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Acute Laryngeal Dyspnea Revealing a Laryngocele: Diagnosis and Management (About Three Cases)

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Abstract **Case Report**

A laryngocele is a rare laryngeal condition resulting from abnormal dilatation of the saccule of Morgagni's laryngeal ventricle. It can contain air, mucus, or pus in case of infection, defining respectively a laryngocele, a laryngo-mucocele, or a laryngo-pyocele. The internal form, although uncommon, may cause acute upper airway obstruction, potentially life-threatening. We report the cases of three patients admitted in emergency for severe acute laryngeal dyspnea, revealing an internal laryngo-mucocele. Through these cases, we analyze the clinical, radiological, and therapeutic aspects of this condition and emphasize the importance of early imaging diagnosis and appropriate surgical management.
Keywords: Internal laryngocele; acute laryngeal dyspnea; laryngo-mucocele; computed tomography (CT); endoscopic marsupialization.

INTRODUCTION

A laryngocele is an abnormal dilatation of the saccule of Morgagni's laryngeal ventricle. This is a rare condition, representing approximately 18% of laryngeal cystic lesions [1]. Depending on its anatomical extension (internal, external, or mixed) and its content (air, mucus, or pus), it may present with various clinical forms, ranging from a long asymptomatic period to severe compressive manifestations.

The internal laryngocele, confined to the laryngeal cavity, is the form most likely to cause respiratory compromise. In some cases, it may lead to acute upper airway obstruction, posing a life-threatening risk and requiring urgent management. Mixed forms, with both endolaryngeal and external cervical components, may also present with progressive respiratory or compressive symptoms [2].

Through the presentation of three clinical cases with different modes of presentation—from acute laryngeal dyspnea to compressive cervical swelling—this study aims to analyze the diagnostic and therapeutic aspects of the various forms of laryngocele, while highlighting the central role of imaging in the initial assessment and in guiding surgical strategy.

Objective

To present three cases of internal laryngocele revealed by acute laryngeal dyspnea, to analyze diagnostic and therapeutic approaches, and to highlight the importance of early imaging and tailored surgical management.

Case 1:

A 60-year-old patient, with no significant medical history, was admitted to the emergency department for rapidly progressive laryngeal dyspnea evolving into severe respiratory distress. Given the severity of the clinical presentation, an emergency tracheotomy was performed to secure airway patency.

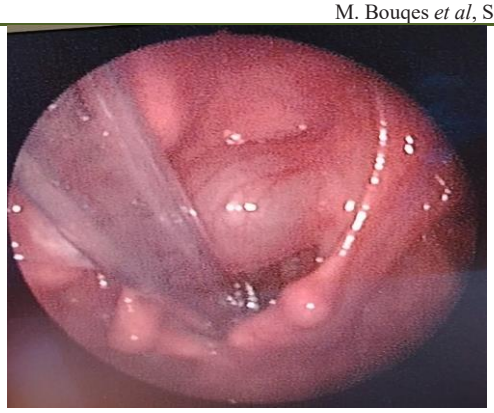

Image 1: Direct suspension laryngoscopy showing a cystic lesion suggestive of a laryngo-mucocele

Initial clinical examination was difficult due to the acute respiratory distress. Cervical computed tomography (CT) revealed a cystic formation centered on the right ventricular band, protruding into the laryngeal lumen and causing partial glottic obstruction. The radiological appearance was suggestive of an internal laryngo-mucocele.

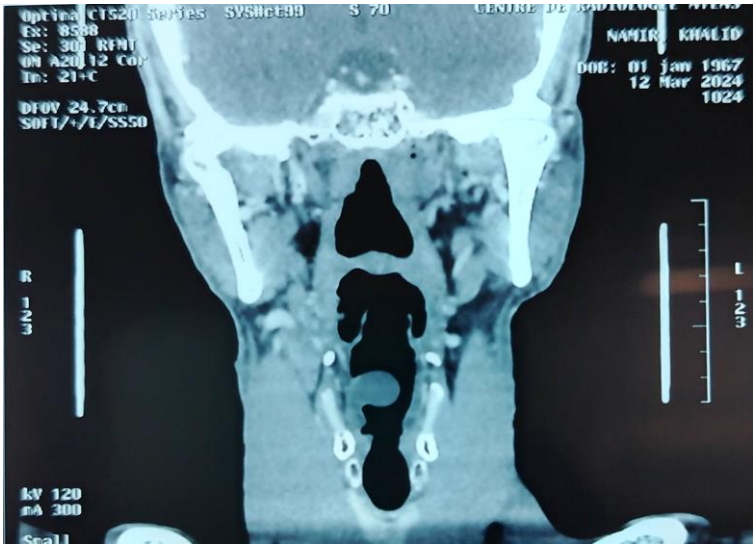

Image 2: Coronal CT scan showing a cystic lesion protruding into the laryngeal lumen, suggestive of a laryngo-mucocele

