

A Large Laryngeal Mucocele Causing Progressive upper Airway Obstruction and Cervical Swelling

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ABSTRACT

Laryngocele (LC) is an uncommon clinical entity, occasionally associated with fatal complications. If its neck becomes obstructed, mucous accumulates and then a laryngeal mucocele (LMC) is formed. Reports of LMCs are rare in the literature. A fluid-filled combined LMC in a 48 year-old Greek construction worker with presenting symptoms of cervical swelling and dysphonia is described. The male patient was surgically treated via an external approach. A LC rarely becomes symptomatic and infection unusually occurs. Magnetic resonance imaging depicts in detail the size, extension and structure of the neck mass and remains the diagnostic gold standard, providing superior soft-tissue discrimination, in cases of a concurrent laryngeal tumor. Histopathological examination confirms diagnosis, since there is always a high index of suspicion for malignancy. Established guidelines regarding surgical treatment of a LC do not exist. Although during the last two decades micro laryngoscopy with CO₂ laser has gained popularity for the treatment of an internal LC, the external approach still remains the method of choice in cases of a combined LMC.

KEYWORDS

laryngeal mucocele; upper airway obstruction; cervical swelling; surgical treatment; external approach

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INTRODUCTION

Benign dilatation of the laryngeal saccule may end up in a laryngocele (LC) formation, an uncommon air and/or fluid-filled laryngeal entity, extending upward into the false vocal fold, although still retaining its communication with the laryngeal lumen (1). If the LC's neck becomes obstructed, mucosal glands, lubricating the vocal cords, will continue to produce mucous, thus their secretion will be accumulated ultimately forming a laryngeal mucocele (LMC) (1, 2). In the current report a case of a LMC, which became clinically evident over a six month period, as a progressive neck swelling associated with dysphagia and symptoms of upper airway obstruction, is described. The male patient underwent an uneventful surgical excision of the neck mass, via an external approach, which still remains the treatment of choice.

CASE REPORT

A 48 year-old Greek construction worker with a 2-month history of progressive dysphagia, hoarseness, dysphonia and moderate breathing difficulty visited the Department of Otolaryngology of Bioclinic Hospital. The main reason for seeking medical attention was the formation of a left firm compressible round soft neck mass, developed over a 6-month period (Fig. 1A). On palpation of the neck, cervical swelling was identified. Videolaryngoscopy with a flexible rhinolaryngoscope revealed a mass protruding from the left ventricular fold, obscuring the laryngeal inlet. Movement of the vocal cords was normal. A computed tomography (CT) scan exactly depicted the extension and content of internal and external components of the LC (Fig. 1B). A Magnetic Resonance Imaging (MRI) evaluated a paralaryngeal cystic fluid-filled dilatation, out-pouching from the left laryngeal ventricle. It measured approximately 57 × 36 × 50 mm, expanded laterally under the platysma muscle, while part of it protruded medially into the laryngeal ventricle (Fig. 1C). No regional lymph nodes were detected. Diagnosis of a LMC was based on the above clinical and imaging findings, confirmed by histopathological examination, which showed no evidence of malignancy (Fig. 2). The male patient was a smoker for

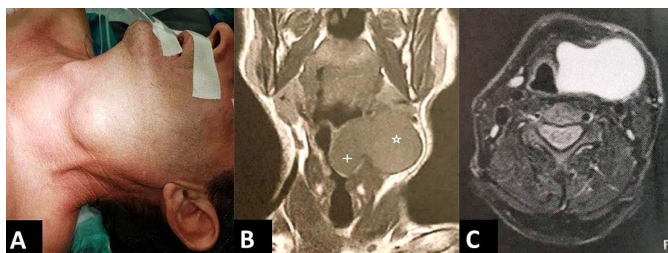


Fig. 1 A. The left firm compressible round soft neck mass. **B.** Preoperative magnetic resonance imaging (MRI) coronal view of the neck, demonstrating a large left combined laryngeal mucocele. Asterisk indicates the external portion, herniating through the thyrohyoid membrane, and the cross sign indicates the internal portion. **C.** MRI, axial view of the neck, exactly depicts the extension and content of both internal and external components of the large fluid-filled saccular cyst.

