



ENT NEWSBUZZ

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Dear Doctor,

Greetings from Micro Labs limited. We are happy to bring you “**ENT NEWSBUZZ**” which contains latest and interesting news.

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Looking forward to your valuable feedback

Best Regards,

Medical Team, Micro Labs Ltd



Different approaches during thyroidectomy for the preservation of the external branch of superior laryngeal nerve

The only way to avoid injury during thyroidectomy is identifying the recurrent laryngeal nerve. But, most of the surgeons tend to avoid exposing and identifying the external branch of the superior laryngeal nerve during thyroidectomy.¹ External branch of the superior laryngeal nerve provides the motor nerve supply to the cricothyroid muscles which is responsible for the vocal fold tension and voice pitch.¹ In thyroidectomy, during capsular dissection technique, dissection runs between the surgical capsule also known as false capsule of the gland and the true capsule.¹

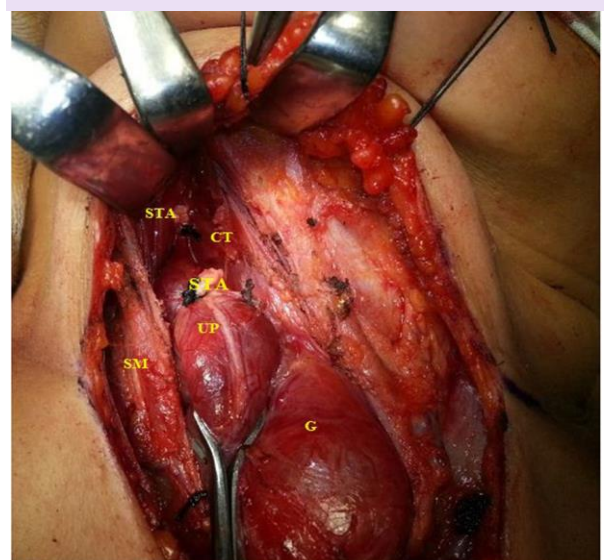
The surgical capsule is found in the pretracheal fascia surrounding the thyroid gland, superior thyroid vessels, superior parathyroid gland, inferior, and middle thyroid veins, which then, goes medially and inserted in the posterolateral part of the trachea and does not cover external branch of the superior laryngeal nerve.¹ Though Preservation of the External Branch of Superior Laryngeal Nerve and Internal Branch of Superior Laryngeal Nerve is essential during thyroidectomy, but due to potential distortions caused by large goitres, the anatomical landmarks useful for identifying these nerves are flawed.²

This prospective case series study aimed to identify sequential steps to ligate superior thyroid vessels safely away from the External branch of superior laryngeal nerve and enrolled 60 patients undergoing either total or hemi thyroidectomy. The upper pole of the thyroid gland was skeletonized by its capsular dissection followed by anterolateral down retraction of the superior pole. The closing and opening of the cricothyroid space and clamping and ligating superior thyroid pedicle close to the upper pole away from superior laryngeal nerve during thyroidectomy. (Fig 1)

Of the enrolled patients, 19 had to go total thyroidectomy and 41 hemi thyroidectomy with 79 superior thyroid vessels ligation and external branch of the superior laryngeal nerve at risk. There was no evidence of superior laryngeal nerve palsy or bleeding. Postoperative video laryngoendoscopy

Preservation of the external branch of superior laryngeal nerve during thyroidectomy is possible

Fig 1: The superior thyroid pedicle (ST) was ligated and cut close to upper pole (UP) of thyroid gland (G) that was retracted exposing the cricothyroid muscles (CT)





was done which revealed apparently normal mobility, length, level, and position of the vocal folds with symmetry of the larynx.

There were no changes from preoperative evaluation in all studied patients after 3 months of surgery. There was no complained of any changes in their voice or voice activities.

