EJVES Vascular Forum (2026) 66, 58—65

ORIGINAL RESEARCH

International Cross Sectional Survey on the Management of Visceral Artery Aneurysms and Isolated Dissections from the European Visceral Artery Revascularisation (EVisAR) Study Participants

Nicola Leone [a,*], Mario D'Oria [b], George A. Antoniou [c,d], Mark J. Koelemay [e], Elena Iborra [f], Jos C. van den Berg [g,h], Sonia Ronchey [i], Giovanni F. Baresi [a], Alexander Gombert [j], Stefano Gennai [a], on behalf of the EVisAR study survey participants [†]

[a] Department of Vascular Surgery, Ospedale Civile di Baggiovara, Azienda Ospedaliero-Universitaria di Modena, University of Modena and Reggio Emilia, Modena, Italy
[b] Division of Vascular and Endovascular Surgery, Department of Medical Surgical and Health Sciences, University of Trieste, Trieste, Italy
[c] Manchester Vascular Centre, Manchester University NHS Foundation Trust, Manchester, UK
[d] Division of Cardiovascular Sciences, School of Medical Sciences, Manchester Academic Health Science Centre, The University of Manchester, Manchester, UK
[e] Department of Surgery, Amsterdam UMC, Location AMC, Amsterdam Cardiovascular Sciences, Amsterdam, The Netherlands
[f] Angiology, Vascular and Endovascular Surgery Department, Bellvitge University Hospital, L'Hospitalet de Llobregat, Barcelona, Spain
[g] Interventional Radiology, Clinica Luganese Moncucco, Lugano, Switzerland
[h] Universitäts institut für Diagnostische, Interventionelle und Pädiatrische Radiologie, Inselspital, Universitätsspital Bern, Bern, Switzerland
[i] Department of Vascular Surgery, ASL Roma 1 - San Filippo Neri Hospital, Rome, Italy
[j] Department of Vascular Surgery University Hospital, RWTH Aachen, Germany

Introduction: Visceral artery aneurysms (VAAs) and isolated mesenteric and renal artery dissections (IMAD and IRAD) are uncommon conditions with unclear natural histories and uncertainties due to the lack of level 1 evidence guiding optimal management. This study was part of the European Visceral Artery Revascularisation (EVisAR; ClinicalTrial.gov NCT06913530) study initiative. A single round, international, cross sectional online survey, in compliance with the Checklist for Reporting of Survey Studies (CROSS), was conducted to assess current heterogeneity for the management of VAAs, IMAD, and IRAD across Europe.
Method: EVisAR physicians were invited and surveyed with questions on caseload, diagnostic pathways, treatment indications and strategies, and follow up protocols. Responses were analysed descriptively, and inter-physician agreement was estimated with the Fleiss κ method.
Results: A total of 54 physicians completed the survey (of 107 invited); 98% were vascular surgeons from 12 European countries and one from Australia. Institutional caseloads were low (fewer than ten cases/year) for both conditions. Aneurysm size thresholds for intervention varied depending on the location, with 2 — 3 cm being common for several arteries and an agreement for a 3 cm threshold for renal and splenic artery aneurysms (74% and 65%, respectively). Endovascular intervention was the preferred approach for VAAs and dissections (98%). Initial IMAD management largely depended on clinical status and most frequently included triple medication (antihypertensive, anticoagulant, and antiplatelet, 68%), fasting (63%), monitoring of biomarkers for intestinal ischaemia (89%), and a second scan at one to three days (63%). Overall agreement on management was moderate for VAA ($\kappa = 0.41$) and IMAD and IRAD ($\kappa = 0.40$). For both, the lowest agreement was observed for follow up indications ($\kappa = 0.03$ and $\kappa = 0.32$, respectively).
Conclusions: Current management shows substantial heterogeneity and a lack of consensus, particularly concerning long term surveillance and specific therapeutic approaches, although endovascular interventions seem to be the preferred strategy. These findings underscore the urgent need for high quality data and support the ongoing need for the EVisAR study.
© 2026 The Authors. Published by Elsevier Ltd on behalf of European Society for Vascular Surgery. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
Article history: Received 7 December 2025, Revised 29 June 2026, Accepted 8 July 2026,

[†] A list of the EVisAR study participants is included in Appendix A.

* Corresponding author. Department of Vascular Surgery, Ospedale Civile di Baggiovara, Azienda Ospedaliero-Universitaria di Modena, University of Modena and Reggio Emilia, Via Giardini, 1355, 41126 Baggiovara (MO), Italy.
E-mail address: nicola.leone@unimore.it (Nicola Leone).

