

# Floppy epiglottis together with extra-laryngeal mass causing an inducible laryngeal obstruction and hypoxemic event in an adult: A case report

### ABSTRACT

Floppy epiglottis in an adult is rare and often pathological. Airway obstruction caused by floppy epiglottis in an adult is rarely reported. Neck mass, however, can affect the airway in many ways; however, inducible upper airway obstruction by extra-laryngeal neck mass is hardly been reported. In most of the instances of inducible laryngeal obstruction, the tumor is found in and around the laryngeal inlet. Herein, we report such an unusual incident happened to a 40-year-old gentleman, a case of oral carcinoma for 3 months and a rapidly increasing swelling (6 × 5 cm) over the right side of the neck for 8 days. He presented to us for emergency tracheostomy with the feature of acute upper airway obstruction, unable to lie down; and having difficulty in breathing, desaturation, and choking even in propped up position. The case highlights the importance of clinical findings and difficulties faced for airway management in such patients.

**Key words:** Airway obstruction; emergencies; epiglottis; intratracheal; intubation; respiratory insufficiency

### Introduction

Floppy epiglottis is a normal finding in the pediatric age group; in adults, it is usually pathological. It has been reported in adult patients with sleep-disordered breathing.<sup>[1]</sup> Floppy epiglottis presenting as airway obstruction in adults is rarely reported. Neck mass and cancer can affect the airway in multiple ways.<sup>[2]</sup> However, inducible upper airway obstruction by extra-laryngeal neck mass is again rare to find in literature. In most of the instances of inducible laryngeal obstruction, the tumor is found in and around the laryngeal inlet. In the

present study, we report such an unusual case presenting to us for emergency tracheostomy. He was unable to lie down; having features of upper airway obstruction, hypoxia and choking even in propped up position. The case highlights the importance of clinical findings and difficulties faced for airway management in such patients.

### Case

A 40-year-old male, average built, attended our hospital with an ulcer on the floor of the oral cavity for 3 months and

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6 × 5 cm swelling over the right side of the neck for 8 days. It was associated with painful swallowing and voice changes. He was admitted for further workup and was diagnosed to have squamous cell carcinoma. On the sixth day at the hospital, the patient became tachypneic and developed desaturation (SpO<sub>2</sub> up to 70%), which improved with O<sub>2</sub> supplementation, and slow breathing in forward bending position. He was unable to breathe in the supine position. Hence, an emergency tracheostomy under general anesthesia was planned.

On presentation, he was drowsy but arousable, was on 5 L/min O<sub>2</sub> supplement, maintaining normal saturation. His mouth opening was 2 cm, neck movement was restricted with modified Mallampati class 4 view. The cervical X-ray showed tracheal deviation towards left — his heart rate 130/min, blood pressure 180/100 mmHg, and using accessory muscles of respiration. Inspiratory suprasternal and the intercostal indrawing feature was prominent in lying down position.

In view of the difficult airway, risk explained and consent was obtained for fiberoptic intubation. The airway was prepared with 4 mL of 4% lignocaine nebulization, two puffs of 10% lignocaine spray over the posterior pharyngeal wall, 2% lignocaine jelly for nostril, and spray as you go method was applied in propped-up position. With the fiberoptic endoscope, floppy and vibrating epiglottis were visualized [Video 1], which was closing with inspiration and opening on expiration. With difficulty, the endoscope was introduced from the posterior part of the opening during expiration, and the airway was secured with a 7 mm cuffed flexo metallic tube. Further, anesthesia management and the surgical procedure were as per standard institutional practice and went uneventful. In the postoperative period, the patient was still irritable and confused and therefore, was shifted to the intensive care unit for further evaluation in context to preoperative hypoxic insult, if any.

## Discussion

Our case presented with typical acute supraglottic airway obstruction and airway emergency. The most common cause of supraglottic airway obstruction is laryngomalacia and is the most common cause reported in newborns and infants. Acquired laryngomalacia due to floppy epiglottis in adults is occasionally reported. Causes of the floppy epiglottis causing prolapse during inspiration have been divided broadly into idiopathic and secondary.<sup>[3,4]</sup> Idiopathic cases are seen in 30–70 year old males associated with slight deformity of epiglottis presenting as gradually developing inspiratory stridor. Secondary cases are due to trauma or surgery.<sup>[5]</sup> The present case was, however, unique as the patient was

otherwise healthy and was not having any difficulty caused by the epiglottis until the rapidly increasing neck secondary pressed it from one side. Despite larynx being a relatively mobile structure, the external pressure of the neck secondary pushed the epiglottis to a position where it blocked the laryngeal aperture and became symptomatic, leading the floppy epiglottis causing inducible laryngeal obstruction (ILO) during inspiration. This also resulted in the difficulty of fiber optic probing.

Intubation using fiber optic in the prone position has been described in one case report where the patient was unable to breathe in sitting and supine position.<sup>[6]</sup> However, prone position intubation has its limitations and requires experience. Intubation through an intubating laryngeal mask in the prone position is also described,<sup>[7]</sup> but, in our case, it would not have helped as there was an ILO with floppy epiglottis. Moreover, without direct visualization, the introduction of any kind of instrument (endotracheal tube, bougies, exchange catheter, flexible fiberscopes, etc.) is also nearly impossible in such a situation. Furthermore, a mass nearby can be injured and may lead to a catastrophic situation. Although the neoplastic cause of upper airway obstruction has been described,<sup>[8]</sup> these neoplasms are mostly of false vocal cords, epiglottis, and originate from the adjacent internal structure. In our case, it was an extra-laryngeal mass, causing pressure effect and displacement.

Epiglottis collapse and fall over glottis aperture, causing airway obstruction and respiratory difficulty in adults, has been reported in obstructive sleep apnoea and even amyotrophic lateral sclerosis.<sup>[9,10]</sup> Upper airway obstruction from any cause is a medical or surgical emergency endangering life. It is also a well-known cause of hypoxic events, including sudden death. To our knowledge, it is the first case where a floppy epiglottis in association with extra-laryngeal neck secondary causing upper airway obstruction and hypoxia-related events in an adult.

## Conclusion

Floppy epiglottis is an uncommon cause of airway obstruction in adults but the anesthesiologist should be aware and prepared to manage if the need arises. It is usually seen in patients with sleep-disordered breathing. It may remain as asymptomatic in adults but can be a cause of upper airway obstruction and inducible laryngeal obstruction in association with a neck mass. The clinical feature may indicate ILO and intubation in such a patient is better performed under direct or indirect vision.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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