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Tapia's syndrome following septoplasty: case report and review of the literature

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ABSTRACT

Tapia's syndrome is a rare complication of several surgeries performed under general anesthesia, due to a lesion of hypoglossal and vagal nerves. A healthy 31-year-old man was a candidate for septoturbinoplasty. The next morning after surgery, the patient complained of dysphonia and difficulty in swallowing, manifesting as unilateral deviation of the tongue and ipsilateral vocal cord paralysis. However, all symptoms resolved completely within six months after surgery with conservative treatment. The aim of this study is to describe the first case of Tapia's syndrome occurring after a septoplasty, which is important to report even for medical legal issues.

1. Introduction

Tapia's Syndrome was first described in 1904 by the Spanish otorhinolaryngologist Antonio Garcia Tapia and it is characterized by unilateral paralysis of the tongue and vocal cord, manifesting as dysphonia, tongue deviation, and swallowing difficulty. This syndrome is caused by the X and the XII cranial nerve lesions (occasionally XI is also involved). Different etiologies have been implicated in the genesis of the syndrome, including airway manipulation, which can occur after any type of surgery under endotracheal general anesthesia [1–3]. Silva-Hernández et al. [2] highlighted in their work the relationships between X and XII cranial nerves in the poststyloid space.

Particularly, in literature there have been reported some cases occurring after rhinoplasty or septorhinoplasty. In this study, we present a case of unilateral Tapia's Syndrome after septoturbinoplastic surgery under general anesthesia, with full recovery of symptoms within six months after surgery. It is the first time that this Syndrome is reported after septoplasty.

2. Case report

A healthy 31-year-old man (weight: 85 kg, height: 183 cm) was admitted for septoturbinoplastic surgery due to septum deviation and hypertrophic turbinates. He had no history of disease or previous surgery, his ASA score was I, his Mallampati score was II. General anesthesia was administrated and oral intubation was performed without difficulties. The cuff of the tube was inflated with a pressure ≤20 cm H2 O. No adjustment of cuff volume was made intra-operatively. N2O was not used for inhalation anesthesia. General anesthesia was maintained with Sevofluorane in oxygen/air and Remifentanyl in continuous infusion 0.25 μg/kg/min. Moderate arterial hypotension was maintained with a cuff systolic artery pressure of approximately 90 mmHg. The operation was carried out in a semisupine position with the head slightly inclined forward and laterally and trunk slightly elevated. The operation lasted 45 minutes, without complications. The next morning the patient complained of dysphonia, difficulty in swallowing and speaking. He was discharged with oral antibiotic (amoxicillin and clavulanic acid, 2g/day for 6 days) and cortisone therapy (methylprednisolone 16 mg/day for 10 days). After three days, his nasopharyngeal packing was removed, but he still complained of the same symptoms. Examination revealed deviation of the tongue to the left side when protruded, left vocal cord paralysis, which were signs of X and XII cranial nerve paralysis. The movements of the pharynx and soft palate were normal. Computerized tomography of the head and brain magnetic resonance imaging were normal and excluded any central disease. Three days later the deviation of the tongue was still present and the left vocal cord was still paralyzed, although improving. The patient started oral acetyl-L-carnitine for 30 days. After three months laryngostroboscopy examination revealed full recovery of the left vocal cord. The deviation of the tongue was still present, with its total remission within six months after surgery.

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3. Discussion

Tapia's syndrome is a rare complication of several types of surgery under endotracheal general anesthesia. The paralysis of X and XII cranial nerves is determined by a stretching or a compression of the nerves, which cause a neuropraxic damage. This kind of lesion is often reversible with a full recovery of the symptoms in a few months, as reported in literature [4–6].

Interestingly, several articles reported in literature have described cases of Tapia's syndrome after rhynoplastic surgery, describing the probable onset mechanisms, but this is the first description after septoplasty, which is a nasal surgical treatment that is less complicated and requires a shorter time of execution. A PubMed search using the following query "Tapia's syndrome AND septoplasty" yielded only a single case report, which described an isolated hypoglossal nerve injury following septoplasty performed under general anesthesia. To the best of our knowledge, the present report represents the first documented case of Tapia's syndrome occurring as a complication of septoplasty. It is known that there are important differences between septoplasty and rhinoplasty. Firstly, they differ in surgical procedure. Septoplasty is a functional surgery performed in order to correct a septal deviation that involves significant symptomatic nasal obstruction, unresponsive to medical therapy [7]. Rhinoplasty is an aesthetic procedure executed to correct nasal external deformities, with an eventual functional regularization of the septum in case of nasal obstruction. It can be performed with internal or external technique [8]. Furthermore these surgeries differ in timing, as septoplasty lasts less than 60 min, while rhinoplasty takes longer, on average an hour and a half. Even the nasal packing is quite different: more consistent in rhinoplasty than in septoplasty. Analyzing the probable mechanism of onset reported in literature, it has been suggested by several authors that the mechanisms of nerve injury may result from compression exerted by the endotracheal tube cuff upon pack in the oropharynx, as well as from an excessive anterior and lateral flexion of the patient's head [5,6,9–11]. Interestingly, Cinar et al. [12] described a bilateral paralysis of X and XII cranial nerves after open rhinoplasty, due to position of the neck and endotracheal tube.

Furthermore, Bakhshaee et al. [4] sustained a combination of endotracheal intubation, packing the pharynx, controlled hypotension and a prolonged operation as the probable mechanisms of unilateral Tapia's syndrome after rhinoplasty surgery. In agreement with the literature, we believe that in our case the excessive lateral position of the patient's head during surgery could cause a prolonged stretching of the nerves, leading to edema and neuropraxic damage. Moreover, we suppose that the nasal packing (Merocel 10 cm) determined a compression at the crossing of vagal and hypoglossal nerves with consequent edema and injury.

In according to literature, we sustain that also the overpressure of the cuff of endotracheal tube may have contributed to the nerve damage, especially at the base of the tongue where the two nerves lie near to each other. Our patient was monitored and hypoglossal and recurrent laryngeal nerve function was completely recovered within six months after surgery, confirming the reversible neuropraxic nerve injury.

4. Conclusion

In conclusion, the aim of this study is to underline the possibility of a complication that, although unfrequent, can occur after an easy septoplasty surgery. Fortunately, Tapia's syndrome is transient and, except in rare cases [9,13,14], resolves completely a few months after surgery. However, it is important to report it, also for legal medical issues.

CRediT authorship contribution statement

A. Donniacuo: Writing – review & editing, Data curation, Conceptualization. **C. Mezzedimi:** Writing – original draft, Supervision, Conceptualization. **C. Bovi:** Writing – original draft. **L. Salerni:** Validation, Supervision. **M. Mandalà:** Supervision. **L. Brindisi:** Validation, Supervision, Methodology, Investigation.

Ethical statement

The patient was asked a written informed consent prior to the surgery and a specific authorization for the recording and the use of the collected material for scientific purposes. The patient anonymity has been preserved in the case report we present.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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