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Laryngomucocele: A Case Report and Literature Review

Arioua Abdelilah[1*], Afellah Mohamed[1], Bouhlala Anouar[1], Oudidi Abdelatif[1], Naouar Ouattassi[1], Mohamed Ridal[1], Najib Benmansour[1], Mohammed Noureddine EL Alami El Amine[1]

[1]Department of Otolaryngology and Cervicofacial Surgery; Hassan II University Hospital, Fes, Morocco
[1]Anatomy, Surgery and Anesthesiology Laboratory, University of Sidi Mohammed Ben Abdallah, Fez, Morocco

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***Corresponding author:** Arioua Abdelilah
Department of Otolaryngology and Cervicofacial Surgery; Hassan II University Hospital, Fes, Morocco

Abstract **Case Report**

Laryngocele is a rare benign affection characterized by the abnormal dilatation of the laryngeal saccule or Morganii ventricle. Laryngocele can be classified as internal, external and mixed (both). Many laryngoceles are asymptomatic; Sometimes it is presented as cervical swelling causing airway obstruction in need of emergency intervention. Computed tomography scan is the most effective imaging method for diagnosis. Surgery is the treatment of choice. We are reporting a case of laryngocele in 50-year-old male, who presented a recent dysphonia and solid dysphagia, along with an anterior cervical mass. The diagnosis of laryngocele was confirmed by radiology and laryngoscopy. The patient was operated by cervical approach with a good evolution. In the following article, we discuss the establishment of the diagnosis and we review clinical and therapeutic characteristics of various types of laryngoceles.

Keywords: Laryngocele, cervical swelling, radiology and laryngoscopy.

INTRODUCTION

Laryngocele is an abnormal cystic dilatation of the saccule of the larynx. The saccule is a small mucosal pouch lying between the vestibular fold of the larynx and the inner surface of thyroid cartilage [1]. It communicates with the laryngeal lumen and contains air. Laryngocele can be classified as internal (within the larynx), external (outside the larynx) and mixed (both). It is a rare entity, usually unilateral, but may be bilateral. In this article, we describe the management of a mixed laryngocele along with review of literature.

CASE REPORT

Our case concerns a 50-year-old patient with no significant medical history who presented for consultation due to dysphonia coupled with a painless anterior cervical mass progressively increasing in size over the past 18 months (Figure 1). The clinical evolution has worsened over the past months with the development of compressive signs such as inspiratory dyspnea and solid dysphagia, prompting his consultation.

Cervical examination revealed a left-sided subhyoid swelling, elastic, painless, and mobile during swallowing, measuring 7×6cm. The overlying skin appeared healthy, and there were no cervical lymph nodes.

Nasofibroscopy demonstrated significant bulging of the left ventricular fold, extending to the ipsilateral aryepiglottic fold, resulting in a 50% reduction in laryngeal lumen (Figure 2). Laryngeal mobility was otherwise normal.