2666-688X/© 2026 The Authors. Published by Elsevier Ltd on behalf of European Society for Vascular Surgery. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
https://doi.org/10.1016/j.ejvsvf.2026.07.005

Keywords: Aneurysm rupture, Arterial aneurysm, Arterial dissection, Mesenteric ischaemia, Visceral artery aneurysms

INTRODUCTION

Visceral artery aneurysms (VAA) and isolated mesenteric and renal artery dissections (IMAD and IRAD) are uncommon but clinically critical pathologies of the splanchnic and renal circulation.[1–4] VAA comprise 3.6% of all arterial aneurysms and their rupture risk is associated with a mortality rate of up to 13%, underscoring the need for timely and appropriate management.[5–7] Similarly, IMAD and IRAD is increasingly recognised due to advanced imaging techniques and can be asymptomatic, present acutely with severe abdominal pain and malperfusion, or chronically with aneurysm formation, and requires complex decision making.[1]

Treatment thresholds, particularly for asymptomatic VAA, and therapeutic strategies for IMAD and IRAD, which balance the risks of revascularisation against the risk of progression, are largely derived from retrospective case series or limited single centre experiences. This lack of robust natural history data and randomised clinical trials of VAAs, IMAD, and IRAD probably contributes to therapeutic uncertainty and heterogeneity in clinical practice. The 2025 European Society for Vascular Surgery (ESVS) guidelines[1] provided a comprehensive document with updated recommendations and summarised the lack of knowledge in several areas.

In response to the lack of level 1 evidence pertinent to management of visceral artery pathologies, the European Visceral Artery Revascularisation (EVisAR; ClinicalTrial.gov NCT06913530) study was initiated as an international, multicentre registry to document contemporary practices and assess the long term outcomes of patients treated for occlusive, aneurysmal, and isolated dissection visceral artery pathologies. As a foundational step, this study aimed to provide a quantitative overview of the current international practice in this specialised field and conducted a cross sectional survey focusing exclusively on VAA,IMAD, and IRAD; it aimed to assess variations in clinical practice and identify the most significant areas of clinical uncertainty that the ongoing EVisAR study should address.

STUDY DESIGN

This study was designed as a single round, international, cross sectional survey that was distributed electronically to a targeted network of vascular specialists participating in the EVisAR study (ClinicalTrial.gov NCT06913530). The survey was conducted in compliance with the Checklist for Reporting of Survey Studies (CROSS) (Supplementary Table S1).

METHOD

The EVisAR study was approved by an independent Ethics Committee and the Institutional Review Board at the primary centre (Modena, Italy) on 18 August 2024 (#159/2024/OSS/AOUMO SIRER ID 7381). The present investigation was exempted from formal review by the ethics committee as it constituted a survey of professional practice that did not involve patient specific data or identifiable information. Submission of the completed survey was considered to be equivalent to informed consent. A parallel survey study focusing on atherosclerotic mesenteric and renal diseases was also conducted and submitted for peer reviewed publication. The main drivers for splitting the publications were that these are different entities with different outcomes, which were surveyed differently.

Survey instrument, participants, and distribution

The online tool was created using the RedCap online platform (Vanderbilt University, Nashville, TN, USA). Two authors (N.L. and G.F.B.) developed the survey, which was revised by a third author with expertise in survey question construction (M.D.). Eight EVisAR steering committee members ran a pilot test to validate the survey and proposed minor changes that were approved by all members before submission to the panel. The instrument was provided in English only. The questionnaire was developed through a literature review and clinical expertise to identify critical areas of equipoise in VAA, IMAD, and IRAD management. The final instrument consisted of two main sections, VAA and dissection, presenting multiple structured clinical scenarios covering diagnostic strategies, indications for intervention, preferred therapeutic modalities, and post-procedural surveillance protocols. The format included 21 multiple choice questions for each section, complemented by 16 and eight open questions for the VAA, IMAD and IRAD sections, respectively. The complete set of survey questions is presented in Supplementary Material S1.

Participation was both voluntary and anonymous, with no financial incentives, and only aggregated data were analysed. The online form was shared through a mailing list of 107 practitioners of the EVisAR network. EVisAR study participation was unselected and unbiased, resulting from the combination of multiple email invitations delivered by the steering committee, the European Research Hub (ERH, part of the ESVS), and the European Vascular Research Collaborative (EVRC) during 2024 and 2025. Some non-European ESVS members applied to participate, and the steering committee opted to include these colleagues. The participants included both consultants and senior trainees (fellows and senior residents). Trainees were included to reflect the collaborative nature of modern vascular multidisciplinary teams and to capture the full spectrum of heterogeneity in clinical practice. The survey was open for three weeks in March 2025. Weekly reminders were sent to encourage participation in the study. RedCap features enabled personal, non-shareable email invitations to ensure confidentiality and prevent unauthorised access. Additionally, the software restricted access to the questionnaire after submission to prevent multiple responses.

Participants characteristics, including country, primary specialty, training level, and institutional setting, were collected for descriptive analysis (Table 1). Two investigators (N.L. and G.F.B.) independently extracted data and assessed open ended questions to convert them into categorical variables. Discussion, including an additional investigator (S.G.), resolved any eventual disagreement.

Aims

The primary objective of the survey was to assess contemporary management strategies and quantify agreement on the management of VAA, IMAD, and IRAD. The latter was stratified into survey subsections: diagnosis and therapeutic indication, therapeutic strategies, and follow up. The secondary purpose was to assess alignment with the 2025 ESVS clinical practice guidelines on the management of diseases of the mesenteric arteries and veins,[1] which were made publicly available in June 2025 after the present investigation. The most frequent answer was chosen to draw the management flowcharts displayed in Figures 1 and 2. These also show green, orange, and red tags, which stand for full, partial, and non-consistent, respectively, with respect to the above mentioned

Table 1. Study participant characteristics ($n = 54$).