Conclusion: Stepwise approach as described could be useful for preservation of the external branch of the superior laryngeal nerve by completely removing the superior pole of the thyroid gland and ligating superior thyroid vascular pedicle without risk of superior laryngeal nerve injury

References

1. El-Anwar, M.W., Abdelaal, T.M. & Khazbak, A.O. Stepwise approach to preserve the external branch of superior laryngeal nerve during thyroidectomy. *Egypt J Otolaryngol* **38**, 50 (2022).
2. Friedman M, LoSavio P, Ibrahim H. Superior Laryngeal Nerve Identification and Preservation in Thyroidectomy. *Arch Otolaryngol Head Neck Surg.* 2002;128(3):296–303. doi:10.1001/archotol.128.3.296



Identification of audiological and imaging characteristics and early intervention measure in paediatric patients with Cochlear nerve deficiency

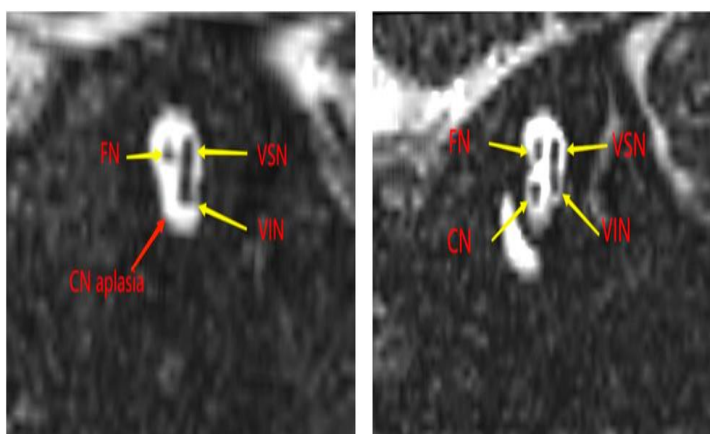
Around 466 million people suffer from hearing loss, out of which 34 million are paediatric population and 10–19% of paediatric cases have cochlear nerve deficiency, according to the World Health Organization. Cochlear nerve deficiency leads to the abnormality in the inner ear and stenosis of the cochlear nerve canal with or without the electrophysiological characteristics of auditory neuropathy. Since past few years, high-resolution MRI has been used to detect the neuromorphology and development of the internal auditory canal revealing that Cochlear nerve deficiency is around 6–28% of those with auditory neuropathy spectrum disorder.

This retrospective study aimed to analyse the audiological and imaging characteristics and to analyse the appropriate early intervention measures. Researchers enrolled a total of 563 paediatric patients with an unpassed automatic auditory brainstem response and diagnosed with hearing loss. Of the total patients, 25 patients aged from 2 months to 5 years were diagnosed as Cochlear nerve deficiency. No family history of hearing loss was detected. But, mother of one child had an upper respiratory tract infection and fever in early pregnancy. Four children's mother had the history of unilateral deafness and upper respiratory tract infection during pregnancy.

In 26 Cochlear nerve deficiency children, CT of the temporal bone and MRI of the internal auditory canal were done and with the help of a GSI Audera Brain-stem Analyzer using a Modle TIP-50 earphone, the auditory brainstem response and auditory steady state response were measured.(fig2) In 8 patients, Genetic testing was performed via second-generation sequencing.

Around, 21 Cochlear nerve deficiency patient had unilateral deafness, and 4 had bilateral deafness. However, all deaf ears were diagnosed as severe hearing loss due to an auditory brainstem response. In 8 cases, cochlear microphonic waves were recorded and in 3 cases,

Fig 2: MRI features of the cochlear nerve deficiency





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distortion product otoacoustic emission were recorded suggesting the audiological characteristics of auditory neuropathy spectrum disorders. MRI revealed that 23 patients had small cochlear nerves and 2 patients had absent cochlear nerves. In the 25 Cochlear nerve deficiency children, no genetic mutations were detected.

Other inner ear malformations can sometimes accompany Cochlear nerve deficiency. MRI should be performed in paediatric patient with unilateral deafness to exclude Cochlear nerve deficiency. The cochlear microphonic wave or distortion product otoacoustic emission pass should be identified in patients with Cochlear nerve deficiency presenting with the characteristics of auditory neuropathy.

