Case Report

Anesthetic management of schwannoma of the base of the tongue

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Abstract

Schwannoma arising from the base of the tongue are very rare and only a few cases have been reported so far. Definitive diagnosis is always made after a histological examination. Apart from an anticipated difficult airway with a risk of airway obstruction upon induction of general anesthesia, anesthetic concerns also include possibility of trauma to the growth and bleeding with attendant risks. We discuss the awake fiberoptic technique used for endotracheal intubation in such a case. This case report highlights the importance of detailed history taking and clinical examination, with emphasis on airway assessment and preoperative planning.

Key words: Airway management, base of tongue, schwannoma

Introduction

Schwannoma and neurofibroma are two tumors of the peripheral nerves originating in the nerve sheaths. Schwannoma account for just over 1% of benign tumors reported in oral cavity and the tongue is unanimously considered the most frequent site.[1] We report the airway management of a patient with swelling on the base of tongue which was histopathologically diagnosed to be Schwannoma.

Case Report

A 38-year-old woman presented with a two-year history of swelling at the back of the tongue which had been progressively increasing in size. She complained of fastidious presence, difficulty in swallowing, and change in the quality of the voice. No other positive history was noted. Examination revealed a firm, nontender, globular elevated red mass of about 3 × 4 cm in size arising from the base of the tongue and obscuring the posterior pharyngeal wall. It became more prominent and popped further anterior with the protrusion and depression of the tongue by the patient [Figure 1].

Indirect laryngoscopy could not be accomplished because of the presence of mass. Examination of head and neck was otherwise normal. Laboratory investigations were unremarkable. The contrast-enhanced computed tomography revealed a well-defined round homogenous mass lesion measuring 3.2 × 3.2 × 4.2 cm with smooth margins in the oropharynx extending from the uvula superiorly and up to the level of epiglottis inferiorly. It abutted the base of tongue anteriorly and the posterior pharyngeal wall posteriorly. On either side, it extended to the lateral pharyngeal walls [Figure 2]. There was no evidence of any calcification within the mass.

Figure 1: Showing the tumor upon protrusion and depression of tongue

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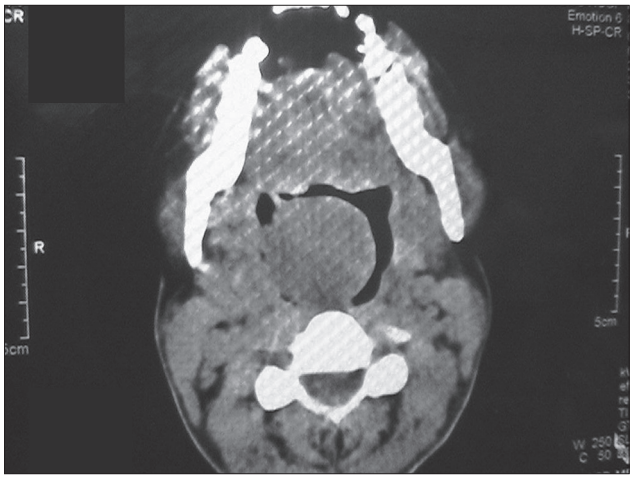

Figure 2: CT scan of the swelling

Fine needle aspiration cytology from the swelling revealed few epithelial cells. Excision biopsy of the swelling was planned and the patient was referred for preanesthetic check up.

General physical examination was unremarkable. Patient's airway assessment revealed Mallampati score 4 with a normal mouth opening and neck movements. The thyromental and sternomental distances were 7 and 13 cm, respectively. Bilateral nares were patent and there was no deviation of nasal septum. In view of the above mentioned findings, we planned to perform fiberoptic bronchoscope (FOB)-guided awake nasotracheal intubation followed by general anesthesia.

The procedure was explained to the patient and informed consent including consent for tracheostomy, in case of emergency, was taken. Standard preoperative protocol was followed. Injection glycopyrrolate 0.2 mg was administered intramuscularly 45 minutes prior to fiberoptic bronchoscopy. Oxymetazoline nasal drops were instilled in both nostrils. Difficult airway cart was prepared and surgeons were informed to be standby for emergency tracheostomy in case of failure of intubation. Routine monitoring was instituted. Patient was administered 1 mg midazolam and 20 μg fentanyl. After achieving airway anesthesia with nebulization of 4% lignocaine and preoxygenating the patient, a check direct laryngoscopy was attempted to assess the feasibility of passing FOB behind the swelling. The mass was seen to be attached to the right side of the tongue base and some space was there on the left side, adequate for the FOB to be passed. However, we were unable to lift the swelling by the laryngoscope blade. A size 7 cuffed Portex endotracheal tube was loaded on to a flexible FOB, which was then introduced through the right nostril and after its tip was in the oropharynx, the patient was asked to protrude and depress the tongue. The mass then popped out, thus further creating some more space in oropharynx, and then FOB was negotiated from left side of the tumor and guided into the trachea. The endotracheal tube was then passed over the FOB. Tube position was confirmed by bag ventilation and capnography. General anesthesia was then induced with propofol 80 mg and fentanyl 80 μg intravenously and muscle relaxation was achieved with intravenous vecuronium 4 mg. Anesthesia was maintained with isoflurane in oxygen and nitrous oxide. The mass was well encapsulated, arising from the base of the tongue and was extending to the right tonsil. It was not adherent to surrounding structures and good cleavage plane was found, and the complete mass was removed. After the completion of surgery, trachea was extubated uneventfully. The histopathology including immunochemistry of the resected specimen indicated that it was a Schwannoma.

