

Cricothyroid Dislocation after Endotracheal Intubation in Total Thyroidectomy Patient

Dr. Priyanka V¹, Dr. Vinayak N Panchgar², Dr. Shivaraddi G Bhandi³, Dr. Shilpa S Kumar⁴

¹Department of Anaesthesiology, Gadag Institute of Medical Sciences, Gadag

²Professor and HOD, Department of Anaesthesiology, GIMS

³Associate Professor, Department of Anaesthesiology, GIMS

⁴Department of Anaesthesiology, GIMS

Abstract: *The case highlights the uncommon occurrence of arytenoid cartilage dislocation following endotracheal intubation in a patient undergoing total thyroidectomy, a condition that can be mistaken for recurrent laryngeal nerve paralysis because of its similar presentation. The report describes a middle aged male with a difficult airway, where postoperative hoarseness persisted beyond the usual recovery period, prompting further evaluation. Laryngoscopic examination revealed unilateral vocal cord immobility, and imaging confirmed cricothyroid joint dislocation. The discussion brings attention to how subtle early symptoms, varied intubation challenges, and anatomical factors can influence the likelihood of such injuries. It also outlines how delayed diagnosis can complicate recovery, while timely intervention and structured rehabilitation, including speech therapy, may support gradual improvement. The case underlines the need for clinicians to consider mechanical joint injury when hoarseness does not resolve, especially in patients with difficult intubation or risk factors affecting laryngeal stability.*

Keywords: arytenoid dislocation, hoarseness, cricothyroid injury, difficult intubation, vocal cord immobility

1. Introduction

Arytenoid dislocation is an unusual and overlooked complication of endotracheal intubation. It is a rare condition characterized by vocal cord immobility and easily mistaken as recurrent laryngeal nerve paralysis in total thyroidectomy patients. The chances of dislocation are more with inexperienced anaesthetist. Its incidence is <0.1% when associated with intubation. Hoarseness is a common postoperative complication and reported as an incidence between 14.4% and 50% of patients. Prolonged or permanent hoarseness may occur in 1% of patients.

Due to the non-sensitive symptomatology, diagnosis of the cricothyroid injury can be delayed, and recovery becomes difficult if appropriate treatment is not started. These symptoms are temporary and improve within several days in most cases. In the case of persistent hoarseness, specialists should consider arytenoid cartilage dislocation. The frequency related to direct laryngoscopy has been reported to be 0.023%.

2. Case Report

A 47-year-old male patient diagnosed with cystic colloidal goiter since 2 years was posted for total thyroidectomy procedure. On preoperative examination, patient was ASA 2. Upper airway examination showed bucked teeth, Mallampatti grade 3. Investigations were within normal limits and patient was in euthymic state.

On the day of surgery, patient was shifted to OT, standard monitors were attached and was induced with Inj

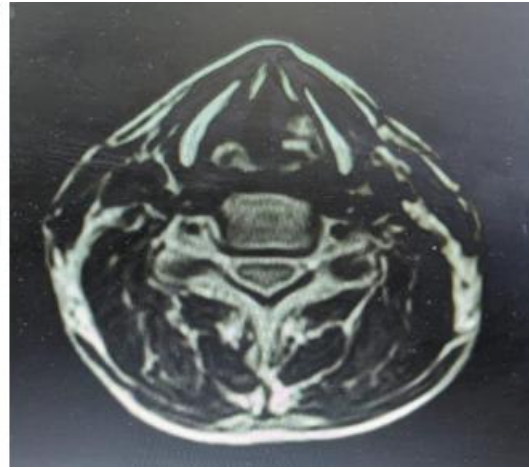
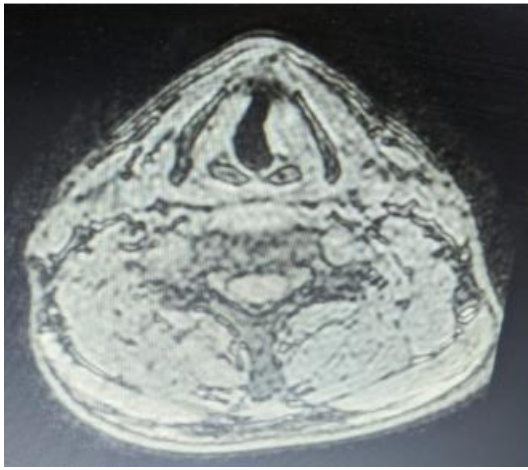
Glycopyrrolate 0.2 mg, Inj Midazolam 1 mg, Inj Pentazocine 24 mg followed by induction with Inj Propofol 100 mg and Inj Scoline 100 mg. Intubation was difficult due to anterior larynx and floppy epiglottis (Cormack-Lehane grade 3a). Patient was intubated with 8.5 mm ETT and maintained with Inj Vecuronium and Isoflurane 1–1.5%. Surgery proceeded uneventfully. Bougie/stylet was not used during intubation.

On postoperative day 10, patient presented with hoarseness of voice with no history of COPD. On indirect laryngoscopy, paralysis of left vocal cord was noted. CT scan confirmed dislocation of the left cricothyroid cartilage. Patient was treated with speech therapy and conservative management, symptoms resolved by 3 months.

3. Discussion

Incidence of hoarseness ranges between 14.4% and 50%. Most cases are temporary and resolve spontaneously. Persistent hoarseness may indicate serious injury such as recurrent laryngeal nerve damage or cricothyroid joint dysfunction. Risk factors include endotracheal tube design, cuff pressure, sex, surgical type, and intubation method.

Possible mechanisms include incomplete neuromuscular blockade or direct trauma to the cricothyroid joint leading to hemorrhage or serosynovitis. Delay in recognition may progress to vocal cord immobility. Dislocation may occur in anterior-medial or posterior-lateral direction. Chronic conditions like laryngomalacia, acromegaly, chronic steroid use increase risk. Difficult intubation is strongly associated with arytenoid dislocation.



4. Conclusion

Cricothyroid cartilage dislocation requires early diagnosis and treatment to prevent permanent impairment. Persistent hoarseness after intubation should raise suspicion of arytenoid injury. Early relocation of arytenoid cartilage facilitates recovery and prevents long-term dysfunction.

References

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