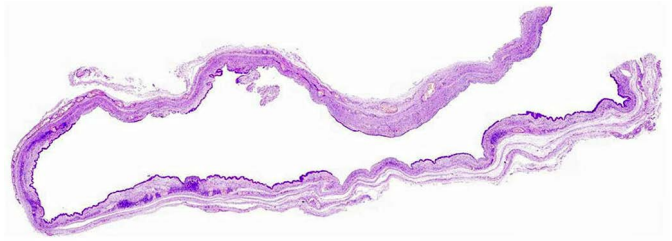


Fig. 2 Cystic lesion (mean diameter 4cm) with a thin wall and smooth inner surface. Variable types of cells (respiratory, squamous and oncocytic) and a rich vascularity are present. The cyst has focally fibrotic and hemorrhagic wall with mucinous debris. Submucosal accumulations were evident subepithelially. No signs of malignancy were detected (Hematoxylin & Eosin, panoramic)

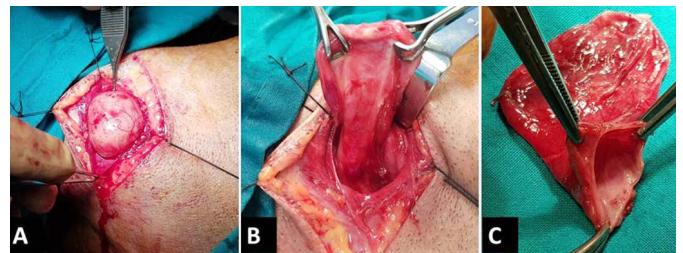


Fig. 3 A, B. Intraoperative views during lesion removal via an external approach. **C.** The surgical specimen.

30 years (approximately 30 cigarettes per day). Because of the nature and the extent of the lesion, surgical resection was performed via an external approach (Figs. 3A, B). The lesion was carefully dissected from the adjacent thyrohyoid membrane and the entire mucous-filled saccular mass was removed (Fig. 3C). No tracheostomy was performed. Patient's symptoms had subsided in one-month follow-up visit and his voice was normal. Vocal cord function was unaffected. This work is conformed to the standards set by the Declaration of Helsinki (2000) and the procedure has been approved by the Ethics Committee of our University.

DISCUSSION

The incidence of laryngocele is reported to be up to 1 in 2.5 million people annually (2). Male to female ratio is 5:1 with peak incidence during the 5th or 6th decade of life (3). A laryngocele could be classified as internal, which is entirely confined to the endolarynx, or combined, when it herniates laterally, ultimately forming a mass in the neck. Combined and unilateral laryngocele is the commonest type (4).

Etiology of the LC development still remains uncertain, although different theories have been proposed about its development. A LC can be congenital, acquired or due to a mechanical obstruction. It may occur in individuals with congenitally large saccule or those with congenital laryngeal tissue weakness (3). Singers, chronic coughers, wind instrument players, glass blowers and public speakers are more prone to develop a LC, due to the extended and increased intralaryngeal pressure. A strong correlation between tobacco use, alcohol and laryngeal cancer has been proven, since histologic changes of the vocal fold epithelium are detected among smokers and drinkers (5). Amyloi-

dosis, chordoma and laryngeal cancer (squamous cell carcinoma) are also indirectly associated with LC formation via increased intraventricular pressure and obstruction (6, 7, 8). Although, CT scan is helpful in differentiating a LC from a saccular cyst of the larynx and usually uncovers evidence of an occult laryngeal tumor, MRI is superior, because it provides excellent soft-tissue discrimination and distinguishes malignancy from mucus or inflammation (3).

A LC is usually asymptomatic with hoarseness being the most frequent presenting symptom. Neck swelling and dysphonia are typical symptoms; other clinical manifestations include cough, foreign body sensation, progressive dyspnea, even acute inspiratory occlusion requiring emergent tracheotomy (9). Infection, airway obstruction, dysphagia and dysphonia indicate surgical intervention. Cases of LC enlargement and worsening of symptomatology are associated with carcinomas (2). Because of the rare incidence of a LC, the best treatment method still remains controversial (1). Traditionally, the size and type of the lesion indicate the route of surgical approach. During the last 20 years, endoscopic resection with CO₂ laser has become popular for the internal LC cases (10). Nevertheless, probability of incomplete resection of large lesions limits the usage of the endoscopic approach (3). Surgical treatment of combined cases still remains a surgical dilemma, although it is generally performed via an external approach, which has the benefit of easy access to the lesion with low recurrence rate. Disadvantages include the high morbidity due to the superior laryngeal nerve injury and the increased need for tracheotomy, resulting in prolonged hospitalization (4). Ciabatti et al. (11) removed a large combined LC using transoral robotic surgery. Although this minimally invasive approach seems to be a very promising alternative solution for benign and malignant diseases, more experience should be gained to consolidate a safe and successful outcome. In LM cases, the external approach still remains the preferred method of treatment.

CONCLUSIONS

Concluding, diagnosis of a combined LMC was made in our case on the basis of clinical findings, imaging, laryn-

gосcopy and histopathological examination. MRI depicted in detail the size, extension and structure of the neck mass and remains the diagnostic gold standard, providing superior soft-tissue discrimination. Histopathology of the specimen confirms diagnosis in LMC cases, since a high index of suspicion for malignancy should be always present. Surgical resection via an external approach remains the therapeutic option of choice.

CONSENT

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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