Laryngocele: A Case Report and Review of Literature
J Gulia, S Yadav, A Khaowas, S Basur, A Agrawal

INTRODUCTION

The laryngeal ventricle of Morgagni is normally a small elliptical recess located between the false cords above and true vocal cords below. The antero-superior aspect of this recess ends in a blind pouch, which is called the appendix of the ventricle of Morgagni or saccule. A laryngocele is an abnormal saccular dilatation of the appendix of the laryngeal ventricle of Morgagni. It forms an air sac lined with pseudo-stratified ciliated columnar epithelium, which maintains its communication with the ventricle by means of a narrow stalk.

Laryngocele are of three type’s namely internal, external and combined or mixed laryngocele according to their relationships with the thyrohyoid membrane. When the ventricular appendage increases in size, it extends medial and superior to the thyroid cartilage till it reaches the thyrohyoid membrane. If this dilated sac doesnot pierce the thyrohyoid membrane it remains within the larynx and results in internal laryngocele. When this sac pierces the thyrohyoid membrane and protrudes through the thyrohyoid membrane in to the neck it becomes an external laryngocele. A laryngocele, both medial and lateral to the thyrohyoid membrane, is called combined or mixed laryngocele.

Laryngocele is usually unilateral; however bilateral internal as well as bilateral external laryngocele has been reported.

A case of an external laryngocele is being presented.

CASE REPORT

A 40 year old male patient presented with three year history of swelling right side of the neck which has slowly increased in size. There was no history of hoarseness, dysphagia, sore throat or chronic cough. The patient was a smoker and laborer by profession. Past history was insignificant.

General physical examination of the patient was normal. Otorhinolaryngological examination revealed a non-tender soft and reducible swelling on right side in the upper one-third of neck which increased in size on Valsalva maneuver. Indirect laryngoscopic examination was normal. The patient was investigated and his haematological examination and X-ray chest were normal. X-ray soft tissues neck AP view and lateral view showed an air filled cavity on the right side of neck. Ultrasound of the neck also revealed similar findings. Computed tomography of the neck was done which showed air filled sac communicating with the larynx (Fig 1). A diagnosis of laryngocele was made.

Figure 1

Figure 1: Computed tomography neck showing a air filled sac communicating with the larynx
upper border of thyroid cartilage extending laterally up to 
the anterior border of the sternocleidomastoid muscle. Skin 
flaps including the platysma were elevated up to the hyoid 
bone superiorly and down to the lower border of the thyroid 
cartilage. The strap muscles were retracted laterally. The 
fundus of the sac was defined and with blunt dissection, the 
laryngocele was dissected up to its opening in the thyrohyoid 
membrane and after ligation at its neck the sac was removed. 
(Fig 2)

**Figure 2**

Figure 2: showing the dissected and exposed laryngocele 
before its excision.

Thyrotomy and entry into the laryngeal lumen was avoided 
and the wound was closed in layers with a negative suction 
 drain for 48 hours. Sutures were removed after 7 days and 
the patient was discharged in a stable condition. After follow 
up of 18 months the patient was symptom free.

**DISCUSSION**

Laryngoceles may be congenital or acquired and occur at 
any age. Laryngocele have been reported to be five to seven 
times more frequent in males, with a peak incidence in the 
sixth decade of life.\(^1\)\(^7\)\(^8\) The estimated incidence of 
laryngocele is 1 per 2.5 million people per year. Eighty-five 
percent of laryngocele have been found to be unilateral 
without any right or left side predominance.\(^2\)\(^3\)

The etiology of the laryngocele is unknown but certain pre-
disposing factors are associated with their development. 
Congenitally, the laryngeal saccule may represent atavistic 
remnants corresponding to the lateral laryngeal air sacs of 
the higher anthropoid apes.\(^9\) Increased intralaryngeal 
pressure may be brought about by many activities (like 
lifting defecating), involving a strain which requires fixing 
the diaphragm in forced expiration against closed larynx 
resulting in increased glottis and ventricular pressure. 
Increased intra-laryngeal pressure is also caused by activities 
requiring a modified valsala maneuver in which 
intrathoracic pressure is increased during expiration and is 
fixed against the lips. This mechanism causes increased 
ventricular pressure in wind instrument players \(^1\)\(^,\)\(^10\)\(^,\)\(^11\) .

