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Review Article

Laryngocele: a case report and review of 50 cases from literature

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ABSTRACT

Laryngocele is a benign dilatation of the laryngeal saccule with incidence of 1 in 2.5 million people per year. Known as a disease of trumpet blowers, laryngocoele mainly affects the older male population with occupational predisposition. We aimed to review a case of laryngocele in a 55-year-old merchant in terms of clinical presentation, radiographical features, other investigations and surgical management. The detailed description of the case of mixed laryngocele which was evaluated in the department of ENT, HIMS, Hassan will be given. Literature was reviewed for similar cases of this entity and was studied in terms of age, sex, location, treatment and outcome. Out of the 50 cases reviewed, majority were males with neck swelling being the most common clinical presentation. The 48 cases were treated surgically and most of the specimen displayed respiratory epithelium on histopathological examination. 8 specimens showed varied histopathological finding including 3 squamous cell carcinomas. One case recurred over a 6-month period follow up.

Keywords: Laryngocele, Malignancy, Hoarseness of voice, Head and neck surgery

INTRODUCTION

Laryngocele is a benign dilatation of laryngeal saccule.[1] Laryngeal saccule is a blind pouch that arises from the anterior roof of the laryngeal ventricle and ascends in the loose areolar tissue of the pre-epiglottic space posterior to the thyroid cartilage.[2] The connective tissue in this region is weaker than in other portions of the larynx and provides no significant barrier between the ventricle and surrounding structures. The saccule not only bears the function of lubrication of ipsilateral vocal cord but also increases resonance of vocalization.

A laryngocele is benign cystic dilatation of the laryngeal saccule that is associated with increased chronic trans glottic pressure as often seen in glass blowers and trumpet blowers. It makes up for 5% of all benign laryngeal pathologies.[3] The formation of a laryngocele can be congenital or acquired. It may be internal which are submucosal in nature and confined within the laryngeal cartilages, whereas external laryngoceles penetrate the thyrohyoid membrane to extend into lateral neck. Mixed laryngoceles have both internal and external portions. We report case of a 55-year-old merchant who presented with swelling in the right side of the neck.

LITERATURE REVIEW

Literature was reviewed for 50 cases mixed laryngocele and studied in terms of age, sex, treatment and outcome.

CASE

A 55-year-old male merchant presented with h/o hoarseness of voice in last 2 years along with swelling in right side of neck that gradually progressive in size. He also complained of mild difficulty in swallowing both solids and liquids. Patient is a chronic smoker with no other co morbidities/previous neck surgeries. On examination, a swelling of approximately 8×5 cm in right side of neck 1 cm below the angle of mandible extending downwards till level of thyroid cartilage seen. Swelling

non tender, non-fluctuant, non-pulsatile with no inflammatory changes over skin. Swelling increased in size on performing Valsalva manoeuvre with positive Bryce's sign.

Figure 1: Clinical appearance of right sided laryngocele.

Video laryngoscopy showed a smooth mucosal bulge seen in the right lateral pharyngeal wall and the right false vocal cord. Mass was seen extending till vallecula superiorly. Bilateral vocal cords not visualized. CECT neck revealed a mixed type of right sided laryngocoele with asymmetric thickening of right aeryepiglottic fold.

FNAC confirmed the CT findings. Surgical resection of the laryngocele was done through external cervical approach. Post-operative period was uneventful. Patient was discharged 13 days after the surgery in good health. Patient could swallow liquids and solids comfortably at the time of discharge. The histopathological examination confirmed the diagnosis to be laryngocele.