Conclusion: Almost, all children with Cochlear nerve deficiency has unilateral hearing loss for which high-resolution MRI imaging of the internal auditory canal should be performed to identify the auditory nerve with severe hearing loss

References

1. Chen W,et al. Imaging and audiological features of children with cochlear nerve deficiency. Ear Nose Throat J. 2022 May 1;1455613221096622



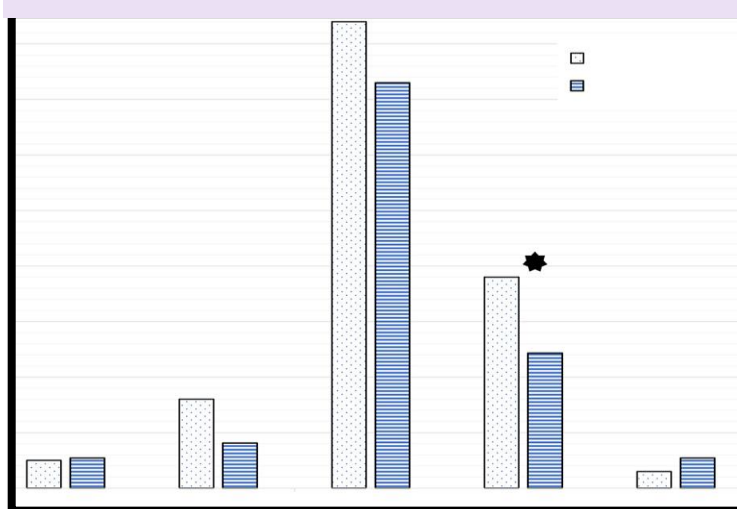
Laryngeal injuries after endotracheal intubation in Intensive Care Unit Patient

Intubation used in ICU setting provides essential oxygenation and ventilation for the critically ill patient. However, the endotracheal tube used for intubation causes short and long-term effects on the larynx and its functions. Subsequently, impairment in the laryngeal function reduces the recovery process and quality of life, with increased in healthcare expenditure. The endotracheal tube usually release pressure on the posterior larynx due to the supine position of the patient, the natural cervical lordosis, and the V-shape of the glottis. Ischemia of Persistent tissue leads to ulceration of the tissue with superficial injury 3 hours of intubation. Re-epithelisation occurs with the formation of granulation tissue, once the insert is removed. Injury in the perichondrium or cartilage can lead to fibrosis causing laryngeal stenosis. The reported incidence of laryngeal injury is as high as 97%, in patients intubated for 3 days or more. Impairment of laryngeal functions such as respiration, phonation and swallowing might occur due to injury in the larynx.

The aim of this study is to analyse if bedside voice assessments provide clinical utility as a simple screening tool to detect laryngeal injury in patients with extubation in the intensive care setting. This study enrolled 60 patients intubated for longer than 24 hours from a tertiary hospital intensive care unit. Initially at 24–48 hours, bedside voice assessments and laryngeal endoscopic examination were performed and repeated at 5–7 days after extubation.

Laryngeal injury and dysphonia are common observed symptoms in ICU intubated patients. However, bedside voice assessments do not correlate with the type or severity of laryngeal injury, therefore it becomes important to be aware of the high prevalence of laryngeal injury in this population following prolonged intubation.

Fig 3: Laryngeal injury findings at the two different assessment times as determined by Flinders Laryngeal Injury Score





Voice outcomes and endoscopic findings were correlated. Of the total enrolled patients, 37 patients completed the second assessment. Approximately, 60.1 hours was estimated as the median duration of intubation. At 24 hours, the prevalence of endoscopic laryngeal injury was 92% and increased at 5 days' post extubation. In 84% of patients, the common injury detected was vocal process ulceration/granuloma (**Fig 3**). According to Bedside voice assessments, 100% of patients had dysphonia at 24 hours, but it did not correlate with the presence of laryngeal injury. Laryngeal injury and dysphonia are common symptoms that occur due to prolong period of intubation. However, Bedside voice assessments do not correlate with the type or severity of laryngeal injury. It is therefore, important to be aware of the laryngeal injury in such patients following prolonged intubation.

Conclusion: This study highlighted a very high prevalence of laryngeal injury in the ICU patients following intubation and mechanical ventilation. A high prevalence of laryngeal injury and the presence of mild voice abnormality remained at 5 days' post extubation, despite clinical improvement. Bedside voice assessment was not enough to identify the presence, type, or severity of laryngeal injury. This study concludes that there is limited utility for the use of Bedside voice assessment as a screening tool in laryngeal injury following prolonged endotracheal intubation. In this patient group, routine referral for an assessment with flexible video laryngoscopy is recommended.