Image 3: Axial CT scan showing a cystic lesion protruding into the laryngeal lumen, suggestive of a laryngo-mucocele

Direct suspension laryngoscopy confirmed the cystic nature of the lesion. An endoscopic marsupialization was performed, allowing satisfactory restoration of the laryngeal caliber. Postoperative course was uneventful, with favorable recovery and no short-term recurrence.

Case 2:

A second patient was admitted for rapidly worsening acute laryngeal dyspnea, also presenting with upper airway obstruction requiring urgent management. Cervical CT imaging revealed an intralaryngeal cystic lesion consistent with an internal laryngocele.

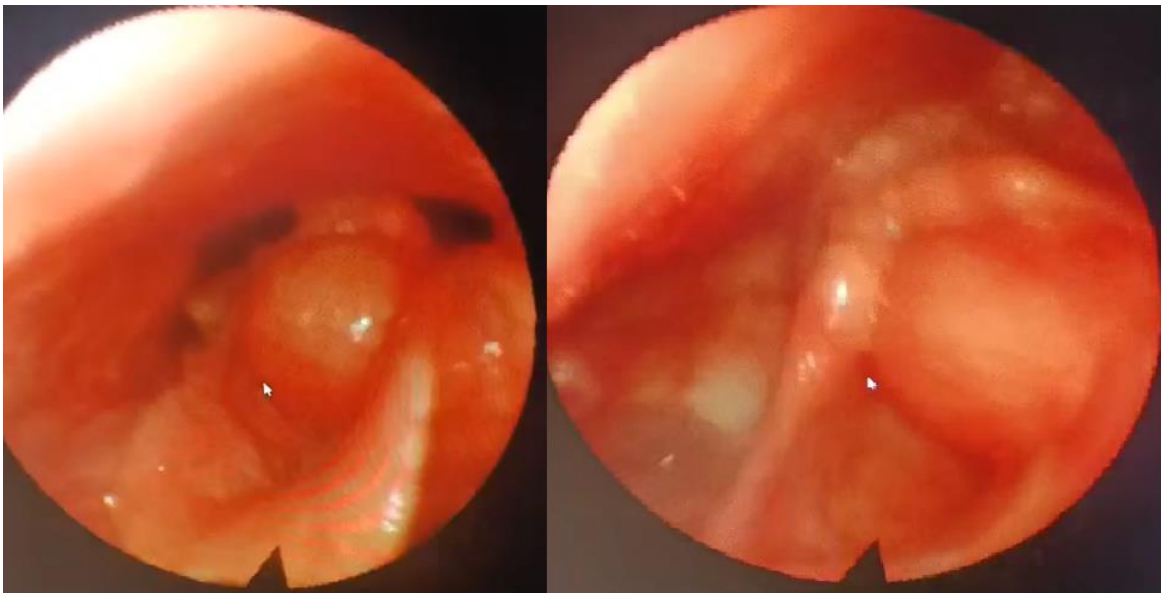

Image 4: Nasofibroscopy showing an internal laryngocele

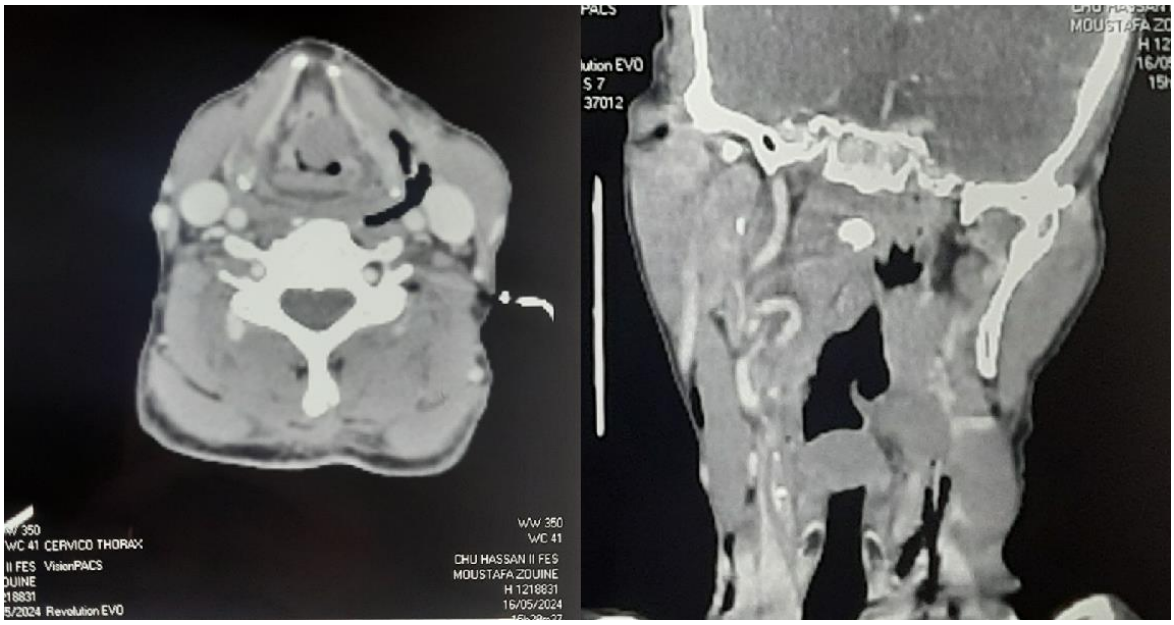

Image 5: Cervical CT showing a cystic dilatation on the left side of the larynx

