Tapia's syndrome – a rare complication following cardiac surgery

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Abstract

Tapia's syndrome is a rare complication following cardiac surgery. It includes the extracranial involvement of the recurrent laryngeal nerve and the hypoglossal nerve and results in ipsilateral paralysis of the vocal cord and the tongue. It is usually a complication related to anaesthesia and positioning of the head of the patient during surgery. We describe this rare complication which occurred at our institute. A 49-year old man developed Tapia's syndrome after an uneventful coronary artery bypass surgery. He complained of dysphonia, hoarseness of voice and an inability to swallow soon after extubation. The syndrome resolved completely over the following weeks with no neurological deficit.

Keywords: Tapia's syndrome • Cardiac anaesthesia

INTRODUCTION

Extracranial involvement of the recurrent laryngeal nerve and the hypoglossal nerve is known as Tapia's syndrome, first described in 1904 by Tapia [1]. Ipsilateral paralysis of the vocal cord and tongue is present. The most common clinical symptoms are hoarseness of voice, difficulty in tongue movement and dysphagia. The typical presentation is immobility of the vocal cord and tongue deviation to the denervated side on protrusion. Lesions of these nerves may be a rare complication of anaesthetic airway management. Other causes of this rare syndrome include tumours, trauma to the upper neck and operations on the head and neck.

We describe a rare case where this syndrome occurred together with involvement of the glossopharyngeal nerve after coronary artery bypass surgery.

CLINICAL SUMMARY

A 49-year old man (95 kg), with systemic hypertension and hyperlipidemia, underwent routine coronary artery bypass surgery with standard cardiac anaesthesia technique. The surgery proceeded uneventfully, and the patient was then transferred to the surgical ICU and extubated after 18 h. A few hours after extubation, the patient complained of dysphonia, hoarseness of voice and an inability to swallow. ENT and neurology examination confirmed deviation of the tongue to the right side and right vocal cord paralysis. There was no oedema or haematoma in the pharynx or larynx. He had involvement of the glossopharyngeal nerve as well with paralysis of the soft palate.

Computerized tomography and magnetic resonance imaging of the head and neck were normal.

A clinical diagnosis of Tapia's syndrome was made and the patient was empirically treated with steroids (dexamethasone 4 mg i.v. thrice a day). Due to the risk of aspiration, the patient received nutrition through a nasogastric tube followed by percutaneous endoscopic gastrostomy (PEG). The patient made a gradual recovery over the next four weeks, at which point the PEG tube was removed. At 10 weeks follow-up the patient had completely recovered.

DISCUSSION

The combined injury of hypoglossal and the vagal nerves due to extracranial involvement is a very rare entity.

Anatomically, the hypoglossal nerve rests on the most lateral prominence of the anterior surface of the transverse process of the first cervical vertebra and crosses the vagal nerve [2]. This close relationship between vagal and hypoglossal nerve may explain the possible mechanism of simultaneous nerve injury in a patient. If hyperextension of this joint occurs, it is possible that these nerves would be stretched and pressed against this prominence.

The main causes are tumours or injuries to the upper neck. Few cases have been reported to occur after manoeuvring for surgical positioning and endotracheal and nasogastric intubations [3, 4]. Tapia's syndrome has been reported following transoral intubation, and the mechanism of injury is believed to be of neuropraxic origin due to pressure to the lateral roots of the tongue during routine intubation using a laryngoscopy blade with over-extension of the head [5].

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During surgery, these nerves can be injured due to exaggerated hyperextension or lateral flexion of the neck, pressure or extensive stretching.

Sotiriou et al. [3] reported a case of Tapia’s syndrome following coronary artery bypass surgery. The authors hypothesized that hyperextension and lateral flexion of the neck during sternotomy and endotracheal tube malposition had occurred leading to compression of the crossing point of the vagal and hypoglossal nerve. Rotundo et al. [4] describe a case of Tapia’s syndrome caused by displacement of the nasogastric tube resulting in a rhinopharyngeal haematoma and further exacerbated by heparin.

Isolated vocal cord palsy is a known complication after neck surgery. In rare instances, it has been described as a complication following open heart surgery in children [6] as well as adults. The incidence in adults is 0.67–1.9% [7]. It occurs due to damage to the recurrent laryngeal nerves in the chest. The left side is usually more affected than the right in view of its long intra-thoracic segment. The mechanism of injury [8] could be sternal retraction which results in longitudinal strain on both the recurrent laryngeal nerves due to forces generated from lateral traction of both subclavian arteries. Thermal injury from topical cardio-protective ice slush or electrocautery during dissection of the superior part of the internal thoracic artery is another mechanism of injury.

One case of vocal cord palsy after cardiac surgery was reported as a conversion disorder (psychiatric disorder) [9]. It is important to recognize recurrent laryngeal nerve injury after cardiac surgery as it is often overlooked as a cause of post operative respiratory insufficiency or hoarseness of voice.

Fortunately, the mechanism of nerve injuries in cases of Tapia’s syndrome following anaesthesia and surgery is neuropraxia. Complete recovery has been noted in all such cases within 3–4 months of sustaining the injury. The progressive recovery of the functions in our patient also suggests a neuropraxic type of nerve damage.

In conclusion, we describe here, yet another case of Tapia’s syndrome following cardiac surgery, possibly related to airway management procedures or overstretching of the neck during positioning for the procedure. We recommend that careful attention should be paid to correct positioning of the head during surgery and airway management to avoid such problems.

Conflict of interest: none declared.

REFERENCES