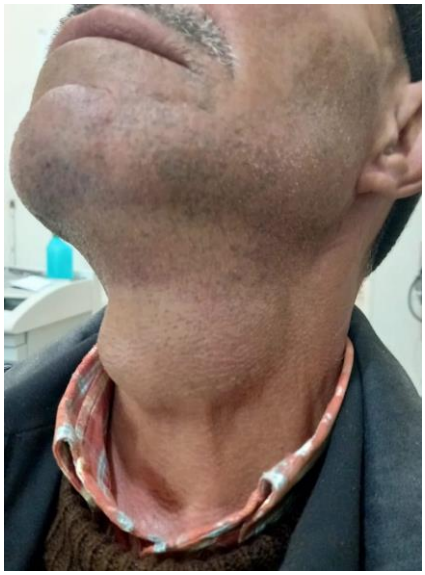

Figure 1: Anterior midline cervical swelling with intact skin

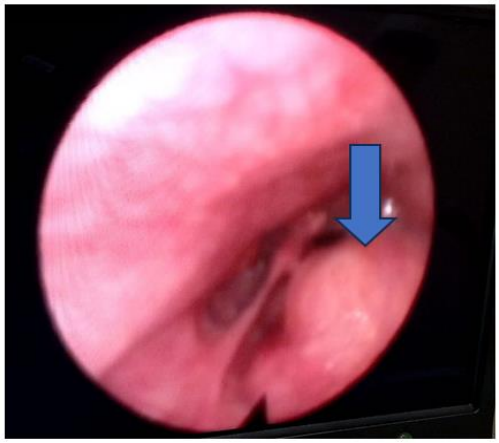

Figure 2: Bulging of the left ventricular fold reaching the epiglottic fold

A cervical CT scan was performed, revealing a well-defined homogeneous cystic mass with no enhancement after contrast injection. Also, it revealed an endolaryngeal cystic lesion and another extra-laryngeal lesion communicating through the thyrohyoid membrane, suggesting a mixed-type laryngomucocele (Figure 3 & 4).

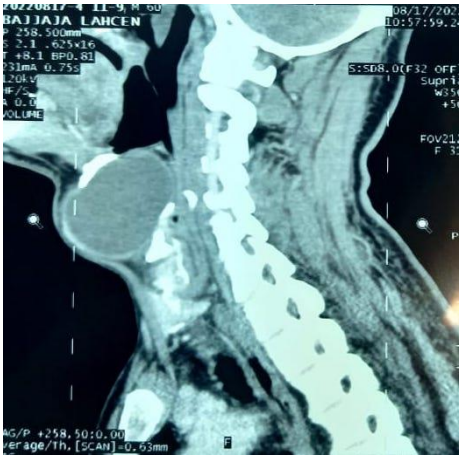

Figure 3: Sagittal CT scan showing endolaryngeal and extra-laryngeal cystic mass

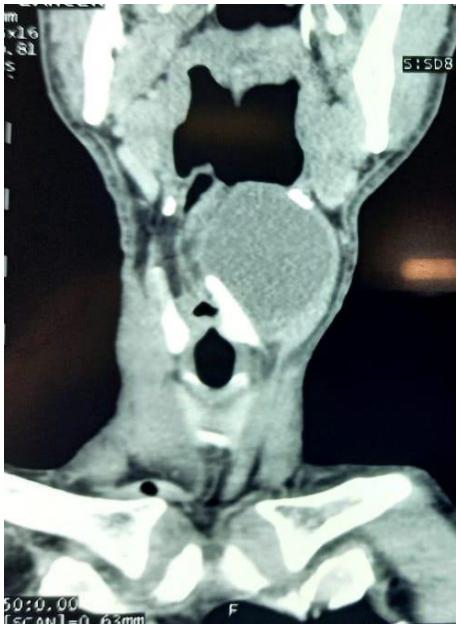

Figure 4: Coronal CT scan: Laryngocele protruding through the thyrohyoid membrane

The patient underwent surgery under general anesthesia. Cervical incision was done horizontally between the thyroid cartilage and the hyoid bone at the cyst site (Figure 5). After superior and inferior myo-cutaneous dissection, the midline was opened, and the laryngocele was identified. Marsupialization was performed with content aspiration (Figure 6). Total excision was carried out after releasing the cyst from fibrous adhesions (Figure 7). Closure was done with the placement of a suction drain.

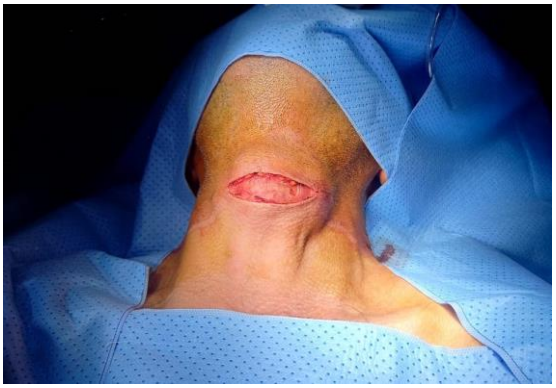

Figure 5: Horizontal incision made between the thyroid cartilage and the hyoid bone