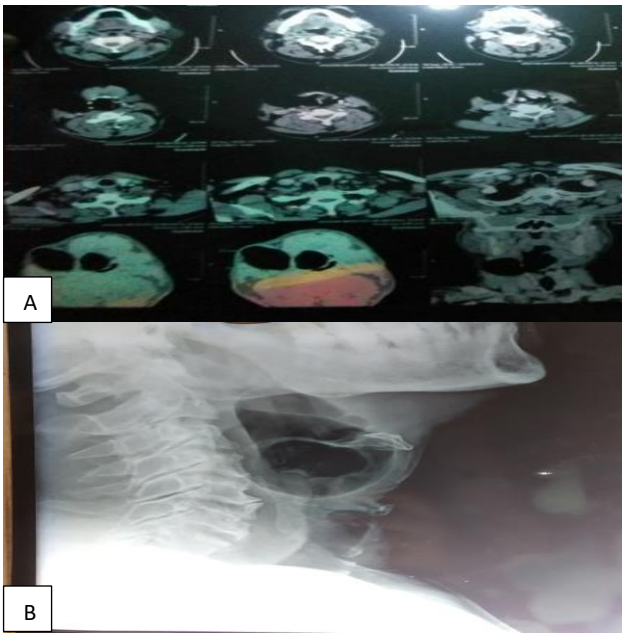

Figure 2 (A and B): CECT neck of mixed laryngocele with internal and external components(R). X-ray neck lateral view of air filled swelling in the right side of the neck (L).

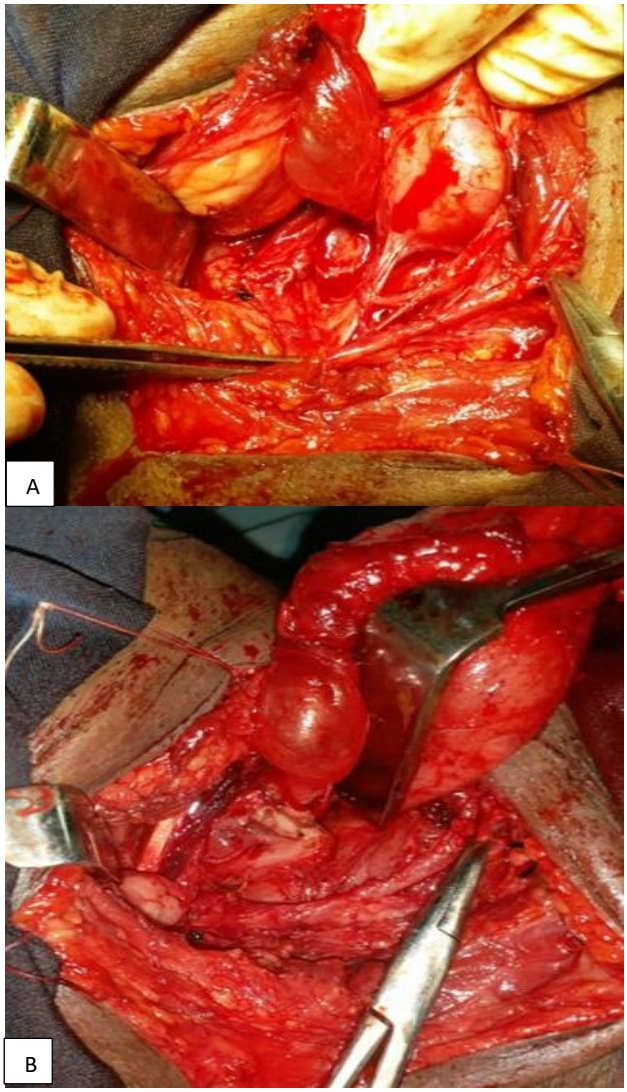

Figure 3 (A and B): Intra-operative findings show mixed laryngocele with external component breaching the thyrohyoid membrane.

Figure 3: Resected specimen.

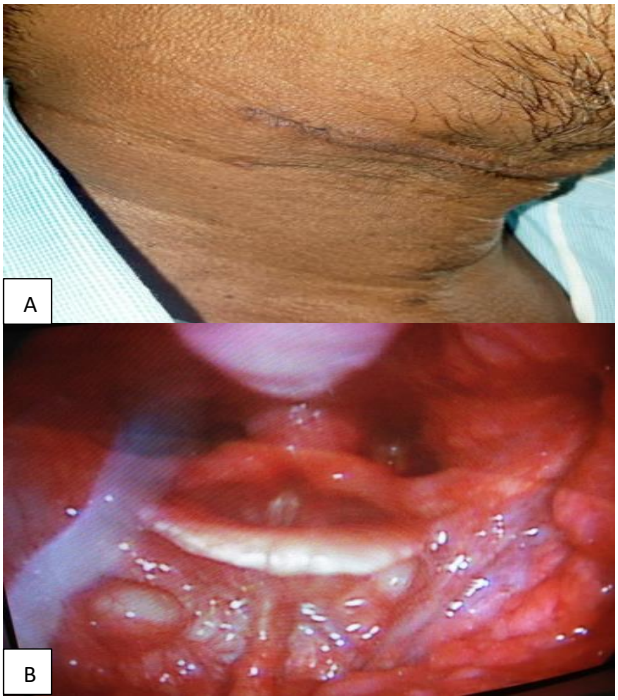

Figure 4 (A and B): Six months post-surgery.