Discussion

Schwannoma or neurilemmoma is a benign encapsulated perineural tumor of neuroectodermal derivation that originates from the Schwann cells of the neural sheath of motor and sensory peripheral nerves. The etiology is unknown and the tumor is usually solitary, benign, smooth-surfaced, slow-growing, and generally asymptomatic or may occasionally cause pain and discomfort.[2] Multiple lesions may occur in association with Von Recklinghausen's disease or Schwannomatosis, a nonhereditary disease characterized by multiple subcutaneous or intradermal schwannoma together with tumors of internal organs.

Schwannoma may develop at any age, but are more common during second and third decades of life and there is no gender predilection. They often originate from the VIIIth cranial nerve. Extracranially, about 25% of all schwannoma are located in the head and neck.[3] Intraoral development is uncommon and they account for just over 1% of benign tumors reported in the oral cavity. The tongue is the most frequent site at this level.[1] The differential diagnosis includes benign lesions such as granular cell tumors, leiomyoma, lymphangioma, lipoma, lingual thyroid, and malignant lesions like squamous-cell carcinoma, cancer of salivary glands, and soft tissue sarcoma.[4] The final diagnosis is always made after a definitive histological examination.[1]

Anesthetic management for surgical excision of schwannoma of the tongue depends upon the location, size, and the surgical approach to provide proper exposure of the tumor and distortion of the airway caused by the tumor. Small and well-encapsulated tumors which do not cause any distortion of the airway anatomy can be approached transorally for surgical excision. Such lesions are excised under local or routine general anesthesia without any complications. However, swellings located at the base of the tongue though asymptomatic, may subsequently be found to have a distorted airway and may

cause airway obstruction after the induction of anesthesia.[5] A high index of suspicion should be kept in mind while managing any tumor at the base of tongue. Symptoms such as dysphagia, loss or change in voice, breathlessness, or wheeze should warn the anesthetist of potential airway problem. In a study conducted by Mallampati *et al.* to predict a clinical sign to predict difficult intubation, it was revealed that the tongue is the single structure in the mouth that affects the accessibility of the laryngeal inlet by direct or indirect laryngoscopy.[6] Therefore, a detailed airway assessment warrants specialist examination with indirect laryngoscopy in addition to a detailed history, examination, and computed tomography (CT) scan of the tumor to predict how easily the airway will be managed or formally intubated.

In our case, the tumor located at the base of the tongue was 3 to 4 cm in size and was extending up to glossopharyngeal fold and obscuring the posterior pharyngeal wall. The patient was having change in quality of voice as well as dysphagia. An indirect laryngoscopy could not be done as the mass was obscuring the view of laryngeal inlet.

We anticipated a difficult airway. Apart from an anticipated difficult airway, our concerns also included possibility of airway obstruction by the tumor following induction of anesthesia leading to a "can't ventilate, can't intubate" situation, trauma and bleeding on attempts at direct laryngoscopy, failure of laryngoscope blade to go behind the tongue, and possibility of laryngospasm. Keeping all these problems in mind, we decided to perform a fiberoptic-guided awake nasotracheal intubation followed by general anesthesia. The advantage of awake fiberoptic intubation is that the anatomy of airway is well preserved and intact muscle tone keeps the airway structures separated from each other, leading to easy visualization of upper airway. In our case, wakefulness aided in maintenance of the airway by retaining the swelling anteriorly and making space for FOB. As the tumor was well encapsulated and nonadherent to adjacent structures, the excision of the tumor did not involve extensive dissection or tongue manipulation. However, we administered 4 mg dexamethasone as a precautionary measure. There was minimal blood loss. Trachea was extubated only after ensuring meticulous hemostasis and complete return of airway reflexes. Patient did not develop any edema of the tissues of oropharynx or upper airway in the postoperative period. The recovery was uneventful.

To conclude, delivery of anesthesia and tracheal intubation, in patients with tumors involving the floor of mouth, is a challenge and requires meticulous preoperative airway assessment including a detailed clinical examination, CT scan, and Magnetic Resonance Imaging to determine the extent of upper airway involvement. It helps the anesthesiologist select correct equipment for airway control and the optimal plan for anesthesia. In such cases, we recommend awake fiberoptic intubation of trachea as a method of choice for performing tracheal intubation.

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