



## Case Report: Laryngocele- A Rare Cause of OSAS and Respiratory Distress

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### Abstract

**Objective:** A 70 years old man was admitted to the ICU due to respiratory failure and stridor. Physical examination and imaging studies revealed combined laryngocele.

**Design:** Case report

**Subject:** A 70-year-old, Caucasian man with respiratory failure due to combined laryngocele.

**Results:** Under general anesthesia the laryngocele was removed. The patient discharged after five days with significant respiratory and OSAS's signs improvement.

**Conclusion:** Although rare, laryngocele must be considered when respiratory distress appears with neck mass.

### Keywords

Respiratory failure, Laryngocele, Combined laryngocele, Internal laryngocele, External laryngocele

### Introduction

Laryngocele is rare condition in which dilation of the laryngeal sacculle that extends upward the false vocal cord, is filled with air, and is in communicating with the laryngeal lumen<sup>1</sup>. It can presents as neck mass or as cystic lesion in the neck. Awareness regarding this rare entity can help the physician in making the correct diagnosis.

### Case Report

70 year- old- man was hospitalized in the ICU of Poria Medical Center, Israel due to deterioration of his respiratory condition. On his admission to the hospital he was acidotic and in hypercapnic respiratory failure. His saturation was 88%, and deteriorated to 82% a few minutes after his arrival. Past medical history included moderate COPD, CHF, morbid obesity and severe obstructive sleep apnea syndrome (OSAS). The OSA caused loud snoring, day time somnolence and difficulty concentrating in every day assignments. His medical records revealed base line saturation of 92%-93%. Clinical examination revealed cystic mass about 4 × 5 cm on his right side of the neck. Endoscopic examination, demonstrated bulging near the right ventricular fold and right aryepiglottic fold. CT of the neck demonstrated air filled lesion in the right neck (Figure 1 and Figure 2). This lesion had two contiguous components, one within and one



**Figure 1-2:** An axial and coronal computed tomography shows the air filled laryngocele filling the right paraglottic space and compressing the laryngeal vestibule, the laryngocele herniating through the thyrohyoid membrane.

lateral to the larynx causing compression in the distal part of the larynx and the subglottic area (Figure 3). This imaging confirmed the diagnosis of combined laryngocele. Under general anesthesia incision



**Figure 3:** The laryngocele compressing the RT vocal fold and obstruct the airway passage.

over the mass on the right neck was done continuous with dissection till the external part of the laryngocele. The laryngocele was found invading the thyrohyoid membrane. It removed with the upper part of the ala of the thyroid cartilage. Recovery was uneventful. Pathological examination was benign. After four days the patient discharged with significant respiratory and OSAS's signs improvement. In follow up examination 2 month after surgery in our clinic, the patient saturation was 94%, and he reported significant improvement in his OSAs symptoms.

## Discussion

Laryngocele is defined as an abnormal dilatation of the laryngeal saccule. The laryngocele rises between the ventricular folds, the base of the epiglottis and the inner surface of the thyroid cartilage [1]. The incidence of laryngocele is estimated to be 1 per 2.5 million of the population per year and laryngoceles have been reported to be five times more frequent in men, with a peak incidence in the sixth decade of life [2]. About 8% of the patient get infected and present as pyocele [3,4]. There are three types of laryngocele. When the saccule extends to medial thyroid cartilage and pierces the thyrohyoid membrane, then it is called external laryngocele. When the saccule does not pierce the membrane it remains with in larynx to form an internal laryngocele. If both are present then it is defined as combined laryngocele. The worldwide literature shows that the most common type of laryngocele is the combined laryngocele (44%), followed by internal (30%) and external (26%) type [5].

Among adults, hoarseness and cough are the most common complaint, although dyspnea, dysphagia, pain, and a neck mass can occur with large or infected lateral saccular cysts [6,7]. Examination in case of external laryngocele will reveal soft mass in the lateral neck, easily compressed and extended with increased pressure. In case of internal laryngocele endoscopic examination will reveal smooth swelling of the supraglottis especially in the aryepiglottic fold. The differential diagnosis of mass in the neck is wide and includes: tumor,

branchial cyst, neck abscess and lymphadenopathy. Radiological and endoscopic investigation will be critical in determining the diagnosis. The definitive treatment for laryngocele is by surgical procedure.

External laryngocele is removed by external approach (cervical incision) with or without tracheostomy, while internal laryngocele can be excised by endoscopic technique [8]. In combined laryngocele combined approach (external and endoscopic) is accepted. In few cases, like the case presented in this report, the combined laryngocele can be completely removed by the external approach.

## Conclusion

Although rare, laryngocele must be considered when respiratory distress appear with neck mass. There are only few cases reported, describe respiratory failure due to laryngocele [9].

In review of the literature so far only one case was found in which a correlation has been made between laryngocele and OSAS and improvement after removal of the laryngocele.

## Learning Points

- Patients with sudden onset of respiratory failure and neck mass should be reviewed by an ENT specialist on urgent basis.
- The importance of securing the threatened airway cannot be over emphasized in patients with neck mass and respiratory distress.
- Radiological assessment is critical part of the diagnosis of laryngocele.
- Although laryngocele is rare, it is important cause of respiratory distress accompanied by neck mass, and should be considered in those patients.

Surgical procedure is the definitive treatment for laryngocele.

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