Direct laryngoscopy confirmed the diagnosis. Endoscopic surgical management was performed, resulting in a favorable postoperative course and satisfactory restoration of respiratory function.

Case 3:

The third case involved a 50-year-old patient, with no notable medical history, who presented with progressive dysphonia associated with a painless anterior cervical swelling evolving over 18 months, secondarily complicated by inspiratory dyspnea and dysphagia for solids**.** Endoscopic examination revealed a bulging of the left ventricular band, reducing the laryngeal lumen.

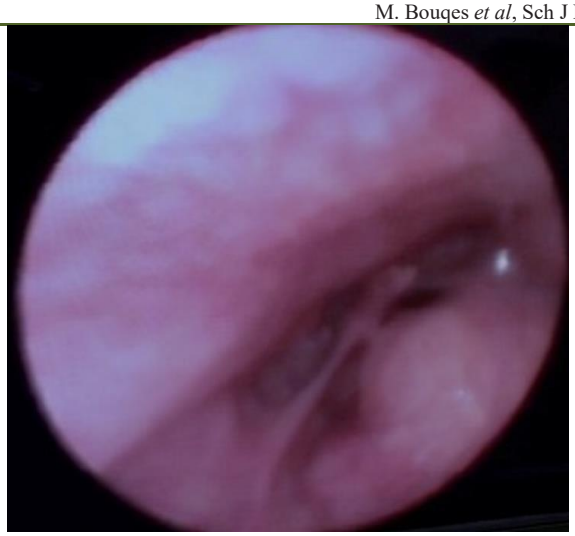

Image 6: Nasofibroscopy showing dilatation of the right ventricular band

Cervical CT revealed a cystic lesion with both intra- and extra-laryngeal components, communicating through the thyrohyoid membrane, consistent with a mixed laryngo-mucocele.