Question of interest	*n* (%)
Country	
Austria	2 (4)
Belgium	2 (4)
France	5 (9)
Germany	2 (4)
Italy	30 (56)
Moldova	2 (4)
Netherlands	1 (2)
Serbia	1 (2)
Spain	6 (11)
Sweden	1 (2)
United Kingdom	1 (2)
Australia	1 (2)
Speciality	
Vascular surgery	53 (98)
General surgery	1 (2)
Trainee	6 (11)
Teaching responsibilities, consultants	43 (90)*
Institution setting	
University hospital	44 (82)
Non-academic teaching hospital	7 (13)
Non-academic non-teaching hospital	3 (6)
Institution level of referral	
Primary	0
Secondary	1 (2)
Tertiary	53 (98)
Multidisciplinary team	40 (74)
Other specialists involved, multiple choices allowed	
General surgery	28 (52)†
Interventional radiology	34 (63) †
Gastroenterology	19 (35) †
Internal medicine	16 (30) †
Anaesthetist	25 (46) †
Nutritional medicine	8 (85) †
Psychology	3 (6) †
Nephrology	13 (24) †
Urology	1 (3) †
Gynaecologist	1 (3) †
Traumatology	1 (3) †
Operative setting	
Hybrid OR	29 (54)
Standard OR and mobile C-arm	13 (24)
Standard OR and or Angio suite based on surgical approach	12 (22)

OR = operative room.
* Proportion calculated on subtotal ($n = 48$).
† Proportion calculated on row ($n = 54$).

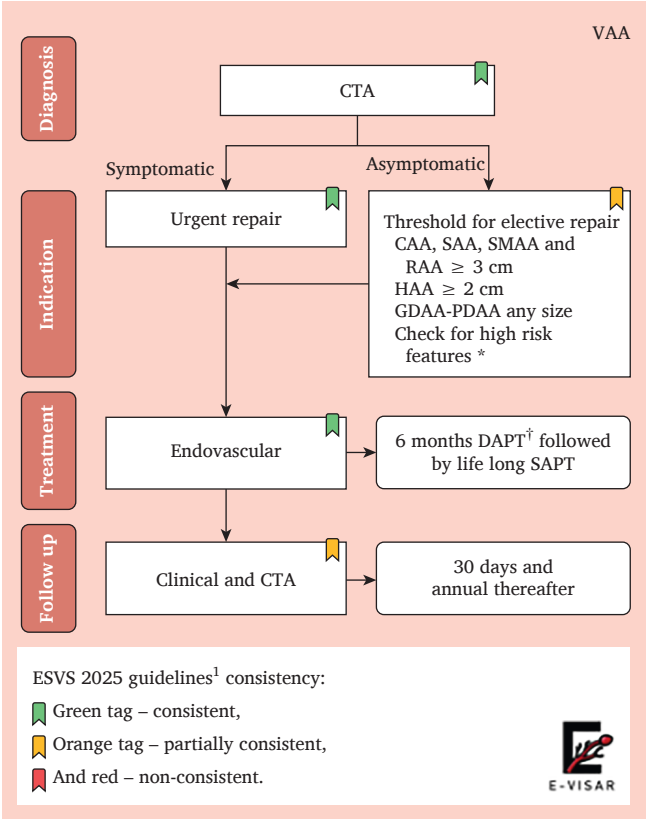

Figure 1. Survey participants most frequent management strategies for visceral artery aneurysms and their consistency with the 2025 European Society for Vascular Surgery (ESVS) guidelines. Green, orange, and red tags indicate full, partial, and non-consistent, respectively, with respect to 2025 ESVS guidelines. Partial and non-consistency were defined as survey answers partially and completely deviating from the guideline recommendations. No tag means the topic was not covered by the guidelines, and bold characters indicate > 50% of respondents agreeing with the chosen management. VAA = visceral artery aneurysm; CTA = computed tomography angiography; CAA = coeliac artery aneurysm; SAA = splenic artery aneurysm; SMAA = superior mesenteric artery aneurysm; RAA = renal artery aneurysm; HAA = hepatic artery aneurysm; GDAA-PDAA = gastroduodenal and pancreaticoduodenal artery aneurysm; DAPT = dual antiplatelet therapy; SAPT = single antiplatelet therapy. *High risk features: saccular morphology, childbearing age, pregnancy, and connective tissue disease. †Dual antiplatelet therapy does not apply to embolisation aiming for complete vessel occlusion.

Table 2. Degree of concordance among respondents in different sections of the questionnaire.

