

# Rare Cause of Failed Intubation: Lingual Tonsillar Hypertrophy: Case Report

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### SUMMARY

**We report a case of unanticipated difficult intubation due to lingual tonsillar hypertrophy. This is a case of a 45-year-old lady with hypertension undergoing Scarf Osteotomy and Wedge osteotomy right first metatarsal bone and soft tissue McBride procedure due to Bilateral hallux valgus stage 4 under general anaesthesia. Preoperative airway assessment did not suggest a potentially tricky airway case. After an uneventful induction, 3 attempts to intubate via direct laryngoscopy and video laryngoscopy were undertaken; however, they failed due to poor view. Attempts to ventilate with a supraglottic airway device failed also, and the decision was made to reverse the patient and postpone surgery after investigating the reason for the difficult airway. After Ear, Nose, and Throat (ENT) assessment, it was ascertained that this patient's difficult intubation was due to lingual tonsil hypertrophy. Lingual tonsil hypertrophy is frequently asymptomatic and can be an anaesthetic emergency if undiagnosed before anaesthesia. Lingual tonsil hypertrophy causes difficulty in ventilation and intubation. Fiberoptic intubation will be the preferred airway management option for general anaesthesia patients with known lingual tonsil hypertrophy.**

### INTRODUCTION

The lingual tonsil is a standard component of Waldeyer's ring, consisting of lymphoid tissue at the tongue's base.<sup>4</sup> There have been few reported cases of lingual tonsil hypertrophy as a cause of unexpected difficult intubation.<sup>2</sup> Lingual tonsil hypertrophy is known to be frequently asymptomatic; however, it is associated with patients with obstructive sleep apnoea.<sup>2</sup> Routine preoperative clinical assessments may often miss this diagnosis as a cause of a difficult airway. In most lingual tonsil hypertrophy cases, the physical examination did not suggest a predicted difficult airway.<sup>2</sup> Unexpected lingual tonsil hypertrophy can be a cause of difficult intubation as well as difficult ventilation. Ventilation via a supraglottic airway device may also be challenging.<sup>7</sup> Symptoms may vary from asymptomatic to odynophagia, and dysphonia, causing obstructive sleep apnea and upper airway obstruction.

A cadaveric study of 497 corpses determined there was a discovery of enlarged lingual tonsils in 3.2% of patients<sup>1</sup>.

### CASE PRESENTATION

A 45-year-old lady was scheduled for Scarf Osteotomy and Wedge osteotomy right first metatarsal bone and soft tissue McBride procedure due to Bilateral hallux valgus stage 4. Her background medical condition was hypertension with a history of allergy to Non-steroidal anti-inflammatory drugs(NSAIDs). Upon assessment in the anaesthesia clinic, she was completely asymptomatic and free from any recent upper respiratory tract infections. Initial airway assessments were unremarkable, except her Mallampati score was grade III. Otherwise, externally there was no mass at the face and neck; her BMI was 25; her inter-incisor gap: was 6cm; her sternomental distance: was 18cm, her thyromental distance: was 8cm, Upper lip bite test: class 1; her Range of motion neck: >35 degrees and Neck circumference: 35cm.

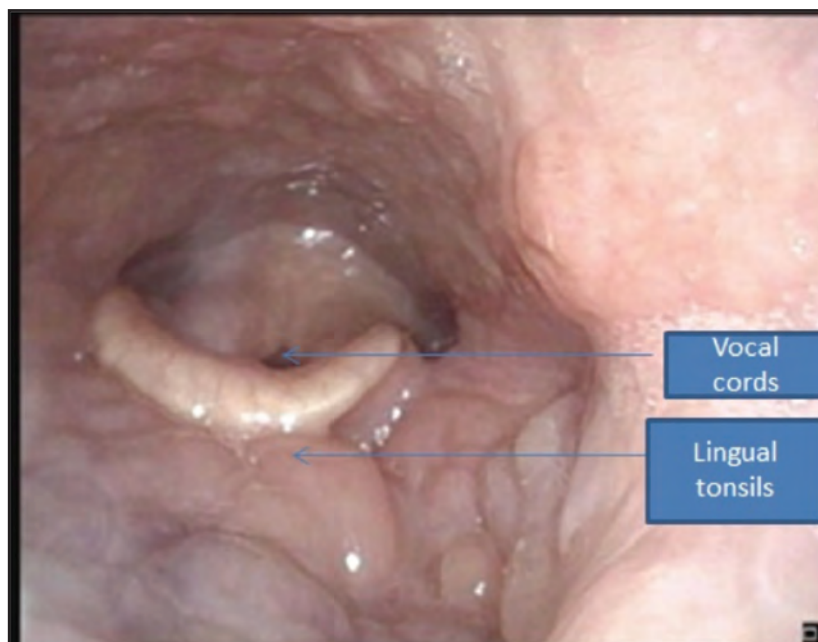
The patient was to receive a general anaesthetic. She was induced with 100mcg of fentanyl, 150mg of propofol, and 40mg of rocuronium. Mask ventilation was tested before administration of muscle relaxant, and it was documented in an excellent tidal volume of 300-500mls per breath. The first intubation attempt was abandoned as it was Cormack Lehane (CL) view 3 using direct laryngoscope size 3. The second intubation attempt was unsuccessful despite using a video laryngoscope Macintosh size 3, able to visualise but unable to advance endotracheal(ETT) size 7.5. The third attempt used a smaller ETT size of 6.5; with the guidance of bougie, however, there was still the difficulty of advancing ETT further, so we abandoned it. Then we decided to insert a supraglottic airway; however, there was difficulty in generating good tidal volume, and the patient developed laryngospasm. Laryngospasm was treated by deepening anaesthesia with propofol bolus 50mg and increasing inhaled sevoflurane concentration of 6%. The decision was made to wake the patient as the surgery was not urgent. The patient needed 16mg/kg of sugammadex as it was a profound neuromuscular blockade, and she was extubated safely. Throughout the procedure, there was no desaturation, and she was haemodynamically stable. The patient was discharged to the ward well and was subsequently referred to the ENT team for assessment.

