assistance model that can be applied to patients who need surgical and/or invasive and semi-invasive diagnostic or therapeutic procedures and who are suitable for discharge the same day of the operation. Economical healthcare issues with the need to reduce costs, improved the diffusion of this model, agreed by both hospital administrations and patients. Although the surgical procedures are time limited, good operative skills and accurate preoperative patients selection are essential to minimize post-operative complications, patient discomfort and hospital length leading to an effective economic advantage.

**Material and Methods:** The first step is the patient selection in the outpatient clinic. If the operation is indicated as a day surgery procedure, the patient is included in the operating list and widely informed about both surgical procedure and day-care management. Subsequently, the patient undergoes evaluation by anaesthetist according to SIAARTI guidelines. He is then phoned up to receive the appointment. The anaesthetist, in accordance with the surgeon, choose the type of anaesthesia in order to obtain rapid recovery of physiologic functions and social relations with minimal side effects. On discharge, a letter with all the information about operation, therapy, follow up controls and contacts in case of need, is given to the patients.

**Results and Conclusions:** Day-care surgery is effective to save costs and ensure an effective surgical treatment through reduction of hospitalization avoiding complications.

### Ligasure™ Haemorrhoidectomy in Day Surgery

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**Introduction:** Haemorrhoidectomy is frequently associated with significant postoperative pain and prolonged hospital stay; different techniques and devices have been developed to overcome these problems. We evaluated the surgical outcomes of Milligan Morgan haemorrhoidectomy with LigaSure™ in two groups of patients treated in our Day Surgery Unit: subjects < 60 years (group A) and patients older than 60 years (group B).

**Patients and Methods:** Between January 2004 and December 2008, 477 consecutive patients (group A: 301 patients; group B: 176 patients) underwent LigaSure™ haemorrhoidectomy according to Milligan Morgan technique. Operative time, postoperative pain score, hospital stay, postoperative complications and recurrence were recorded.

**Results:** Mean operating time was 26.32 minutes, median postoperative pain VAS score was 2 (range 0-4) in group A and 1 (range 0-3) in group B. The median convalescence period was 7 days (range 5-15) for group A and 9 days for group B (range 5-20) and complete wound healing time was 18 days in all patients.

Five cases of immediate postoperative bleeding (2 of group A and 3 of group B patients), were observed. During a median follow up of 39 months, 5 recurrences were detected (3 of group A and 2 of group B patients) and 2 patients (1 of group A and 1 of group B patients) developed late anal stenosis. None of the patients developed faecal continence impairment.

**Conclusions:** Ligasure™ haemorrhoidectomy can be considered a simple, safe and fast procedure also for geriatric patients, with low rate of early and late postoperative complications, reduction of postoperative pain and hospitalisation, fast wound healing time and quick return to daily activities.

### Assessing LMA Supreme in Gynaecological Laparoscopic Procedures in an Ambulatory Surgery Unit

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**Introduction:** LMA Supreme (LMA-s) is a new extraglottic device that combines the features of LMA Proseal and LMA Fastrach. We studied the efficacy and safety of LMA-s in airway management in patients undergoing day case laparoscopic gynaecological procedures.

**Materials and Methods:** Fifty patients scheduled for laparoscopic gynaecological surgery were enrolled in the study. Anaesthesia was performed with propofol 1% TCI and sufentanyl;

mivacurium used if required; ventilated using PCV O<sub>2</sub>/air. Time and ease of LMA-s insertion (easy, difficult, impossible), seal pressure, intracuff volume, ease of drainage tube insertion, efficacy of ventilation before and after pneumoperitoneum, postoperative complications such as, sore throat, dysphonia, blood on the mask removal were recorded.

**Results:** Patients demographic data and main results are shown in table 1. In all cases LMA-s was inserted at the first attempt and gastric tube placement was easy. Ventilation was effective during all surgical procedures and no repositioning of LMA-s was required. No blood was found on the cuff of the mask when removed, no patients complained of sore throat.

