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# A Case of Large Laryngomucocele

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## 거대 후두점액낭종 1예

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= **국 문 초 록** =

후두낭종은 후두소낭의 비정상적인 팽창으로 발생하는 드문 질환이다. 후두낭종의 크기와 증상에 따라 치료 방법은 단순 경과관찰에서부터 흡인, 경화제 주입, 수술적 치료까지 다양하다. 수술적 치료는 외적 접근법, 내시경적 접근법 또는 두 접근법을 혼용한 접근법을 통해 이루어진다. 최근 저자들은 경부 외적 접근법 및 연골막하 절제를 통한 혼합 후두점액낭종 1예의 치료를 경험하였기에 문헌 고찰과 함께 보고하는 바이다.

**중심 단어** : 후두낭종 · 후두 · 후두질환 · 수술 · 수술법.

## Introduction

A laryngocele is a rare entity caused by abnormal dilatation of the laryngeal saccule; they are classified as internal, external, or mixed according to the relationship with the thyrohyoid membrane.[1)] The frequency of laryngoceles has been reported to be 1 per 2.5million persons per year with a male predominance during the sixth decade of life.[2)] Diverse treatments including close observation, nonsurgical aspiration, injection of sclerosing agents and surgical intervention have been used based on the symptoms and size of the cyst. Surgical excision can be performed via an external approach, endoscopy or a combination of both.

We report on the removal of a laryngomucocele from a patient by an external transcervical approach with subperichondrial dissection.

Approval for this procedure was granted by the institutional review board(No. 20090515/06-2009-66/84).

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## Case Report

A 35-year-old man was admitted to the clinic with swelling on the right side of his neck that had fluctuated in size during the past year. He had no history of smoking and denied any other problems such as dyspnea, sore throat, dysphonia or a chronic cough. The patient worked as a bus driver and had a history of playing the trumpet in a military band for three years in his early 20's.

On physical examination, a 5.0×4.0cm, soft, non-tender, easily reducible mass was identified in the right neck re-

gion. On the laryngoscopic examination, there was a mild elevated lesion around the right pyriform sinus. Bilateral vocal folds showed normal mobility. The neck mass increased in size on the Valsalva maneuver, puffing and weight lifting. The computed tomography scan of the neck revealed a large unilocular cystic mass with homogeneous internal attenuation and a definite margin. The mass was located at the anterior margin of the sternocleidomastoid muscle at the hyoid level, extending internally through the thyrohyoid membrane(Fig. 1). A laryngomucocele was the most likely diagnosis. The pathological confirmation such as fine needle aspiration biopsy was not performed before the surgery. Other conditions such as a branchial cleft cyst, cystic metastatic lesion, and laryngopyocele were included in the differential diagnosis.

**1. Operative procedures**

Under general anesthesia, a 4cm incision was made around the mass along the skin crease and the subplatysmal flap was elevated. Careful dissection was performed so as not to rupture the laryngocele ; the hypoglossal nerve was identified and preserved. The superior laryngeal nerve was identified and traced distally through the thyrohyoid membrane. In close proximity to the upper border of the ala of the thyroid cartilage, the wall of the cyst grew into thyrohyoid membrane. While the external part of the laryngocele was retracted outward, the inner part was partially delivered through the thyrohyoid membrane(Fig. 2A). We performed subperichondrial dissection along the upper margin of the thyroid cartilage to expose the paraglottic space. The inner perichondrium was incised horizontally with a sharp dissector and then the whole internal part of the laryngocele was exposed. The mass was removed without rupture. There was no definite connecting hole to the internal cavity of larynx after removing the laryngocele. However, a redundant paper-thin laryngeal outer wall, which seemed to be the endolaryngeal mucosa, puffed up with intended hyperventilation. The thin mucosal wall was resected in purpose of preventing recurrence and closed primarily in one layer(Fig. 2B). After reinforcing the laryngeal wall by suturing the normal surrounding mucosal wall, an adhesive collagen agent was applied to the resected area. We confirmed the absence of air leakage during the intended hyperventilation for 30 seconds. The neck wound was closed layer by layer leaving a negative suction drain in place.

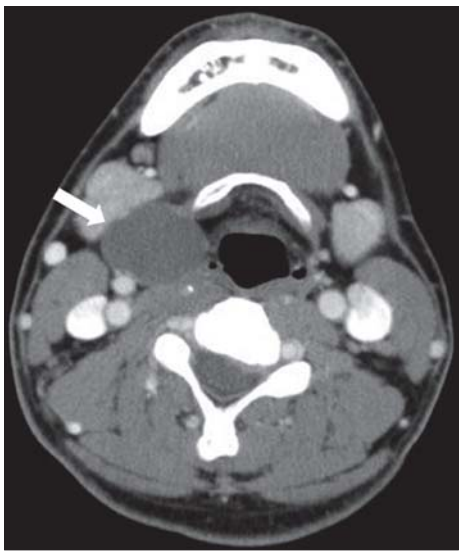

**Fig. 1.** Computed tomography shows a large cystic mass(white arrow) at the hyoid level on the axial view.

There were no acute complications and no evidence of injury to the hypoglossal and superior laryngeal nerves. On the laryngoscopic examination, the right pyriform sinus showed mild obliteration with normal vocal fold mobility, postoperatively. The patient had no problems with phonation or swallowing during the follow up.