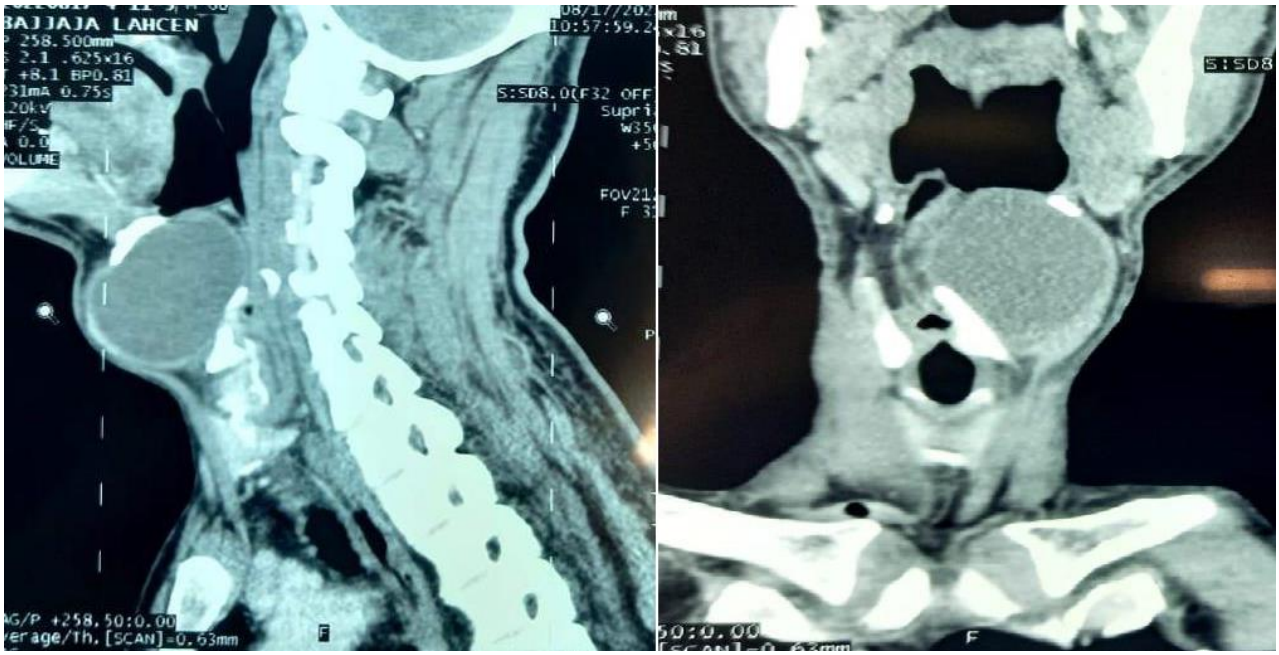

Image 7: Cervical CT showing an endolaryngeal and extra-laryngeal cystic mass

An external cervical surgical excision was performed, with an uneventful postoperative course and no recurrence at 12 months.

DISCUSSION

Pathophysiology

Internal laryngocele may result from chronic intralaryngeal pressure, commonly observed in glassblowers, singers, or wind instrument players. A congenital origin, related to a malformation of the laryngeal saccule [3], has also been described.

The presence of a communication with the glottic lumen determines the lesion's content:

- **Air** → laryngocele
- **Mucus** → if the neck is obstructed → laryngo-mucocele
- **Pus** → in case of superinfection → laryngo-pyocele [4]

Clinical Features

The clinical presentation is highly variable, ranging from mild symptoms such as dysphonia, foreign body sensation, or chronic cough, to acute laryngeal obstruction that may threaten life. Cases have also been reported following submandibular gland excision or tracheotomy [5 - 6].

The sudden onset of severe dyspnea should raise suspicion for this condition, particularly in patients with no known respiratory history.

External laryngocele: presents as a cervical swelling that increases during the Valsalva maneuver.

Mixed type: may be associated with sudden stridor due to external compression [7].

Role of Imaging

Cervical computed tomography (CT) is essential for diagnosis. It allows:

- characterization of the lesion (air or mucous content)
- assessment of its extension
- exclusion of associated pathologies, notably laryngeal squamous cell carcinoma, which has a known association with laryngoceles.

Imaging also guides the therapeutic strategy.

Therapeutic Management

Treatment is primarily surgical and depends on lesion size, location, and clinical context.

- **Small, accessible internal laryngoceles:** can be treated by endoscopic marsupialization, either direct or using CO_2 laser [8].
- **Large, external, or recurrent lesions:** may require complete excision via an external approach.
- **Combined lesions:** a combined surgical approach may be used [9 - 10].

Rigorous postoperative ENT follow-up is essential to detect potential recurrence or associated pathology.

CONCLUSION

Internal laryngocele is a rare but potentially serious condition due to its impact on respiration. Acute laryngeal dyspnea may be the presenting feature, requiring urgent management.

Diagnosis relies on targeted clinical examination and, importantly, cervical CT imaging.

Surgical treatment, tailored to each case, prevents life-threatening complications and restores satisfactory laryngeal function. Prolonged postoperative surveillance is recommended.

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