**Conclusion:** LMA-S is a safe alternative to tracheal intubation in gynaecologic laparoscopic procedure; the ease of insertion with minimal need of neuromuscular blockade, the absence of oropharyngeal trauma and postoperative complication confirm its efficacy for a fast track anaesthesia in a day case surgery unit.

### Feasibility of Thyroidectomy in Day Surgery: Retrospective Analysis

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**Introduction:** In the last years, one-day thyroid surgery is carried out routinely but potentially lethal complications are considered strong arguments against shortening hospitalization after thyroidectomy. The aim of this retrospective study was to assess the feasibility and outcome of thyroidectomy in a dedicated centre of day surgery.

**Materials and Methods:** 230 patients undergoing thyroidectomy at a single institution from February 2003 and April 2009 were reviewed retrospectively. Data retrieved include demographics, perioperative parameters, postoperative outcomes and pathological results.

**Results:** 230 patients, with a mean age of  $59 \pm 7,4$  years, had thyroidectomy or hemithyroidectomy carried out from 2003 to 2009. All patient were ASA score I or II. Mean operative time was  $90 \pm 24,7$  min. There was no locally advanced malignancies. Criteria of exclusion were: gland volume > 80 ml (57 patients), no adequate autonomy or home support at discharge (4 patients), distance from the hospital (23 patients), presence of compressive hematoma (1 patient), respiratory distress (15 patients), and hypocalcemia (16 patients). 118 of the 230 patients were discharged on second post-operative day.

**Conclusions:** Our results confirm the feasibility and safety of the one-day surgery model. This study did not evidence an increase in morbidity or mortality and has the potential in reducing hospital costs. A future prospective study will be carried out in order to investigate the cost-effectiveness and safety of thyroidectomy performed in a day surgery setting.

### An Original Technique to Reduce the Haemorrhage Rate of Stapled Haemorrhoidopexy in Day Surgery

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**Introduction:** During past decades several surgical techniques were developed for treatment of symptomatic, grade III or IV, hemorrhoids and rectal prolapse. In 1998 Antonio Longo introduced the stapled hemorrhoidopexy (SH). The main reported objections against the performing the Longo's procedure in day care unit have been the risk of staple line postoperative bleeding. The hemorrhage rate reported in literature is from 1.5 to 13.3 and many authors report the necessity in some cases of blood transfusion.

**Methods:** To evaluate the efficacy and safety of the new circular reinforcement for circular stapler, between September and October 2008, 40 patients were randomly assigned in two groups: with using (group A) or non-using (group B) a bioabsorbable staple line reinforcement in SH.

**Results:** No one intra or post-operative bleeding was shown in group A. In Group B the 45% of pts require an additional stitches to reduce the staple line bleeding. The postoperative pain is statistically relevant less in group A.

**Discussion:** The use of bioabsorbable staple line reinforcement can reduce the haemorrhage rate after SH and his use allow to perform this procedure safely in day surgery setting.

### Laparoscopic Cholecystectomy as a Day Surgery Procedure: Is It Safe and Feasible?

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**Background:** Day case Laparoscopic Cholecystectomy is a well established practice in many European countries, yet is not a wide spreaded practice in Italy. We reviewed the current literature, to establish predictive factors of success and the safety of LC as a day-surgery procedure.

**Methods:** A literature search on pubmed with using "laparoscopic cholecystectomy", "day surgery" as keywords was made and articles from 1998 to 2009 were analyzed. The common indications for LC as a day surgery procedure were symptomatic cholelithiasis. The patient's selection was crucial and included: no clinical evidence of choledocholithiasis, ASA grade 1-2, BMI < 35 (in UK's guidelines and Finland BMI < 40), no previous open surgery to the upper abdomen, good health adult's care at home for the first 24 hours, age between 18 and 75, domicile within 100 Km from

the hospital, "get up and go" personality. Effort was put in giving chosen anaesthetic agents, antiemetic drugs, have a good POVN management, expert operative skills, operating time around 60 minutes. Patients were mostly given pictured booklet, emergency numbers and analgesics to take home.

