

## Case Report

**Difficult intubation due to unexpected lingual tonsil hyperplasia- Case report**Dae Yu Kim<sup>1</sup>, Sung Jun Hong<sup>1</sup>, Joo Hyeon Oh<sup>1</sup>, Sung Mi Hwang<sup>2</sup>, Jun Hyeok Yang<sup>1</sup><sup>1</sup>Department of Anesthesiology and Pain medicine, College of Medicine, Hallym University, Seoul, Korea<sup>2</sup>Department of Anesthesiology and Pain medicine, College of Medicine, Hallym University, Chuncheon, Korea**\*Corresponding author**

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**Abstract:** Preoperative airway examination revealed non-specific finding in a 38-year-old woman (height 163 cm, weight 110.2 kg). After anesthesia induction, direct laryngoscopy showed enlarged and uneven tissues at the base of the tongue and pharynx. The initial intubation attempt failed. The attending anesthesiologist identified huge lingual tonsil and attempted to find the tip of the epiglottis. After three attempts and fails, we awakened her. Indirect laryngoscopic examination showed that she had significant lingual tonsil hyperplasia (LTH) and the tip of the epiglottis was identified in the lingual tonsil tissue. Although lingual tonsil, supraepiglottic mass, often overlooked, LTH can cause difficult intubation. Anesthesiologists should be aware of the possibility of LTH and prepare for the difficult intubation by high suspicion and proper airway examination.

**Keywords:** Difficult intubation, Lingual tonsil hyperplasia.

**INTRODUCTION**

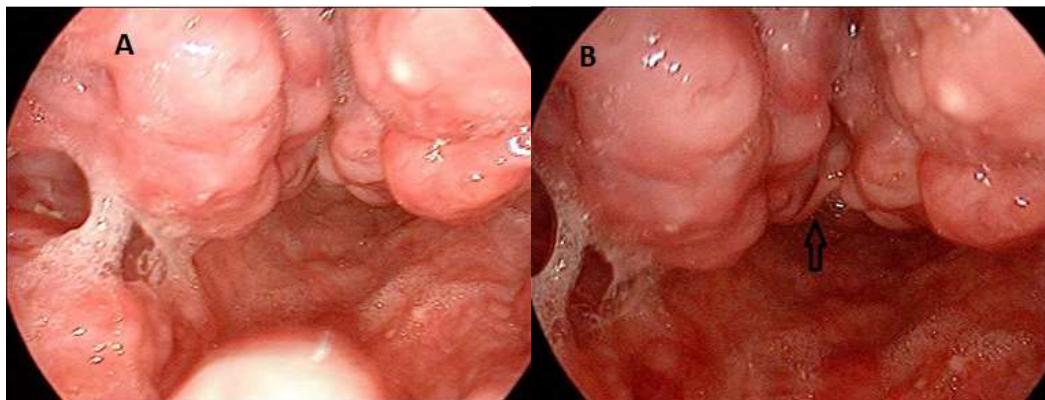
Routine preoperative airway examination that excludes evaluation of the epiglottis and supraglottic area may fail to predict difficult intubation [1]. The lingual tonsil is a supraepiglottic mass that is often overlooked and does not usually cause any symptoms. However, lingual tonsil hyperplasia (LTH) can obstruct the airway, complicate intubation, and make mask ventilation impossible [2]. Anesthesiologists must be aware of the possibility of LTH and must be prepared for the difficult intubation that may result. We report a case of difficult intubation in an obese patient with unexpected LTH.

Awareness of the presence of LTH was essential for successful intubation in this case.

**CASE REPORT**

A 38-year-old woman (height 163 cm, weight 110.2 kg) was scheduled for breast mass excision. She had no surgical history. She frequently suffered from a sore throat and snored regularly. Preoperative airway examination revealed a thyromental distance of 8 cm, Mallampati class II, mouth opening of 4.5 cm, and unlimited neck extension. After anesthesia induction,

oral airway was used because mask ventilation was difficult. Direct laryngoscopy (Macintosh no. 3) revealed secretions and several enlarged and uneven tissues at the base of the tongue and pharynx. After suctioning of the secretion, the laryngoscope blade was reintroduced but the epiglottis could not be visualized and the anesthesiologist did not recognize the unusual tissues. The initial intubation attempt failed. Mask ventilation with an oral airway was performed by two anesthesiologists, after which the attending anesthesiologist attempted direct laryngoscopy. He identified one structure as an enlarged lingual tonsil but he could not visualize the epiglottis. Some pillows were placed under the patient's shoulders and head. He attempted to find the tip of the epiglottis by advancing the laryngoscope blade slowly, but was unsuccessful. After three failed attempts at intubation, he awakened her. After then, the airway was examined with indirect laryngoscopy in the ear, nose, and throat department. The patient had significant LTH and the tip of the epiglottis was identified in the lingual tonsil tissue [Figure 1]. Her operation was rescheduled and awake intubation with fiberoptic was performed without event.