Item	Fleiss κ (95% CI)	*p* value
Survey (overall)	0.45 (0.40—0.50)	<.001
VAA (overall)	0.41 (0.31—0.50)	<.001
Diagnosis and therapeutic indications	0.44 (0.34—0.53)	<.001
Therapeutic strategies	0.24 (0.00—0.55)	.12
Follow up indications	0.03 (0.00—0.12)	.33
IMAD and IRAD (overall)	0.40 (0.32—0.48)	<.001
Diagnosis and therapeutic indications	0.36 (0.27—0.45)	<.001
Therapeutic strategies	0.57 (0.52—0.60)	.23
Follow up indications	0.32 (0.12—0.53)	.010

Interpretation for Fleiss κ: ≥ 0.80, almost perfect agreement; 0.60—0.79, substantial agreement; 0.40—0.59, moderate agreement; 0.20—0.39, fair agreement; <0.20, poor agreement. IMAD = isolated mesenteric artery dissection; IRAD = isolated renal artery dissection; VAA = visceral artery aneurysm.

guidelines. Partial and non-consistency were defined as survey answers partially and completely deviating from the guideline recommendations. No tag means that the topic was not covered by the guidelines, and bold characters stand for > 50% of respondents agreeing with the chosen management. Four survey participants were members of the ESVS writing committee, meaning that 93% of respondents had no access to the document before its publication.

Statistical analysis

Descriptive statistics were used to report the participant demographics and distribution of responses to each clinical scenario. Categorical variables are presented as frequencies and percentages of the total. The proportions of questions with missing answers and those addressed to a specific subgroup were calculated for the subtotal of respondents. The primary outcome of interest was the degree of inter-physician agreement. Concordance among respondents was assessed using Fleiss κ statistic (κ).[8] Agreement was expressed based on established thresholds as poor (κ < 0.20), fair (κ 0.20 − 0.39), moderate (κ 0.40 − 0.59), substantial (κ 0.60 − 0.79), and almost perfect (κ 0.80 − 1.00). The 95% confidence interval (CI) was calculated for each κ value, and a *p* value of < .050 was considered statistically significant for agreement measurement.[8,9] Overall agreement was calculated for the entire survey, and subgroup analyses were performed to compare the agreement levels between the VAA, IMAD, and IRAD sections and within key components (diagnosis and indications, therapeutic strategies, and follow up indications). Fleiss κ statistic was used descriptively, and any between subgroup hypothesis testing was not intended. Single and convenience sampling was selected based on two main considerations: the qualitative and informal nature of this study and the absence of previous surveys assessing consensus on the topic of interest. Consequently, calculations for sample size, survey follow up, item weighting, and inferential statistical tests were not performed. All statistical analyses were performed using Stata 18 software (StataCorp LLC, College Station, TX, USA).

RESULTS

Participants characteristics and agreement

Fifty-four vascular specialists (of 107 invited, 59%) from 11 European countries and one Australian colleague completed the cross sectional survey. Participants demographics are presented in Table 1. Most respondents were vascular surgeons, except for one general surgeon. Almost all participants reported working in a tertiary referral centre (98%) and had teaching responsibilities. Most participants worked in multidisciplinary teams (74%), most commonly involving nutritional medicine physicians (85%), interventional radiologists (63%), and general surgeons (52%).

Overall survey agreement was moderate (κ = 0.45, 95% CI 0.40 − 0.50; $p < .001$). Similar results were found for the VAA, IMAD, and IRAD sections (κ = 0.41 and κ = 0.40, respectively; Table 2). Regarding surveillance after VAA treatment and therapeutic strategies for both VAA, IMAD, and IRAD, the analysis failed to demonstrate any agreement beyond what would be expected by chance 0.121 and 0.225 ($p = .33$), respectively, with the non-significant *p* values indicating a complete lack of consensus among participants for these components with the VAA follow up having the lowest numerical point estimate in the series (κ = 0.03).

Management of VAA

Most institutions reported treating between five and nine cases annually (43%) or fewer than five cases (26%). A flowchart summarising the participants preferred VAA management strategies is shown in Figure 1. A large majority (98%) were symptomatic, specifically with unexplained abdominal pain, and considered as an indication for urgent intervention. For asymptomatic cases, the size thresholds for treatment varied by arterial territory. A 3 cm cut off was considered appropriate for coeliac (54%), splenic (65%), superior mesenteric (46%), and renal artery aneurysms (74%). For gastroduodenal artery and pancreaticoduodenal aneurysms (GDAA and PDAA), 37% of physicians intervened regardless of size, while approximately one third used a 2 cm threshold. For hepatic artery aneurysms (HAAs), a 2 cm threshold was used by 59% of

respondents. Morphological and patient specific factors were widely regarded as risk modifiers: saccular morphology (91%), pregnancy (80%), connective tissue disease (80%), and childbearing potential (78%) were the most commonly cited criteria favouring earlier intervention. For aneurysms under the treatment threshold (2 − 3 cm), surveillance with computed tomography angiography (CTA) was preferred by 74% of respondents, with a slightly higher preference for annual follow up (52%). Aneurysmal lesions < 2 cm were monitored primarily using duplex ultrasound (48%) or CTA (43%), with annual imaging being the most common schedule (54%).