Upon assessment by the ENT team, from oral examination, it was discovered that the patient has Friedman tongue position grade 4 (only able to see hard palate) while other structures appeared normal. Flexible nasopharyngoscopy showed bulky sublingual tonsils, which led us to the cause of the difficult intubation.

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**Fig. 1:** Picture from flexible nasopharyngoscopy showing bulging of lingual tonsils hypertrophy, compressing the vocal cord

Other findings of the scope were normal. The patient was discharged home well and underwent her surgery under regional anaesthesia 6 weeks later.

#### DISCUSSION

To the best of our knowledge, this is the first case report of lingual tonsil hypertrophy causing unexpected difficult intubation in Malaysia. This is a very rare case whereby in the united states, the prevalence was 2-3% based on a postmortem study of 497 patients.<sup>1</sup> LTH is often asymptomatic (2). A patient with lingual tonsil hypertrophy may present with a sore throat, dysphagia, globus sensation, snoring, the feeling of having a lump in the throat, alteration of voice, chronic cough, snoring, obstructive sleep apnea, and two-thirds of patients with lingual tonsil hypertrophy have had a palatine tonsillectomy or adenoidectomy.<sup>2,3</sup>

LTH is often diagnosed incidentally, for example, in difficult intubation.<sup>2</sup> The risk factors for lingual hypertrophy include chronic infections, allergies, obesity, previous history of tonsillectomy in childhood, peri-menopausal females, heavy smokers, and gastro-oesophageal reflux disease.<sup>5</sup>

Routine preoperative airway examination includes Mallampati test, thyromental distance, mouth opening, head extension and subluxation of the mandible.<sup>11</sup> The epiglottis and supra epiglottic areas are not assessed routinely in preoperative airway assessment, which may lead to a poor positive predictive value in diagnosing LTH.<sup>2</sup> Lingual tonsils are located at the base of the tongue between the circumvallate papilla anteriorly and the epiglottis posteriorly and consist of lymphoid tissue. Factors that contribute to difficult intubation in lingual tonsils hypertrophy are the presence of lingual tonsil hypertrophy at the base of the tongue in the pre-epiglottic space, which will prevent proper

placement of the laryngoscope blade and the obstruction of the airway lumen by the lingual tonsil which interfere with the direct laryngoscopy and indirect epiglottis elevation difficult.<sup>4</sup>

Our patient had no signs, symptoms or features suggesting any possibility of difficult intubation or lingual tonsil hypertrophy. We followed difficult airway society (DAS) guidelines, where after a trial of 3 intubations, we abandoned the intubation and proceeded to insert third generation supraglottic airway.<sup>7</sup> However, tidal volume was not achieved. LTH may cause supraglottic airway misplacement, reduce ventilation effectiveness, and generate good tidal volumes.<sup>10</sup> Furthermore, lingual tonsils have no capsule; multiple intubation attempts may cause bleeding and oedema.<sup>3,6</sup> This may precipitate laryngospasm and lead to a "cannot-intubate-cannot-ventilate" situation.

Follow up for LTH are mostly conservative; tonsillectomy is only done when a patient is symptomatic, as mentioned above.<sup>9</sup>

Patients with known LTH should undergo awake fiberoptic intubation.<sup>3,6</sup> In case of unexpected findings of LTH intraoperatively, further intubation attempts should be discontinued. Instead, patients should be awakened and awake fiberoptic intubation should be performed to avoid further airway trauma.<sup>6</sup> We suggest that patients with LTH should be seen by an ENT surgeon prior to future anaesthetics to assess the progression of LTH.

#### CONCLUSION

It is sporadic to find cases of lingual tonsil hypertrophy, which may cause significant morbidity and mortality. Based on our experience and literature before this, we espouse that

anaesthesiologists should be aware of this diagnosis and consider it when encountering difficult airways. For future anaesthetics with patients with diagnosed LTH, awake fibreoptic intubation would be the best choice for airway management after careful discussion with an ENT surgeon. In the case of emergency cases, the practitioner is recommended to opt for fibreoptic intubation or establishing a surgical airway if the situation arises.

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