**Fig-1: The view of indirect laryngoscopy of the patient. A. Multiple lymphoid tissues at the base of the tongue and pharynx. B. The tip of the epiglottis (black arrow).**

## DISCUSSION

Unexpected difficult intubation is a serious problem for anesthesiologists, especially when a preoperative routine airway examination has revealed no abnormalities. False-positive and false-negative results are common in preoperative airway assessments that do not include the supraglottic area [1, 3, 4]. The incidence of difficult intubation has been reported as 0.05-4%, varying with the degree of difficulty [3-5]. LTH, a supraglottic mass, has been reported as a cause of unanticipated difficult intubation and cannot be identified on routine airway examination [6-9]. In addition, many anesthesiologists are unaware of the lingual tonsil itself [10].

Lingual tonsils consist of lymphoid tissues at the base of the tongue that may not be visible on simple airway examination [7, 8]. Depending on the shape, size, and degree of inflammation, various pharyngeal symptoms may be present, such as sore throat, dysphagia, a globus sensation, snoring, a feeling of a lump in the throat, and obstructive sleep apnea. Severe LTH can occupy the entire vallecula, displacing the epiglottis posteriorly and overriding the tip of the epiglottis [1, 7]. Ovassapian *et al.* [1] examined 33 patients with a history of unanticipated failed intubation using fiberoptic pharyngoscopy; they found that all of the patients had a lingual tonsil, and this was the only contributor to the failed intubation in 15 patients. Adachi *et al.* [10] fiberoscopically viewed the retropharyngeal space in 105 adult scheduled surgical patients, revealing a smooth, flat lingual tonsil in 33, a small follicular one in 41, and tumor-like LTH in 3; they suggested that LTH is not rare. Considering this result, we suppose that the existence of the lingual tonsils was overlooked and only the epiglottis was visualized in the preoperative laryngeal examination.

The patient in the present case was diagnosed with tumor-like LTH. The only predictor of difficult intubation was that she was obese. She did not have a history of tonsillectomy, which 50% of patients with lingual tonsillitis have undergone [7]. The lingual tonsil can hypertrophy to compensate following palatine

adenoidectomy or tonsillectomy. However, the patient demonstrated associated symptoms, including sore throat and snoring, which were missed due to her obesity. The key to successful intubation is that the anesthesiologist must be aware of the possibility of a lingual tonsil and must be able to locate the tip of the epiglottis. The difficulty of intubation in these patients depends on the grade of LTH.

Preoperative external airway assessments such as the Mallampati score and Wilson risk sum score are not fail-safe for detecting a lingual tonsil and the resulting difficult intubation. The best way to diagnose a lingual tonsil is indirect laryngoscopy, fiberoptic laryngoscopy, or a laryngeal mirror. With the patient sitting down, a lingual tonsil can be detected using a laryngeal mirror [7, 8].

Unfortunately, it is difficult to perform airway examination using these tools prior to anesthesia. In addition, anesthesiologists are not familiar with indirect laryngoscopy or the laryngeal mirror and many patients cannot tolerate the examination. Therefore, it is important for anesthesiologists to be aware of risk factors for LTH. It is better for a laryngeal specialist to evaluate the airway if the patient has anatomical features, symptoms, or a medical/surgical history related to a lingual tonsil that may hinder intubation under anesthesia.

## CONCLUSION:

In conclusion, LTH can't be predicted by routine preoperative airway examination and make intubation very difficult intubation, nearly leading to an emergency situation. We recommend that anesthesiologists perform preoperative airway examinations and search for supraglottic lesions using one or more methods especially in patients with risk factors of difficult intubation and must be aware of the existence of a lingual tonsil and the fact that if present, intubation can be seriously hindered.

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