CASE REPORT

Laryngocele associated with laryngeal carcinoma

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Abstract
Laryngocele is an abnormal dilatation of Morgagni ventricle (saccule) in direct communication with the laryngeal lumen. Symptoms are not characteristic: hoarseness, dyspnea, foreign body sensation and cough. Sometimes it is presented as cervical swelling causing airway obstruction and need an emergency tracheotomy. In this paper, we report a case of upper airway obstruction due to laryngocele associated with a laryngeal carcinoma who was treated by emergency tracheotomy and, finally by total laryngectomy. A review of the literature is also presented.

Keywords: laryngocele, emergency tracheotomy, laryngeal carcinoma.

Introduction
Laryngocele is a rare cystic dilatation of the laryngeal saccule, which arises from the laryngeal ventricle and extends into paralaryngeal space [1]. The etiology is unknown but it is probably related to both congenital and acquired factors.

Larrey, Napoleon’s surgeon, in 1829, was the first to report a series of laryngoceles that he observed in men who would hourly chant the Koran from the minarets [2, 3]. Burke EN and Golden JL were the first ones who analyzed this disease; in an article published in 1958, they considered a Morgagni ventricle that extended beyond the superior border of the thyroid cartilage to qualify as a laryngoceles [4]. In an autopsy review of 100 normal larynxes, Broyles EN [5] observed that 7% of them had saccules of sufficient length that they would be considered laryngoceles based on the early criteria. Consequently, the definition was changed: a laryngoceles is a large Morgagni ventricle (saccule) that is symptomatic and palpable [6].

Most authors accept Burke and Golden’s original description and recognize both symptomatic and asymptomatic laryngoceles [7].

There are three types of laryngoceles. An internal laryngocele is confined to the interior of the larynx and extends postero-superiorly into the ventricular fold and the aryepiglottic fold; this type appears on laryngoscopy as a smooth swelling of the supraglottis. An external laryngocele extends superiorly to appear laterally in the neck through the opening in the thyrohyoid membrane for the superior laryngeal nerve and vessels; these clinically present as a swelling in the neck at the level of hyoid bone anterior to sternocleidomastoid muscle. The simultaneous existence of both features is termed a mixed (combined) laryngoceles.

Patient, Methods and Results
Our 60-year-old man, R.D., from rural environment, was transferred from Urology Department (he underwent a TURP procedure for BPH) in ENT Clinic Craiova (O.F. 23887/2007) with a 4-month history of dysphonia and dysphagia. For last two weeks, patient presents moderate dyspnea. The medical history of the patient included working in polluted air and smoking (20 cigarettes per day for 20 years). The indirect laryngoscopy showed a round compressible-soft mass on the right ventricular fold which changes its size during the phonation and Valsalva manoeuvre and a vegetative tumoral mass which involved the left vestibule and vocal fold, anterior to commissure and subglottis. The left half of the larynx had low mobility.

A plain lateral neck radiograph (2218/29.09.2003) revealed a round and air-containing mass laterocervically and submandibulary, 5/4 cm in diameter and a soft tissue intensity opacity, 3/2 cm in diameter, located in the left subglottis. The lateral cervical echography showed right micro-nodular adenopathy of 8.2 cm in diameter, right above the place where the common carotid artery divided.

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CT scans showed a large well-defined air-containing lesion displacing and narrowing the laryngeal lumen (Figure 1).
During hospitalization, dyspnea became more important and we decided to perform an emergency tracheotomy prior biopsy. The histopathologic examination of the tumoral mass (355/08.05.2007) revealed larynx carcinoma (Figures 2–5).

Final decision was to perform a total laryngectomy (S.R.784/16.05.2007).

**Discussion**

Laryngocele is a rare disease (5% of benign laryngeal lesions), whose etiology is still unknown. It may be due to prolonged periods of increased pressure within the laryngeal lumen [8, 9] as observed in wind instrument. Different articles published in specialty reviews try to associate laryngoceles with different laryngeal pathology: laryngeal amyloidosis [10], laryngeal chondroma [11], history of a tracheotomy [12], papillomatosis in children [13] or extralaryngeal pathology – ankylosing spondylitis [14] that would cause an increased intrathoracic pressure, oncocytic cysts [15]. Many studies [16–18] made a connection between the presence of the larynx carcinoma and the appearance of laryngoceles (the distortion of the saccule neck by carcinoma may create a one-way valve which increases intraluminal pressure).

In a study on 139 laryngoceles, Stell PM and Maran AGD showed that the sex incidence is 5:1 in favor of men, and the maximum age incidence is in the sixth decade [8]; about 8% become infected and present as laryngopyocele.

Patients with an internal laryngocele usually complain of hoarseness, dyspnea, foreign body sensation and cough. Laryngoscopy shows a swelling of the false cord on one side. The external laryngocele presents as a swelling in the neck.

Laryngoceles are lined by pseudostratified, columnar, ciliated epithelium with occasional foci of stratified squamous epithelium and a mixture of submucosal serous and mucous glands [8, 19]. This composition distinguishes these lesions from laryngeal cysts, which are lined entirely by squamous epithelium [8].

In some cases, the clinical presentation is not that...
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typical, so that computed tomography can be helpful. CT scan shows an air or mucus-containing tumor at the level of the false cord. Internal laryngoceles may proceed into an external one, which presents as a swelling at the level of the hyoid bone.

Uncomplicated laryngoceles appear on CT as air-filled structures lying in the paralaryngeal space (internal), lateral neck (external) or in both locations (mixed). Observation of the neck of the laryngocele by either tumor or chronic inflammation can result in a fluid-filled structure, producing on CT a well-circumscribed mass of either near water or soft-tissue density, depending on its composition.

In our case, there is an association between laryngocele and laryngeal carcinoma. First symptoms that occurred were dysphagia and dysphonia, rapidly followed by dyspnea, which required tracheotomy and finally total laryngectomy. Post-operative recovery was free from complications.

Conclusions

Laryngoceles is not a common illness. Its diagnosis is usually difficult and requires complex explorations. There is a rare association of laryngocele with laryngeal carcinoma. Thus, it is important to carry out an investigation in patients with laryngocele aiming at ruling out any associated malignancy.

References


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