Grossly, the mass was 4.0×3.5×3.0cm, and filled with milk-colored mucus material. Histologically, the internal wall of the cyst had ciliated pseudostratified columnar epithelium, consistent with the diagnosis of a laryngomucocele(Fig.

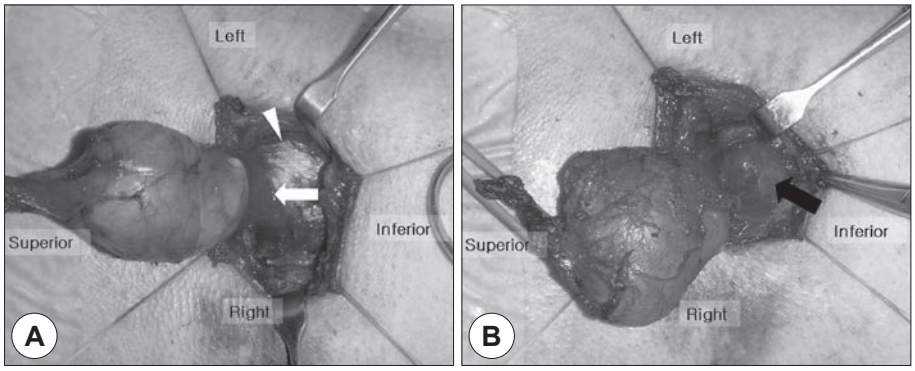


**Fig. 2.** A : On outward traction of the external part of the laryngomucocele, the inner part is partially delivered through the thyrohyoid membrane(white arrow : thyrohyoid membrane, white arrow-head : thyroid notch). B : After resection of laryngomucocele, the paper-thin laryngeal outer wall was puffed up with hyperventilation(black arrow : paper-thin lateral pharyngeal wall).

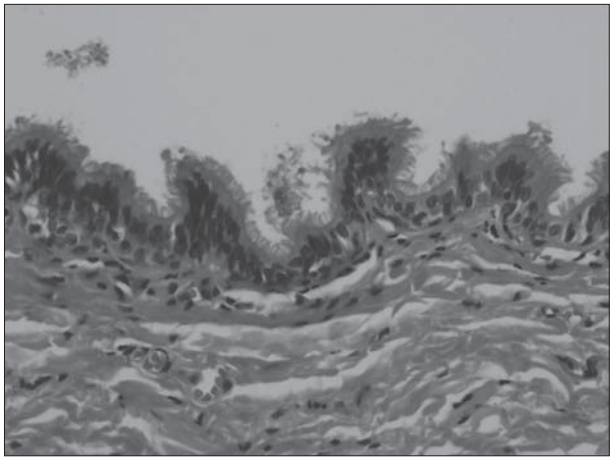

**Fig. 3.** Histopathological findings of the resected mass showed ciliated columnar epithelial lining (hematoxylin and eosin stain × 400).

3). The respiratory epithelium with cilia on the internal wall of the cyst proves the specimen as a larygnocele rather than a simple saccular cyst.

## Discussion

A laryngocele can develop as a result of prolonged and repeated high intraglottic pressure such as with excessive coughing, trumpet playing, and straining at stool. In this case, having played the trumpet for several years in a military band might have contributed to the development of the laryngocele.

A laryngocele can be diagnosed by the clinical characteristics and the physical and through radiological findings. Plain radiographs of the soft tissue taken with and without the Valsalva maneuver can be of value ; however, computerized tomography scanning provides a definite diagnosis. Surgical intervention via the external approach and/or endoscopic procedures has been successfully used. The external approach has the drawbacks of scar formation, longer operation time and hospitalization; however, this is the procedure of choice in cases with large mixed types of laryngocele to ensure a reduced risk of recurrence, better visibility and easy access to the paraglottic space during the dissection.[3] In our case, the external approach in combination with a subperichondrial dissection of the lesion allowed for a complete excision of the laryngocele without an additional lateral thyrotomy.[4]

Previously there were two case reports of atypical laryngocele in Korea. One case was about a case of bilateral mixed type laryngocele known to occur in 25% of the laryngocele.[5,6] The other one was a laryngocele combined with laryngeal carcinoma.[7] The simultaneous occurrence of a laryngocele with a carcinoma is infrequent, and the relationship between the two entities has not been fully defined. Up to 28.8% of patients with laryngeal cancer has been reported to have a laryngocele.[8,9] Therefore, complete surgical excision is required and thorough histopathological analysis of a specimen should be performed.

We first report on the removal of a large mixed laryngomucocele from a patient with a history of playing the trumpet in Korea. The external transcervical approach combined with subperichondrial dissection was applied in this case and first described.

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