There is a well documented association of laryngocele with 
laryngeal carcinoma and the reported incidence varies from 
one to ten percent. Supra-glottic carcinoma is the most 
common laryngeal carcinoma reported to be associated with 
laryngocele. It may result in a valve like closure at the neck 
of the ventricular appendage, which allows the entrance of 
air but prevents its exit. Hence a carcinoma must be ruled 
out if a laryngocele is detected clinically or 
radiologically.\(^1\)\(^-\)\(^3\)\(^,\)\(^12\)\(^-\)\(^14\) An association of laryngocele with other 
laryngeal disease has been reported including papillomatosis 
in children\(^15\) , amyloidosis\(^16\) , rheumatoid arthritis\(^17\) and 
oncocystic cysts\(^18\) .

Laryngoceles commonly present with dysphonia or a 
swelling in the neck which typically becomes more 
prominent during Valsalva maneuver. The other symptoms 
related to laryngoceles include cough, dyspnea, inspiratory 
stridor, dysphagia, and foreign body sensation in the 
throat\(^1\)\(^,\)\(^2\)\(^,\)\(^11\) .

Internal laryngocele presents with hoarseness of voice, 
dyspnea and sensation of foreign body. On indirect 
laryngoscopy a swelling/ fullness of false vocal cords and 
aryepiglottic fold region with normal overlying mucosa is 
seen. External laryngocele presents as a mass evident in the 
lateral aspect of the neck, which is round or ovoid, soft, 
elastic, moveable, painless and covered by a normal skin. It 
decreases in size by gentle palpation and pressure as the air 
escapes in the larynx. Mixed laryngocele produces the 
subjective symptoms of internal laryngocele and the 
objective signs of an external laryngocele. Almost 
pathogonomic of the mixed type of laryngocele is the rapid, 
sudden worsening of symptoms, especially dysponea 
following compression of the external component. The 
passage of air from the external to the internal part of the sac 
results in sudden enlargement of internal component of 
laryngocele and it may cause acute upper airway 
obstruction\(^1\)\(^,\)\(^2\)\(^,\)\(^6\)\(^,\)\(^10\)\(^,\)\(^11\) .

Laryngoceles rarely may even result in death of the patients. 
An external laryngocele can produce pressure and displace 
the larynx causing obstruction and death\(^19\) . An external 
laryngocele can cause sudden death by asphyxia from
spillage of muco-purulent material in to the trachea.  

The diagnosis of laryngocele is essentially a clinical. Plain X-rays soft tissue necks in anterior- posterior and lateral views are of value, especially if the Valsalva maneuver is performed. Ultrasound examination of neck is also useful. Computed tomography provides a cross-sectional image and superior contrast resolution and has replaced many conventional techniques and has become the initial radiographic method of evaluating the larynx and neck. It is the also useful investigation in cases with suspicion of concomitant laryngeal pathology. Uncomplicated laryngocele appear on CT as air filled structures lying in the para-laryngeal space (internal), lateral neck (external) or in both locations (mixed). Magnetic resonance imaging, because of its multiplaner capability provides high definition of soft tissues, offers detailed information on the boundaries of the air-filled sac and, is useful when laryngomucocoele or laryngopyocele are suspected. MRI is also helpful to distinguish obstructed mucus and inflammation from neoplastic disease.  

Differential diagnosis of laryngocele includes, saccular cyst, branchial cyst, neck abscess and lympho-adenopathy.  

Treatment of laryngocele is surgical. External surgery is preferred for large or external laryngocele, while endoscopic resection is favored for small, internal laryngocele. External approach provides an excellent exposure during the dissection of the plane between the neck of laryngocele and surrounding paraglottic tissue. Further this approach offers less recurrence rate, minimal morbidity, and negligible complications. Endoscopic resection with CO2 laser is the treatment of choice in patients with internal laryngocele. It requires lesser operation time and causes minimal damage to the endolarynx and vocal folds. The quality of voice and swallowing functions can be preserved.  

The mixed laryngocele can be completely removed via an external cervical approach, however a combined external and endoscopic laser approach to ensure complete removal of the mixed laryngocele has been advocated.  

References  
Author Information

Joginder Singh Gulia
Professor, Department of Otolaryngology, Pt. B.D Sharma University of Health Sciences

S P S Yadav
Senior Professor, Department of Otolaryngology, Pt. B.D Sharma University of Health Sciences

Ajoy Khaowas
Ex Resident, Department of Otolaryngology, Pt. B.D Sharma University of Health Sciences

Sukhdeep Kaur Basur
Postgraduate student, Department of Otolaryngology, Pt. B.D Sharma University of Health Sciences

Arpit Agrawal
Postgraduate student, Department of Otolaryngology, Pt. B.D Sharma University of Health Sciences