Indian Journal of Clinical Anaesthesia 2023;10(1):118–119

Content available at: https://www.ipinnovative.com/open-access-journals

Indian Journal of Clinical Anaesthesia

Journal homepage: www.ijca.in

Letter to Editor

Difficulty in tracheal extubation due to vocal cord edema

Amrita Shah[1], Pradeep Rangappa[1], Ipe Jacob[1,*], Karthik Rao[1], C. J. Deepak[1]

[1] *Manipal Hospital, Bangalore, Karntaka, India*

ARTICLE INFO

Article history:
Received 14-08-2022
Accepted 29-08-2022
Available online 09-03-2023

Difficult extubation is rarely experienced and usually unanticipated in patients who had uneventful intubation. There are various mechanical causes of difficult extubation including cuff deflation problems arising from damaged pilot tube, laryngeal trauma during intubation, cuff herniation, fixation of tube to adjacent structures and adhesion to tracheal wall.[1] The incidence of post intubation laryngeal edema can occur in 5-54% cases but can also present shortly after extubation as stridor. The risk factors for laryngeal edema have been stated as difficult intubation, smaller height to tube ratio, female gender, prolonged endotracheal intubation, high cuff pressures, high body mass index, short duration of intubation (< 1 week) and absence of pre-treatment with methylprednisolone.[2,3] Reports of cuff deflation problems or cuff herniation resulting in stuck endotracheal tube (ETT) are reported in the literature by various authors.[4–6] However cases of difficult extubation as a result of vocal cord edema are rare.

We report the case of a 65-year-old lady, known diabetic, admitted at a nearby hospital with history of drowsiness and breathing difficulty. On examination, her respiratory rate was 28 cycles/min, with blood gas showing hypoxemia (partial pressure of oxygen 64mm Hg) on non-rebreather mask oxygen 10 l/min, and neurologically obtunded with a Glasgow Coma Scale score 9/15, for which she was intubated with a 7.5 mm cuffed ETT using intravenous (IV) fentanyl 200 mcg and rocuronium 50 mg. She had Cormack–Lehane 1 airway and intubation was uneventful. CT brain was normal but 2D echocardiogram was suggestive of regional wall motion abnormality and she was transferred to our hospital for a cardiac evaluation next day. After undergoing coronary angiogram, about 48 hours following her intubation, she was planned for extubation as sensorium had improved adequately and she was on pressure support ventilation with fraction of inspired oxygen (Fio2) 40%, positive end-expiratory pressure (PEEP) 5 cm h20 and pressure support 10 cm h20. However, the cuff leak test was negative and the ETT could not be pulled out after deflation of the cuff. The pilot balloon cuff revealed no abnormality and on laryngoscopy, there was no abnormal cuff herniation. Bronchoscopy via the ETT showed a hazy image, and on video-laryngoscopy done trans-nasally, there was vocal cord edema as well as laryngeal edema and hyperemia, leaving no space between the ETT and vocal cord (Figure 1). Computed tomography of neck ruled out any obstructive mass and showed concentric laryngeal wall edema around the ETT predominantly at level of thyroid cartilage. Extubation was abandoned, and she was started on IV dexamethasone 6mg sixth-hourly, pheniramine 25mg twice daily and nebulization with 5 mL of 1:1000 dilution epinephrine 6^{th} hourly, for 72 hours. Sugar levels were monitored and remained normal. Cuff leak test was checked every day. On 6^{th} day post intubation, she had a positive cuff leak test following which she was extubated comfortably. No post extubation stridor was noticed for next 24 hours.

* *Corresponding author.*
E-mail address: ipe.jacob@gmail.com (I. Jacob).

https://doi.org/10.18231/j.ijca.2023.023

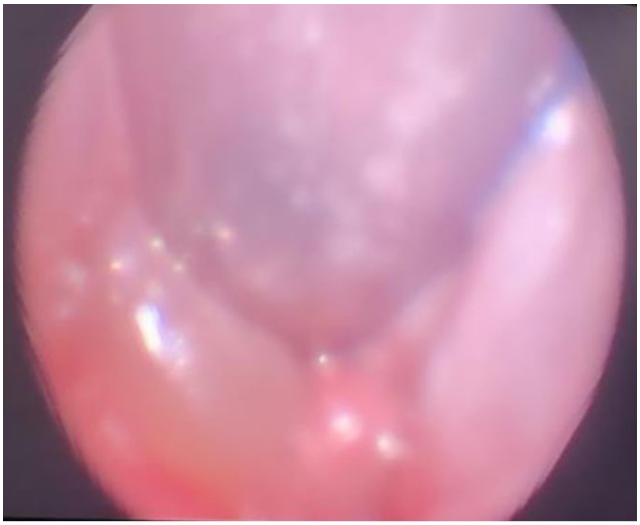

Fig. 1:

While post extubation laryngeal edema is common resulting in stridor and re-intubation, here we learn that ETT may be stuck as a result of vocal cord edema. Cuff leak test, video-bronchoscope, CT neck, ultrasound neck are certain modalities that helped in early diagnosis and reactive management of difficult extubation.

References

1. Karmarkar S, Varshney S. Tracheal extubation. *Continuing Educ Anaesth Crit Care Pain*. 2008;8(6):214–20.
2. Kumar AKA, Cascella M. Post Intubation Laryngeal Edema. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022. Available from: https://www.ncbi.nlm.nih.gov/books/NBK560809.
3. François B, Bellissant E, Gissot V, Desachy A, Normand S, Boulain T, et al. 12-h pretreatment with methylprednisolone versus placebo for prevention of postextubation laryngeal oedema: a randomised double-blind trial. *Lancet*. 2007;369(9567):1083–9.
4. Suman S, Ganjoo P, Tandon MS. Difficult extubation due to failure of an endotracheal tube cuff deflation. *J Anaesthesiol Clin Pharmacol*. 2011;27(1):141–2.
5. Panda CK, Karim HMR. Too much of anything is bad: An unusual case of a stuck endotracheal tube with deflated cuff. *Saudi J Anaesth*. 2019;13(2):156–7.
6. Bamgbade OA, Magboh VO, Otegbeye AU, King MB, Oluwole OJ, Olatunji BT. Difficult tracheal extubation due to endotracheal tube malfunction: A challenge during the COVID-19 pandemic. *J Taibah Univ Med Sci*. 2021;16(6):935–7.

Author biography

Amrita Shah, Registrar

Pradeep Rangappa, Consultant

Ipe Jacob, Registrar https://orcid.org/0000-0001-7409-6955

Karthik Rao, Consultant

C. J. Deepak, Consultant

Cite this article: Shah A, Rangappa P, Jacob I, Rao K, Deepak CJ. Difficulty in tracheal extubation due to vocal cord edema. *Indian J Clin Anaesth* 2023;10(1):118-119.