Regarding intervention, the endovascular approach was strongly preferred (98%), with coil embolisation prevailing for splenic aneurysms (41%). Clinical and CTA evaluations were the most frequently used to monitor outcomes (52%), with 30 day and annual follow up schedules being the most common. Only 9% of respondents did not prescribe a specific post-operative medical therapy. A dual antiplatelet therapy (DAPT) short course strategy was preferred by 94% of physicians; additional details are displayed in Supplementary Table S2.

Management of IMAD and IRAD

The centres annual caseload of IMAD was low, with 68% of respondents managing fewer than five cases per year; additional data are reported in Supplementary Table S3. Forty-six percent of the participants did not routinely use any classification for dissection. Initial medical management most frequently consisted of hypotensive, anticoagulant, and antiplatelet drugs (69%), with non-negligible variation in doses (see Supplementary Table S3 for additional details). Fasting (63%), intestinal ischaemia biomarker monitoring (89%), and CTA at one to three days (63%) were relevant features of IMAD management. Most participants agreed that revascularisation should be indicated for those failing medical therapy (50%), specifically persistent symptoms (52%), radiological worsening (43%), and persistent hypertension (46%). The timing at which these variables should prompt revascularisation ranged between one and three days after onset but was not further investigated. A minority of physicians (28%) routinely revascularised symptomatic IMAD patients. Most participants confirmed that they had never performed IRAD revascularisation (80%).

The endovascular approach was strongly preferred (98%), with bare metal stenting being the most commonly used technique (66%) for both IMAD and IRAD. Follow up after revascularisation most commonly included clinical assessment coupled with either CTA (46%) or ultrasound (50%), with the most frequent schedule consisting of a 30 day scan followed by annual imaging (41%). A short DAPT course followed by lifelong single antiplatelet therapy was the most common approach (92%), and DAPT duration differed according to the participants responses and medical therapy for conservatively managed dissections. Supplementary Table S3 displays the IMAD and IRAD survey results. A flowchart summarising the participants' preferred IMAD and IRAD management strategies is shown in Figure 2.

DISCUSSION

This survey provides valuable insights into the current clinical attitudes and management strategies for VAA, IMAD, and IRAD among European vascular surgeons. The results highlight variations in both diagnostic and therapeutic approaches, probably reflecting the absence of standardised protocols and challenges posed by the rarity of these conditions. The low reported caseload suggests limited direct clinical experience in many centres, which may also contribute to the heterogeneous strategies adopted. VAA and IMAD lack robust evidence in several aspects of their management, as noted by the ESVS guidelines writing committee.[1]

The diagnosis is most often made incidentally during imaging examinations for other reasons, and CTA is recommended for the diagnosis and surgical planning of visceral artery diseases.[1,2]

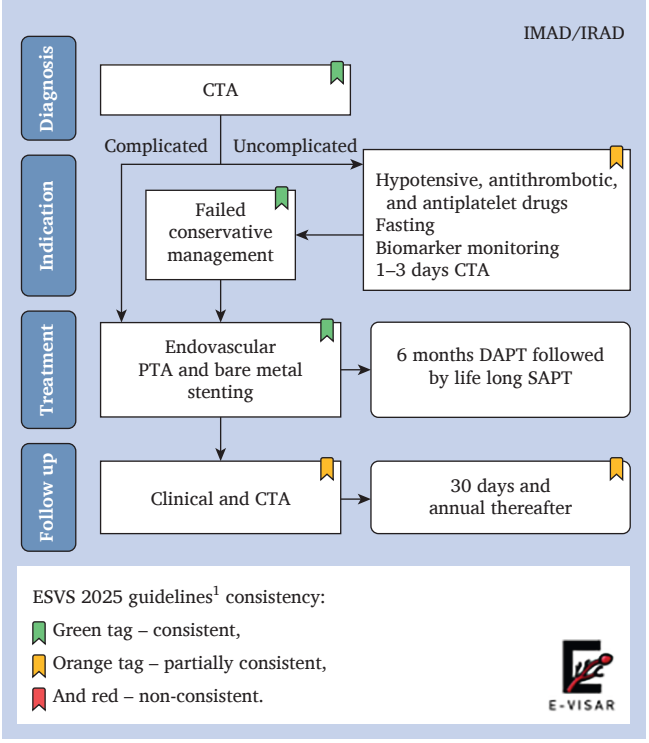

Figure 2. Survey participants most frequent management strategies for isolated mesenteric and renal dissections and consistency with the 2025 European Society for Vascular Surgery (ESVS) guidelines. Green, orange, and red tags indicate full, partial, and non-consistent, respectively, with respect to 2025 ESVS guidelines. Partial and non-consistency were defined as survey answers partially and completely deviating from the guideline recommendations. No tag means the topic was not covered by the guidelines, and bold characters indicate >50% respondents agreeing with the chosen management. IMAD/IRAD = isolated mesenteric and renal dissections; CTA = computed tomography angiography; PTA = percutaneous transluminal angioplasty; DAPT = dual antiplatelet therapy; SAPT = single antiplatelet therapy.