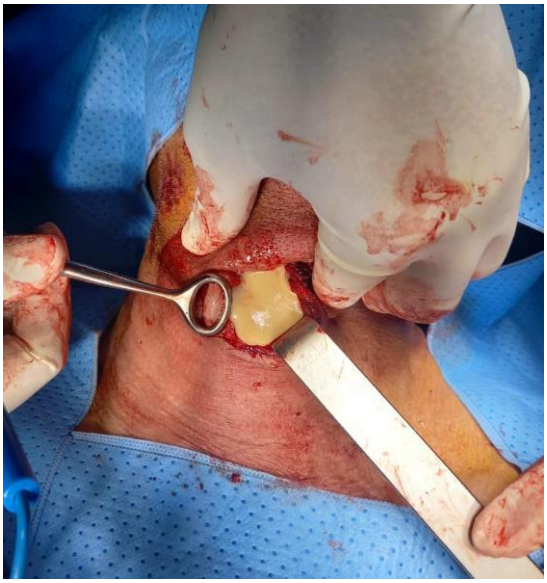

Figure 6: Marsupialization of the cyst

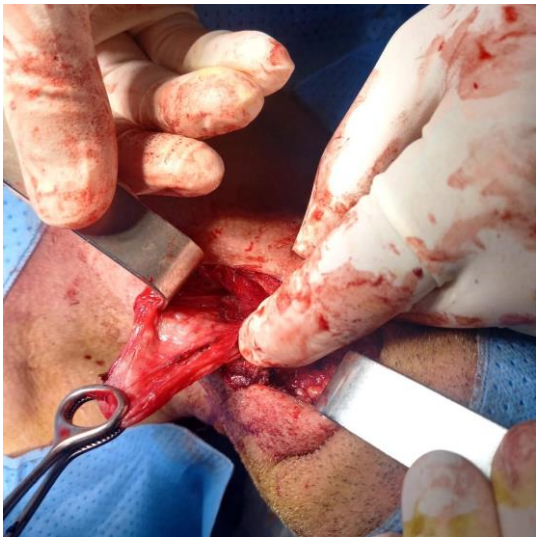

Figure 7: Dissection and liberation of the cyst

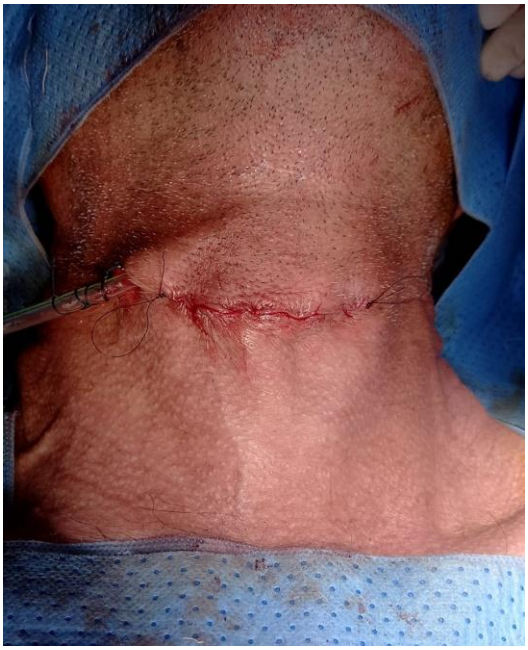

Figure 8: Closure with suction drain in place

Histopathological examination revealed multiple cystic cavities lined by either simple or stratified cuboidal epithelium and sometimes by respiratory-type epithelium, with focal areas showing squamous metaplasia. These cavities occasionally contained eosinophilic material. This appearance was consistent with a laryngocoele. Postoperative recovery was uneventful, with favorable progress observed over a 12-month follow-up period, including good respiratory function and a follow-up nasofibroscopy showing no abnormalities.

DISCUSSION

Laryngocele was first described as an air-filled tumor by Larrey, who was a surgeon in Napoleon's army in 1829. However, Virchow gave the term Laryngocele in 1887, to describe the air-filled dilatation of the laryngeal saccule. The laryngeal saccule is a pouch in the upper part of the laryngeal ventricle of Morgagni. It may contain mucus due to presence of mucinous glands in the ventricle. Obstruction of the lumen of laryngocele can lead to formation of laryngomucocele, and consequent infection to the formation of laryngopyocele [2].