Reference

1. Huang L, et al Bedside voice assessments cannot be used as a screening test for laryngeal injury following prolonged intubation in an intensive care population. Australian Journal of Otolaryngology. 2022 Apr 28;5.



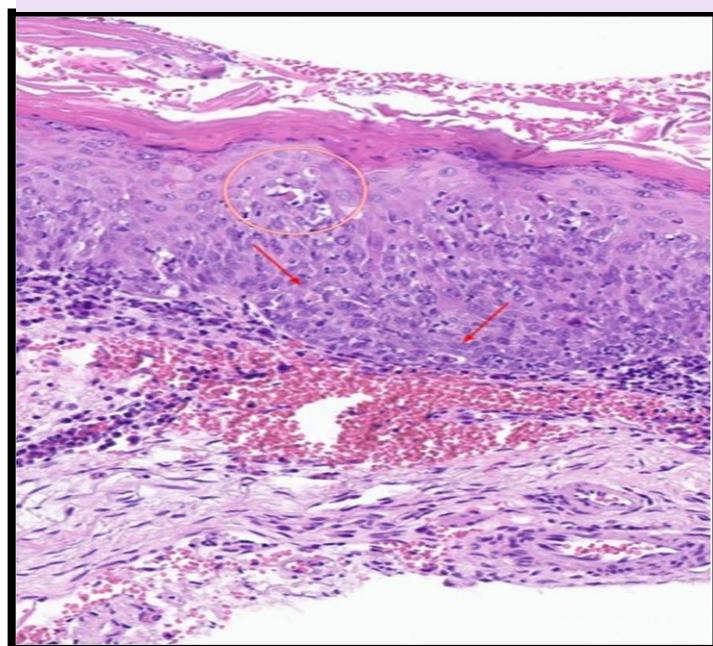
An Unusual case report of Lichen Planus in the vocal fold.

Dysphonia, a common symptom observed in Otolaryngological Clinics during patients consulting which can be caused by several diseases. In such patients, chronic laryngitis, premalignant and malignant lesions, must be ruled out if there is a history of smoking and suffering a persistent dysphonia for more than 4 weeks. Differential diagnosis of a single white lesion in the vocal fold are: keratosis, parakeratosis, squamous papilloma, several grades of dysplasia, and carcinoma in situ. On the other hand, Lichen planus is an immune-mediated chronic inflammatory condition affecting the skin and the mucosa. Lichen planus in the larynx is not common, and there are few cases reported in literature.

Lichen planus should be considered in differential diagnosis of leukoplakia of the larynx, which could be manage with corticosteroid drugs avoiding aggressive treatment

A 62-year-old Caucasian male patient was presented with a 2-month history of persistent dysphonia and a habit smoking of around 10 cigarettes per day. No previous history of systemic disease was detected. No history of medication recorded. Direct laryngoscopy revealed “leukoplakia,” and the lesion was involved the superficial mucosa only. No other lesions in the vocal fold was noted. Paving mucosa with several apoptotic keratinocytes and intraepithelial lymphocytes was found in the histopathological examination. **(Fig:4)** Under the mucosa, a moderate inflammatory lymphocyte bandlike infiltrate was identified. In one of the specimen edges, mild dysplasia was observed. These all findings resulted in the diagnosis of lichen planus. Improvement in patient’s voice was observed after surgery, patient received voice therapy to improve the voice quality and after 6-month close follow-up patient showed no recurrence

Fig4: Histopathological findings





Conclusions: Lichen planus in the vocal fold usually presents as a unilateral and isolated lesion or concomitant with oral and genital lesions. In this case report, Oral or topical corticosteroids, were not used because of total extirpation of the lesion. Though the lichen planus of vocal fold is rare, it should be considered in differential diagnosis of leukoplakia of the larynx and could be manage with corticosteroid drugs avoiding aggressive treatment.

References

1. Pino, G.R. et al. Dysphonia of exceptional origin: lichen planus of the vocal fold — a case report of a very uncommon area affected by lichen planus. Egypt J Otolaryngol **38**, 48 (2022).



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