**Results:** The present review confirms that day-surgery LC is safe and feasible in well selected patients. Perioperative complications were low on patients aged <50, the readmission rate was reported as 1,2% at the most. It is cost effective and the majority of patients are satisfied by the day surgery choice.

**Conclusion:** Day surgery LC appears to be safe, feasible and cost effective. It could be considered as a routine practice by appropriate trained surgical teams.

## Experimental Surgery

### Small Pseudoislets: A New Source for the Improvement of Graft Function in Islet Transplantation?

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**Introduction:** Small islets are superior to large islets in terms of function and survival after intrahepatic transplantation. Recently we described a technique able to obtain rat islets of defined dimensions by dissociation into single cells and subsequent reaggregation, applying the hanging drop culture method, into so called "pseudoislets". Aim of our study was to evaluate the physiological properties of small pseudoislets obtained from human islets.

**Methods:** Isolated islets from human pancreas were dissociated into single cells by trypsin treatment and incubated for 6-14 days in hanging drop cultures. Newly formed pseudoislets were analyzed for morphology and function.

**Results:** Cellular composition and architecture of pseudoislets were similar to native pancreatic islets. Glucose stimulated insulin secretion of small pseudoislets, composed of 250 islet cells, was increased 2.5-fold (p < 0.001) when compared to native counterparts and cellular insulin content was inversely correlated to islet size. Small pseudoislets revealed a restored 1st phase insulin secretion which was not observed in intact islets or larger pseudoislets.

**Conclusion:** With the hanging drop culture method human pseudoislets of improved biological function can be generated.

Thus, transplantation of small pseudoislets represents an attractive strategy to improve graft function in islet replacement therapy.

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### The Use of the Bipolar Versapoint System in the Treatment of Large Benign Intrauterine Pathologies

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**Introduction:** We evaluate the benefits of minimally invasive techniques in hysteroscopy, focusing on the use of the bipolar Versapoint system in the treatment of large benign intrauterine pathologies, in terms of recurrence or persistence of the pathologies, and patient compliance.

**Material and Methods:** From 2006 to 2008 we performed, in our University Center of Endoscopy in Foggia, Italy, about 482 office hysteroscopic procedures, without analgesia or anaesthesia, for the treatment of benign intrauterine pathologies. In 168 cases we used a Versapoint 5 Fr. Bipolar electrical generator to remove submucosal and partially intramural myomas ranging between 0.6 and 2.0 cm., as well as endometrial polyps between 0.5 and 4.5 cm.

**Results:** After 6 months of follow-up we demonstrate any recurrence or persistence of the pathologies in the uterine cavity of all treated patients. Concerning patient compliance, more than half of the patients (66,2%) accepted the procedure without discomfort, with a pain score ranging from 0 to 4; in 21,4% of the cases, patients referred a pain score ranging from 5 to 10, but the majority was menopausal women with a small and atrophic uterine cavity.

**Discussion:** The combination of a new generation small diameter hysteroscope and a new bipolar electrode (Versapoint) consents to perform office hysteroscopy without analgesia and anaesthesia for the treatment of benign intrauterine pathologies, with very excellent results in terms of recurrence and persistence of the pathologies and a acceptable patient compliance.

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### New Type of Plasma Knife and Its Effect on Thermal Damage in Biological Tissue and Subsequent Regeneration

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**Introduction:** Authors present a brand new type of a plasma knife developed at the Department of Physical Electronics, Masaryk University. We used this knife for two experimental studies concerning thermal damage of biological tissues and liver regeneration.

**Materials and Methods:** We used the plasma discharge of a following characteristic: radio frequency barrier discharger at atmospheric pressure, 13.56 MHz, Argon gas. An inner diameter of the end of the nozzle was 0.4mm. All comparative incisions were made by a standard Martin electroton.

We made 12 partial hepatic left lobectomies and let rats survive. Then we evaluated 2 rats each week (1st, 2nd, 3rd, 4th, 5th, 10th). We made aspersion and histological verification of every rat.