The development of laryngocele can be explained by etiological factors that can be described as congenital or acquired. Acquired causes may be due to raised intraluminal laryngeal pressure for prolonged period, laryngocele may be found in glass blowers, trumpet players [3]. Also, laryngeal tumors causing mechanical obstruction increase intralaryngeal pressure, which leads to formation of laryngocele [4]. Association between laryngocele and laryngeal cancers has thus, been found. Other causes may be attributed to amyloidosis, chondroma, scleroderma etc [5].

Three forms are described according to their site: internal, external and mixed, the most frequent form [6].

The differential diagnosis essentially concerns neck abscess, lymphadenopathy, saccular cysts, branchial cysts and thyroglossal cysts.

Most laryngoceles remain asymptomatic. When they are symptomatic, the signs vary according to the type of laryngocele [7]. The external form presents as a painless and sometimes fluctuating mass in the superior anterolateral triangle of the neck, below the digastric muscle. Valsalva manoeuvre accentuates perception of the mass, which can be reduced by external pressure, sometimes producing fluid noises [6]. Internal laryngoceles present with dysphonia, dyspnoea, reflex cough or a foreign body sensation [7]. Sudden deterioration of the symptoms is pathognomonic of the mixed form, particularly dyspnoea, due to passage of air from the external to the internal component following compression of the external component [7].

Computed tomography demonstrates a well delimited gas- or fluid-filled mass communicating with the laryngeal ventricle, defines the type of laryngocele and its extension and especially eliminates any predisposing factors, particularly laryngeal cancer, a classical and real association with the laryngocele [6].

Treatment of choice is surgical excision. The choice of treatment essentially depends on the size of the lesion. Small laryngoceles can be endoscopically excised with laser, while large internal or external laryngoceles should be removed by an external approach [8].

The three different types of laryngoceles ensue multiple approaches for its excision. Surgeries are performed via external approach, mainly for external and combined laryngocele and endolaryngeal approach mainly for internal laryngocele. Excision of all the three types of laryngoceles was initially done using an external approach [9]. However, microlaryngoscopic surgery and the CO2 laser have gained popularity during the last two decades as the endolaryngeal technique for internal and mixed type of laryngocele [10, 11].

Most of the patients with combined and external laryngocele are treated using an external approach. The advantages of external approaches are good exposure of the laryngocele, precision and a low recurrence rate. Disadvantages are skin scarring, higher morbidity, longer duration of surgery, longer hospitalization period, and higher cost [12]. Three types of external procedures that have been described are the transthyrohyoid membrane approach, thyrotomy with resection of the upper 1/3 of the thyroid cartilage, and V-shaped thyrotomy [9, 12-14]. The transthyrohyoid membrane approach has been used most often. Though there is no resection of the thyroid cartilage but the exposure of the paraglottic space is limited. Thyrotomy with resection of the upper 1/3 of the thyroid cartilage and V-shaped thyrotomy has been used in a few patients [9, 12-14]. As part of these techniques, a portion of the thyroid cartilage is resected enabling better exposure of paraglottic space [12].

The majority of internal laryngocele are treated using the endolaryngeal (microlaryngeal) approach. Resection using a CO2 laser is currently the preferred and most frequently used type of surgery for internal laryngocele. This technique is considered to be a quick, precise, and safe alternative to an external approach excision, with fewer complications, and faster post-operative recovery [15-17]. The disadvantages of the endolaryngeal approach are limited surgical exposure, post-operative endolaryngeal scarring and risk of incomplete resection and call for expertise [12]. However no clinical recurrence has been reported. Tracheostomy as an emergency procedure has been done on multiple patients to preempt the risk of respiratory distress, implying that laryngocele may also present as an emergency.

CONCLUSION

Laryngoceles are rare dilated laryngeal saccules that can present as acute airway obstruction and lead to airway emergencies. The diagnosis of laryngocele is primarily clinical in nature. A thorough clinical examination, in addition to patient history, can reveal an increase in size during a Valsalva maneuver. Radiologically, CT scans are valuable for confirming the diagnosis and guiding further management. MRI may be utilized to differentiate laryngopyocele or laryngomucocele from a simple laryngocele. Traditionally, excision via an external approach has been the standard treatment for laryngocele. This external approach remains the primary surgical method for managing combined and external laryngocele cases, while microlaryngoscopic surgery employing a CO2 laser is commonly utilized for internal laryngocele management.

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