

LINGUAL THYROID: A RARE CAUSE OF DIFFICULT INTUBATION

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Abstract

This case report is about a patient with an oropharyngeal mass presenting to our hospital for biopsy under general anesthesia. Because of the great risk of failure of mask ventilation and direct laryngoscopy, an awake fiberoptic intubation was performed successfully. The biopsy revealed a thyroid tissue leading to the diagnosis of ectopic lingual thyroid.

Introduction

Managing a patient with difficult airway is among the most challenging and stressful tasks in anesthesia¹. The inability to provide adequate ventilation and to perform tracheal intubation is associated with major morbidity and mortality².

Lingual thyroid, first described in 1869 by Hickman³, is located at the base of the tongue between the circumvallate papillae and epiglottis. This ectopic variation has an incidence of 1:100000⁴. Its position and size may cause obstruction of the laryngeal pathway leading to ventilation and intubation difficulties with a potential dramatic risk of hemorrhage during attempts of intubation.

This case report describes the successful management of a patient with symptomatic lingual thyroid undergoing surgery under general anesthesia.

Case Report

A 42-year-old woman presented to our hospital for biopsy of an oropharyngeal mass under general anesthesia. The pre-operative anesthetic evaluation revealed a patient with 55 Kg body weight, 155 cm height, non-smoker, with a negative past medical and surgical history, and absence of weight loss; She was only complaining of dyspnea and dysphonia. Airway examination for difficult intubation was insignificant; Normal mobility of the neck, Mallampati score of 1, thyromental distance of 6 cm, mouth opening of 4 cm and inability of visualization of the mass.

Pre-operative investigation included normal hematology tests, coagulation profile, chemistry, TSH, free T3 and T4 and a normal chest X-ray. A CT-scan of the neck showed an evidence of a large well defined 5 cm heterogeneous mass lesion at the base of the tongue extending to the oropharynx

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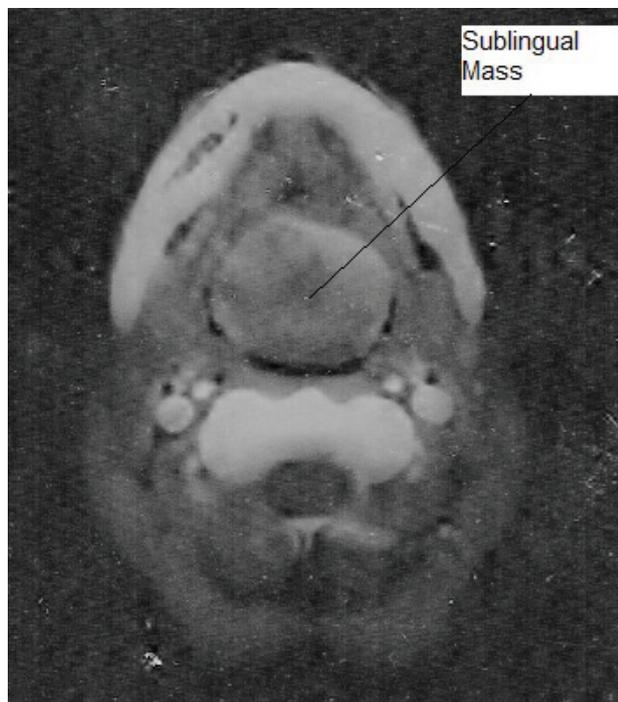
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and causing marked narrowing of the oropharyngeal airway mainly on the left side (Fig. 1).

Fig. 1

The mass at the base of the tongue as visualized by the scan

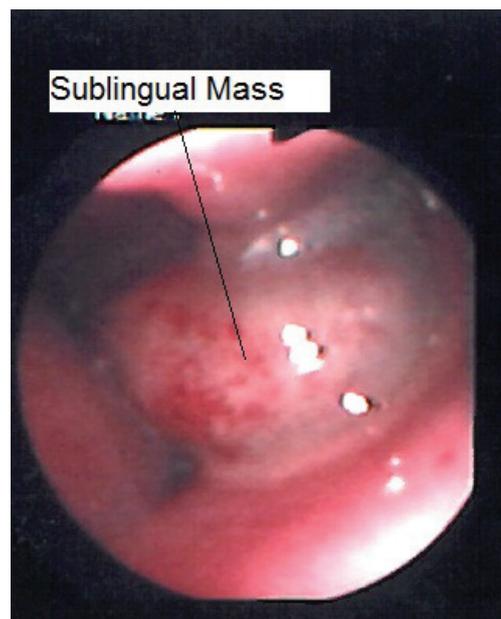


The patient had been explained about the hazards of intubation in her case and that an awake fiberoptic intubation will be performed. No premedication was given preoperatively.

In the induction room, a standard monitoring was applied on the patient and an intravenous access was established. A solution of lidocaine 5% and phenylephrine nasal was sprayed in both nostrils. The fiberscope, Olympus P40, lubricated and threaded through the lumen of an ETT size 6.5, was inserted in the right nostril and was navigated into the oral pharynx. The mass was visualized (Fig. 2) and was completely obscuring the epiglottis and the larynx. The fiberscope was guided through a narrow passage on the right side of the lesion then was flexed anteriorly to enter between the vocal cords into the trachea. Once reaching the carina, the ETT was railroaded over the fiberscope. Intubation was reconfirmed by the presence of EtCO₂ and anesthesia was induced with propofol and was maintained with rocuronium, sevoflurane and remifentanyl. Surgery underwent uneventfully and the patient was extubated.

Fig. 2

The mass as visualized by the fiberscope



Embryology

Embryologically, the thyroid gland develops as an endodermal diverticulum between the first and the second pharyngeal pouches. At the seventh week of embryonic life, it passes from the base of the tongue in front of the hyoid bone to settle ultimately anterior to the trachea. Incomplete caudal migration of the gland may lead to lingual thyroid as a developmental anomaly⁵. The etiology of this embryonic defect is not yet understood, but maternal antibodies against thyroid antigens have been incriminated⁶.

Discussion

Management of the difficult airway in the general surgical population has been widely studied, and several algorithms have been established⁷. However, the incidence of difficult ventilation and endotracheal intubation in lingual thyroid surgery has rarely been reported.

Clinically, the lingual thyroid presents as a pink and firm mass at the base of the tongue. Most of the cases are asymptomatic, but frequently encountered symptoms are due to mass effect: dysphonia, dysphagia, lump in throat sensation, dyspnea, chronic cough and bleeding. Surgical intervention is indicated

in symptomatic cases or as prophylactic due to the risk of malignant transformation. Lingual thyroid surgery under general anesthesia is a risky challenge due to its location, size and bleeding tendency.

This paper presents the case of an expected difficult airway due to a symptomatic mass sized 5cm in the oropharynx (Figure 1). The approach to the airway was based on two targets. The first was to keep a spontaneous breathing: we avoided the use of sedative drugs that can cause apnea and posterior displacement of the soft palate, base of the tongue or epiglottis; thus majoring the already narrowed pharynx by the mass leading to difficulty and inability of mask

ventilation. In addition, any attempt to insert a guedel airway, LMA, or fast track can easily injure the fragile tissue leading to bleeding with a fatal outcome.

The second target was to visualize the vocal cord and to intubate the patient under direct vision without traumatizing the surrounding tissue. On the other hand, performing a direct classical laryngoscopy can also cause hemorrhage and catastrophic compromise of the airway.

As a result, an awake fiberoptic intubation was the only choice to successfully secure the airway in this case.

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