We used dead rats and compare incisions made in their skin, tails, lungs, livers, kidneys and spleens to make a comparative study between plasma knife and electroton. All samples underwent histological verification.

**Results:** The first experiment showed ability of rat liver to recover. After 1 week there are no histologically visible changes in liver parenchyma but disruption of capsule. It did not correspond with the necrosis margin on the liver edge even after 10 weeks. The latter experiment showed slight differences in impact on incision. The most interesting is an influence on skin. The plasma knife does not damage hair bulbs and results in less thermal damage.

**Conclusions:** The plasma knife is a promising device for cutting different biological tissue. Its effect can be compared with standard electroton and in some tissues causes less harm than electroton.



## Comparison of Suture Material Properties in an Experimental Model of a Hand Flexor Tendon

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**Introduction:** We present a comparison of modern suture materials with a possible use for flexor tendon reconstruction in hand.

**Materials and Methods:** We designed an experimental flexor tendon model using tough silicon cylinders with drilled McLarney suture pattern guides. Regards to no elasticity, results show only characteristics of suture materials without influence of biological tendon features. We used 15 suture materials in 4 different groups (absorbable, non-absorbable, monofilament, multifilament). All 135 tests were done with ZWICK BZ2.5/TN1S device. We registered: Fmax (maximal strength), e-max (elasticity-%), eF-max (elasticity-mm). Parameters were recorded into graphs.

**Results:** We measured the absolute maximum strength of 112.61N with MonoPlus® (Braun). The mean value in the group 1 is 62.92N (58.75 – 65.27), in the group 2 75.20N (62.91–83.17), in the group 3 36.38N (29.02 – 41.76) and in the group 4 72.4N (70.293–74.68).

We also evaluated the elasticity, adjusted to 35N level: group 1 2.01mm (1.73–2.32mm), group 2 2.18mm (1.98–2.31mm), group 3 2.14mm (1.83–2.69mm) and group 4 1.51mm (1.36–1.66mm). All materials are around critical 2mm gapping except group 4 we consider as the safest for flexor tendon suture.

**Conclusion:** Every tested suture material but the polyester multifilament non-absorbable coated material, is suitable and safe for tendon suture followed by early active rehabilitation. According to our results and supported by the favourable SD for measurements in the group 4 (Fmax: group 1 SD=9.93, group 2 SD=14.64, group 3 SD=18.4, group 4 SD=9.29) we consider polyester multifilament non-absorbable uncoated suture as the safest choice for 4 strand flexor tendon repair.

## New Type of Plasma Discharge and Its Effect on Microbial Growth of Different Microbial Population in Time

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**Introduction:** Several types of plasma discharge have been proved for performing surgical procedures and especially in the field of sterilization. Our goal is to introduce a brand new type of plasma discharge with different characteristics we used for sterilization of different microbial populations of a different age.

**Materials and Methods:** We used the plasma discharge of a following characteristic: radio frequency barrier discharger at atmospheric pressure, frequency 13.56 MHz, Argon gas. We performed 110 tests with *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Proteus species*, *Klebsiella pneumoniae*. All populations were inoculated on the previous day and on the experimental day. *Pseudomonas*, *Staphylococcus* and *Klebsiella* were divided into 4 subgroups according to plasma discharge exposition. *Proteus* were divided into 2 subgroups according to plasma exposure. We evaluated on the following day and later on in 5 days.

**Results:** An eradication of microbial populations depends on the plasma discharge exposure in all cases. As regards to fresh inoculated microbes, we are able to sterilised agar with superficial "burning" within colonies of *Pseudomonas*, *Proteus* and *Klebsiella*. The most resistant microbe is *Staphylococcus aureus* that survives superficial "burning" in half cases. Using the lightest exposure we achieved maximum of  $10^{4-5}$  microbial growth. As regards to already-grown-up microbial populations, we only decreased population growth to  $10^5$ , but not sterilised.

**Conclusion:** The plasma discharge could be used for sterilisation of superficially growing microbial colonies but does not affect sufficiently deeper layers and that seems to be a limit for eradication of already erupting colonies. Abbonante, F. 239