When moving forward to the treatment, indications uncertainty arises, as demonstrated by the low to moderate agreement for both entities. The participants almost unanimously agreed that symptomatic and ruptured VAA require urgent repair. However, the thresholds for elective repair differ among physicians. This result may be influenced by the different thresholds suggested by different societies.[1,10,11] European,[1] American (SVS),[12] and Italian (SICVE)[13] Societies have agreed on a 3 cm threshold for splenic and renal artery aneurysms. Treatment thresholds for all the remaining vessels differed, with the greatest discrepancy regarding superior mesenteric artery aneurysms, where 3 cm, any size, and 2 cm were advised by the ESVS, SVS, and SICVE, respectively.[1,12,13] This is because low grade evidence requires interpretation and consensus recommendations, ultimately leading to personal opinions provided by writing committees. A comparison of the suggested VAA management by the present survey and current international guidelines is provided in Supplementary Figure S1 and Supplementary Table S4. This issue was clearly depicted by Barrionuevo *et al.*,[10] who showed that most VAA publications focused on the splenic and renal arteries, with the remaining vessels suffering from a critical lack of dedicated publications. The present survey showed that physicians were not consistent with the recently published ESVS guidelines regarding HAA, GDAA, and PDAA.

Regarding HAA, it should be noted that previous guidelines relied on some outdated references.[10,11] One of the most recent publications focusing on HAA showed a mean size of 3.9 cm for ruptured HAAs.[11] This seems to support the ESVS 3 cm threshold. However, the authors advocated a 2 cm threshold for women, noting that only one in seven ruptures occurred in men.[11] The reason behind the GDAA and PDAA indication to repair at any size, given by 37% of participants, is the high rupture risk. However, a recent publication showed that the median size at rupture was 16 mm (range 10 − 42 mm), and the mean diameter at repair was 22 mm, according to a recent review of GDAA and PDAA presenting with coeliac artery stenosis.[14,15] Survey heterogeneity is probably caused by data and guidelines uncertainties. Readers should consider that the suggested management by the present survey, as well as by the SVS[12] and SICVE[13] guidelines, might push towards overtreating small HAA, GDAA, and PDAA. Therefore, the indication for VAA repair should consider additional features and be tailored to each individual. Saccular morphology, connective tissue diseases, pregnancy, and childbearing age were the prominent variables that lowered the threshold. Some evidence supports splenic and renal aneurysm repair in pregnant patients, regardless of size.[16,17] Unfortunately, there is a lack of high quality publications supporting other facets of VAA management.[1]

IMAD and IRAD share an undisputed indication for urgent repair if complicated by end organ ischaemia. The management of uncomplicated symptomatic dissections was heterogeneous among EVisAR survey participants and in the literature.[4,18,19] There was agreement for initial medical management consisting of lowering blood pressure, fasting, laboratory monitoring, and antiplatelet therapy, but not regarding antithrombotic use, which was prescribed at different doses by the large majority of participants.[4] The latter represents one of the most debated topics about isolated dissections and comes from the sparse and heterogeneous literature findings.[4,18,19] Latest systematic reviews reported 30 − 40% of IMAD and 56% of IRAD patients treated conservatively receiving antithrombotic drugs.[4,18,19] EVisAR survey participants used five different medical therapy protocols, showing that the definitive answer on the best approach is largely awaited (see Supplementary Table S3 for additional details). In addition, 28% of physicians routinely revascularised symptomatic dissections, which should not be overlooked, considering that the 2025 ESVS guidelines recommend against primary revascularisation in uncomplicated cases.[1] This specific inconsistency is probably driven by the concern for bowel ischaemia coupled with the low invasiveness of endovascular repair, and this may also be a topic for future EVisAR sub-investigation. There was moderate agreement regarding close radiological follow up at one to three days for uncomplicated symptomatic IMAD cases. Overall, the present survey aligns with the 2025 ESVS guidelines.[1]

Endovascular revascularisation was almost unanimously preferred in cases of VAA and dissection. This approach has demonstrated shorter hospital stays and lower complication rates but more frequent re-interventions in a large meta-analysis comparing endovascular and surgically managed VAAs.[10] These findings may support further centralisation of visceral artery disease management to centres able to offer a 24/7 endovascular and open approach. There are several medical and follow up features requiring further discussion, considering the worst agreement ($\kappa = 0.03$) was found for the latter section. The present study showed a large preference ($>$ 90%) for a post-revascularisation short course of DAPT in both VAA, IMAD, and IRAD. However, this may not be the case for embolisation aimed at complete vessel occlusion. Clinical and CTA follow ups were mostly preferred at 30 days and annually thereafter. The 2025 ESVS guidelines[1] issued a consensus recommendation on follow up of visceral artery diseases, preferring duplex ultrasound, but did not advise a surveillance frequency for VAA. Annual surveillance should be considered for dissection cases; however, this guideline recommendation relies on systematic reviews and clinical studies commonly biased by low numbers, retrospective, and historical cohorts mainly comprising Asian patients.[1,4,20] Therefore, it seems reasonable to follow up aneurysms and dissections radiologically with physicians tailoring the plan to the individual patient. The very low agreement regarding VAA follow up and uncertainties from the guidelines represent the most powerful argument for future clinical investigations within the EVisAR clinical study.

