Short Communication

Laryngocele - A Case Report and Review of Literature

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Abstract This is case report of 35-year old male patient presented with hoarseness and swelling on left side of neck. The swelling was noticed by the patient for 8 months. It has been diagnosed clinically and radiologically as a combined laryngocele. The laryngocele has been successfully excised using and combined approach i.e., external and endoscopic methods. This case has been reported for its rarity at this age.

Keywords Laryngocele · lateral thyrotomy approach · MRI Neck

Introduction

Larry, a surgeon in Napoleon army, first described laryngocele in 1829. It was in Egypt that he first observed this type of goiter. It was observed mostly in blind individual who were employed by temple authorities to blow the trumpet for long hours. The blowing produced large air packets under the jaws.

Laryngocele is a very rare condition. Sometimes it presents as neck abscess or may be mistaken with any other cystic lesion in neck. Knowledge about it shall help the physician in making the correct diagnosis.

Case Report

A 35-year old male driver on occupation, known smoker presented to ENT OPD with complaints of hoarseness of voice and swelling over left side of neck for 8 months, insidious in onset and gradually progressive. Swelling increased in size on coughing and straining and decreased in size on compression. There is no history of chronic cough, straining at stools, stridor, fever or loss of weight, trauma, and difficulty in swallowing or breathing.

On clinical examination, a single swelling about 7x6cm present in front of left sternocleidomastoid at junction of anterior 1/3 and middle 1/3 and 3cm below angle of the mandible, not moving with deglutition or protrusion of the tongue, it increased in size on coughing and performing valsalva manoeuvre (Fig. 1). It is soft, cystic, non tender, fluctuation is positive, reducing in size with manual compression. IDL showed fullness in left vallecular region. DL confirmed the same. On U/S of neck, small sub cutaneous swelling is seen just inferior to submandibular gland on left side filled air and increased size on blowing. MRI of neck showed well defined bilobed air filled sac on left side of neck, 5.1 x 2.8cm in size (Fig. 2). The sac is seen to communicate with the larynx and is causing compression over infraglottic portion of larynx. Epiglottis is displaced to right side.

Operative procedure

Elective tracheostomy was done under local anesthesia and portex tube placed. General anesthesia is continued through

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Fig. 1 Laryngocele increasing in size during valsalva manoeuvre.

Fig. 2 MRI Neck showing mixed type laryngocele containing external and internal components.

portex tube. Collar incision placed over the swelling on left side of the neck. Subplatysmal flap elevated and dissection done till the external part of laryngocele is identified clearly. The laryngocele neck is found to be continuing in to larynx through thyrohyoid membrane. Using Macintosh laryngoscope internal part of laryngocele identified. Upper 1/3 of thyroid ala removed (lateral thyrotomy approach). This facilitated exposure and excision of internal part of laryngocele. Complete excision of laryngocele was confirmed endoscopically. The wound closed in layers and a corrugated rubber drain kept. Recovery was uneventful. Histopathological examination revealed pseudostratified columnar epithelial lining with fibrocollagenous tissue and numerous blood vessels. There was no evidence of neoplasia.

Discussion

Laryngocele is an abnormal dilatation or herniation of saccule that communicates with lumen of larynx and it is air filled lined by pseudo stratified columnar epithelium. If this

Fig. 3 Plain X- Ray showing laryngocele.

herniation of saccule extends to medial and superior to thyroid cartilage and pierces the thyrohyoid membrane at the entrance of superior laryngeal nerve and vessels, then it is called external laryngocele. If herniation of saccule does not pierce the membrane, it remains within larynx to form an internal laryngocele. If both are present then it is called combined laryngocele. A laryngocele may become infected and it is then called a laryngopyocele. Stell and Maran in a review of 139 cases showed that peak age incidence is in sixth decade and 2 out of 3 laryngoceles are unilateral and they may be combined, external or internal with roughly equal frequency. About 8% get infected and present as pyocele [1].

Etiology is unclear as there is no evidence to show that hobbies involving blowing or jobs such as trumpet playing or glass blowing cause laryngocele. Laryngocele in humans represent atavistic remnants of air sacs of lower animals. Blowing increases intralaryngeal pressure and brings otherwise symptomless laryngocele to manifest [1]. In another review of etiology it was suggested that local laryngeal pathologies are major factors in pathogenesis of disease [2]. Laryngeal cancer is sometimes associated with laryngocele. The pathogenesis of laryngoceles appears to be related to factors altering the mechanics of laryngeal ventricle to a chronically elevated intralaryngeal pressure. Ball valve effect appears to be a factor for saccular dilatation in some cases. In other instances the association between laryngocele and cancer is probably coincidental [3]. In literature, laryngocele associated with amyloidosis [4], ankylosing spondylitis are reported. It has been reported as an acquired condition, after excision of submandibular gland for chronic sialadenitis and salivary calculus [5] and tracheostomy [6].

The symptoms and signs depend upon type of laryngocele. It may be asymptomatic at onset and produce symptoms only as it enlarges. The internal laryngocele presents as hoarseness due to interference with vocal cords, dyspnoea due to encroachment on the laryngeal space, reflex cough and sensation of foreign body in throat due to irritation. Indirect and direct laryngoscope shows smooth swellings of supra glottis.

The external laryngocele gives few symptoms manifests primarily by objective signs. It presents as swelling in neck at level of hyoid bone anterior to sternocleidomastoid muscle. Swelling will increase during Valsalva maneuver & become smaller on palpation & pressure.

The mixed type produces both hoarseness & swelling. The pathogenic feature for mixed type laryngocele is sudden onset stridor; following compression of external compartment. This is due to passage of air from external to internal sac. It is dangerous complication because internal component of laryngocele suddenly becomes larger and may cause acute upper respiratory obstruction and lead to death. Mucopurulent material from laryngopyocele may spill into trachea and may cause death [7].

The diagnosis may be established by plain radiographs, but more accurate information is gained by CT or MRI scan. MRI scan helps defining the spatial relationship between laryngocele and laryngeal structures and extra laryngeal soft tissues, in differentiating laryngoceles from other cystic formation and identifying coexistent of laryngeal cancer. Main aim of surgery is excision of the sac as this would prevent enlargement and eventual obstruction of larynx due to extrinsic compression.

External laryngocele are removed by an external approach (transcervical) with or without tracheostomy. Access may be improved by performing lateral thyrotomy with excision of upper third of thyroid cartilage [8]. The base of laryngocele is ligated, if possible without entering the laryngeal lumen. Endoscopic assisted CO₂ laser excision is an alternative to external approach [9].

Simple endoscopic uncapping is done for internal laryngocele and saccular cysts. Other methods are endoscopic CO₂ laser vestibulectomy [10] and endoscopic microsurgical excision [11].

In combined cases combined approach using both endoscopic as well as external approach may be used at the same time. We believe that advances in the application of lasers in microlaryngeal surgery will alter the traditional management of all types of laryngoceles.

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