Limitations

This study was limited by its self reporting design and the subject matter of uncommon conditions with surveyed participants having limited exposure to those conditions.

The interpretation of agreement was limited by the lack of previous publications reporting this outcome. However, these limitations may serve to stimulate future studies to increase the volume and quality of evidence pertinent to the management of VAA and dissections. The overall number of participants, coupled with the moderated participation rate, might have hindered the aim of an inclusive and fully representative survey. Most participants were vascular surgeons, which does not represent the large number of specialists involved in multidisciplinary teams. For instance, the absence of interventional radiologists may represent a limitation. In addition, relying on the EVisAR network may have led to selection bias as most participants were academic surgeons. However, EVisAR invitations were delivered through institutional channels, ERH and EVRC, avoiding any bias from centrally controlled enrolment. In conclusion, the low representativeness of either non-academic centres or non-tertiary institutions can be interpreted as a consequence of an ongoing centralisation process for care of visceral artery pathologies.

Conclusion

This survey underscores the significant variation in contemporary clinical practice related to the diagnosis, management, and follow up of VAAs, IMAD, and IRAD. There was consistent preference for a multidisciplinary and endovascular oriented approach for both conditions. Conservative treatment remains the primary strategy for both uncomplicated symptomatic and asymptomatic isolated dissections, with endovascular procedures reserved for specific cases that do not respond to medical therapy. The criteria for treating VAAs were largely determined by aneurysm size, symptoms, and morphological or patient specific risk factors. Developing standardised protocols through multicentre registries and prospective studies will be crucial for enhancing the consistency and quality of care of VAAs, IMAD, and IRAD. The current survey offers valuable real world insights into a field constrained by low case volumes and fragmented evidence. The EVisAR study is vital for addressing long term outcomes and providing the robust evidence needed to guide future recommendations and help standardise care for these complex vascular conditions.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

FUNDING

This research did not receive any specific grants from funding agencies in the public, commercial, or not for profit sectors.

ACKNOWLEDGEMENTS

The EVisAR study was endorsed by the ERH and EVRC groups. Both the ERH and EVRC significantly boosted centre enrolment, and their members deserve recognition.

APPENDIX A. SUPPLEMENTARY DATA

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ejvsvf.2026.07.005.

APPENDIX A. EVISAR STUDY SURVEY PARTICIPANTS, IN ALPHABETICAL ORDER

Francesco Andreoli (Lugano, Switzerland), Domenico Angiletta (Bari, Italy), Giulia Bertagna (Pisa, Italy), Luca Bertoglio (Brescia, Italy), Claudio Bianchini Massoni (Parma, Italy), Jennifer Canonge (Creteil, France), Caroline Caradu (Bordeaux, France), Jorg L. De Bruin (Rotterdam, The Netherlands), Dumitru Casian (Chişinău, Moldova), Giovanni Coppi (Bolzano, Italy), Raphaël Coscas (Boulogne-Billancourt, France), Vasile Culiuc (Chişinău, Moldova), Pablo del Canto Peruyera (Gijón, Spain), Florian Enzmann (Innsbruck, Austria), Davide Esposito (Genova, Italy), Antonio Fontana (Reggio Emilia, Italy), Kerbi Alejandro Guevara Noriega (Sabadell, Spain), Ignacio Michel Guisasola (Madrid, Spain), Malka Huici (Barcelona, Spain), Gabriel Inaraja Pérez (Zaragoza, Spain), Angelos Karelis (Malmo, Sweden), Arnaud Kerzmann (Liege, Belgium), Anne Lejay (Strasbourg, France), Wassim Mansour (Rome, Italy), Paola Manzo (Turin, Italy), Daniela Mazzaccaro (Milan, Italy), Mattia Migliari (Modena, Italy), Pietro Paolo Nicoletti (Modena, Italy), Fabio Massimo Oddi (Rome, Italy), Edoardo Pasqui (Siena, Italy), Felice Pecoraro (Palermo, Italy), Francesca Persiani (Rome, Italy), Michele Piazza (Padova, Italy), Fernando Picazo Pineda (Perth, Australia), Davide Maria Pressanto (Parma, Italy), Massimo Giuseppe Ruggiero (Brindisi, Italy), Gioele Simonte (Perugia, Italy), Jonathan Sobocinski (Lille, France), Luis Angel Suarez Gonzalez (Gijon, Spain), Giovanni Tinelli (Rome, Italy), Valerio Tolva (Milan, Italy), Nicola Troisi (Pisa, Italy), Davide Turchino (Naples, Italy), Isabelle Van Herzeele (Gent, Belgium), Desiree van Noord (Rotterdam, The Netherlands), Vincenzo Vento (Ancona, Italy), Apollonia Verrengia (Brescia, Italy), Mikolaj Walensi (Essen, Germany), David Wippel (innsbruck, Austria), Andrea Xodo (Vicenza, Italy), Iris Zannoni (Modena, Italy), Petar Zlatanovic (Belgrade, Serbia).

REFERENCES

1 Koelemay MJ, Geelkerken RH, Kärkkäinen J, Leone N, Antoniou GA, de Bruin JL, et al. Editor's Choice — European Society for Vascular Surgery (ESVS) 2025 clinical practice guidelines on the management of diseases of the mesenteric and renal arteries and veins. *Eur J Vasc Endovasc Surg* 2025;**70**:153—218.
2 Leone N, Migliari M, Baresi GF, Gennai S. Visceral artery aneurysms: a shred of light on rare entities. *Scand J Surg* 2025;**114**:390—9.
3 Erben Y, Brownstein AJ, Rajaee S, Li Y, Rizzo JA, Mojibian H, et al. Natural history and management of splanchnic artery aneurysms in a single tertiary referral center. *J Vasc Surg* 2018;**68**:1079—87.
4 Acosta S, Gonçalves FB. Management of spontaneous isolated mesenteric artery dissection: a systematic review. *Scand J Surg* 2021;**110**:130—8.

5 Klausner JQ, Lawrence PF, Harlander-Locke MP, Coleman DM, Stanley JC, Fujimura N, et al. The contemporary management of renal artery aneurysms. *J Vasc Surg* 2015;**61**:978—984.e1.
6 Shukla AJ, Eid R, Fish L, Avgerinos E, Marone L, Makaroun M, et al. Contemporary outcomes of intact and ruptured visceral artery aneurysms. *J Vasc Surg* 2015;**61**:1442—7.
7 Walensi M, Juntermanns B, Tsilimparis N, Hoffmann JN. Renoviszerale arterielle Aneurysmen. *Gefässchirurgie* 2022;**27**: 416—24 [in German].
8 Fleiss JL. Measuring nominal scale agreement among many raters. *Psychol Bull* 1971;**76**:378—82.
9 Sim J, Wright CC. The kappa statistic in reliability studies: use, interpretation, and sample size requirements. *Phys Ther* 2005;**85**:257—68.
10 Barrionuevo P, Malas MB, Nejim B, Haddad A, Morrow A, Ponce O, et al. A systematic review and meta-analysis of the management of visceral artery aneurysms. *J Vasc Surg* 2019;**70**:1694—9.
11 Stark JC, Eisenberg N, Mafeld S, McGilvray I, Roche-Nagle G, Howe KL. Assessment of open surgical and endovascular management of true hepatic artery aneurysms over 20 years highlights increased rupture risk in females. *J Vasc Surg* 2022;**75**:1334. 42.e2.
12 Chaer RA, Abularrage CJ, Coleman DM, Eslami MH, Kashyap VS, Rockman C, et al. The Society for Vascular Surgery clinical practice guidelines on the management of visceral aneurysms. *J Vasc Surg* 2020;**72**(1S):3S—39S.
13 Pratesi C, Esposito D, Martini R, Novali C, Zaninelli A, Annese AL, et al. Guidelines on the diagnosis, treatment and management of visceral and renal arteries aneurysms: a joint assessment by the Italian Societies of Vascular and Endovascular Surgery (SICVE) and Medical and Interventional Radiology (SIRM). *J Cardiovasc Surg (Torino)* 2024;**65**:49—63.
14 Stoecker JB, Eddinger KC, Glaser JD, Wang GJ, Shlansky-Goldberg RD, Fairman RM, et al. A large series of true pancreaticoduodenal artery aneurysms. *J Vasc Surg* 2022;**75**: 1634—16342.e1.
15 Illuminati G, Hostalrich A, Pasqua R, Nardi P, Chaufour X, Ricco J-B. Outcomes after open and endovascular repair of non-ruptured true pancreaticoduodenal and gastroduodenal artery aneurysms associated with coeliac artery compression: a multicentre retrospective study. *Eur J Vasc Endovasc Surg* 2021;**61**:945—53.
16 Aung YY-M, Berry C, Jayaram PR, Woon EV. Splenic artery aneurysm in pregnancy: a systematic review. *Int J Gynaecol Obstet Off Organ Int Fed Gynaecol Obstet* 2023;**160**:1—11.
17 Augustin G, Kulis T, Kello N, Ivkovic V. Ruptured renal artery aneurysm in pregnancy and puerperium: literature review of 53 cases. *Arch Gynecol Obstet* 2019;**299**:923—31.
18 Ullah W, Mukhtar M, Abdullah HM, Ur Rashid M, Ahmad A, Hurairah A, et al. Diagnosis and management of isolated superior mesenteric artery dissection: a systematic review and meta-analysis. *Korean Circ J* 2019;**49**:400—18.
19 Jha A, Afari M, Koulouridis I, Bhat T, Garcia L. Isolated renal artery dissection: a systematic review of case reports. *Cureus* 2020;**12**:e6960.
20 He Y, Hu Y, Tian L, Qiu C, Li D, Xiang Y, et al. Acute renal infarction due to symptomatic isolated spontaneous renal artery dissection: a rare and fatal disease. *J Endovasc Ther* 2025;**32**:130—8.