Operative procedure

Tracheostomy was done under local anaesthesia and portex tracheostomy tube was placed. GA was given through the tube for further procedure. An incision was given in the right side of the neck along the upper skin crease and subplatysmal flap elevated. Dissection was continued till the external part of the laryngocele was clearly identified. The external laryngocele was found extending into the thyrohyoid membrane. By direct laryngoscopy, internal part of the laryngocele identified and exteriorized. Complete excision was confirmed endoscopically. Wound was closed in layers after placing a vacuum drain. Post-operative period was uneventful.

RESULTS

Out of the 50 cases reviewed, majority of the patients were males, falling between the age group 40 -80 years. Among them, 22 cases presented as neck swellings., 12 cases as change in voice and 11 cases as breathing difficulty. A few of them also had unusual presentations of odynophagia and otalgia. Our case had presented with both swelling in the lateral aspect of the neck with change in voice, which has not been that commonly documented in the literature. Most of the neck swelling were slow growing with a long history of duration. Out of 50 cases, 48 cases were treated surgically and two cases were treated conservatively. Post-surgery, the specimens were subjected to histopathological examination, out of which, 8 specimens had varied histopathological findings. Three cases were reported to be squamous cell carcinoma and one case of leiomyoma, rhabdomyosarcoma, laryngeal amyloidosis, chondroma and oncocytic cyst each. Out of the operated cases one case recurred over the 6 month follow up.

Table 1: Patient demographic characteristics.

N	Age (in years)			Sex		Presenting complaints				Varied HPE finding	Treatment		Recurrence
	<40	40-80	>80	M	F	Neck swelling	Change in voice	Breathing difficulty	Other		Surgery	Other	
50	15	33	2	39	11	22	12	11	5	8	48	2	1

DISCUSSION

A laryngocele in an abnormal cystic dilatation of the laryngeal saccule, which is a small mucosal pouch that lies between the vestibular fold of larynx and inner surface of the thyroid cartilage. It is thought to be an anatomical vestigial remnant within the ventricle of larynx.[4] Laryngoceles are usually unilateral and rarely bilateral. The contents can be air, mucous or if infected it may contain pus, aka laryngopyocele. Laryngoceles are classified into internal (within the larynx), external (outside the larynx) or mixed laryngoceles.

Even though certain activities like trumpet blowing and glass blowing has been thought to be the cause for laryngocele development, evidence for the same remains quite low. A small proportion of laryngocele has been found to coexist with laryngeal carcinomas. In a study, external laryngoceles have been found in 16% of the laryngectomy specimens with laryngeal carcinomas.[5] Other laryngeal pathologies like amyloidosis, sarcoidosis and SLE have been associated with laryngocele formation. The most common presentation in internal laryngocele is dysphonia whereas in external laryngocele, patient presents with swelling in the neck at the level of hyoid bone anterior to sternocleidomastoid muscle. Mixed laryngocele will have both swelling and change in voice. A dangerous and pathogenic feature of mixed laryngocele is the sudden onset stridor upon decompression of the external laryngocele due to passage of air from external to internal sac. In such cases, the internal component suddenly becomes larger and compresses the air way that may lead to sudden death.

Diagnosis can be made by plain radiographs but full physical examination including fibreoptic nasolaryngoscopy is essential to rule out any other co-existing laryngeal pathologies. Contrast enhanced CT scan of the neck is the investigation of choice.[6]

Laryngoceles if asymptomatic and not associated with any pathology may not require any intervention. Internal laryngocele can be mercurialized or excised with CO2

laser through transoral approach.[7] In a study conducted by Zelenik et al of 63 patients, Surgical procedures included the trans thyrohyoid membrane approach (an approach that does not involve resection of the thyroid cartilage) in 17/29 (58.6%) cases, thyrotomy with resection of the upper 1/3 of thyroid cartilage in four cases, and V-shaped thyrotomy in four cases. Micro laryngoscopic resection using a CO_2 laser was performed in three cases and endoscopic robotic surgery in one case.[8] External laryngocele can be approached via lateral surface of the larynx followed by resection the laryngocele.[9] The mucosal defect is then repaired. For larger lesions, a covering tracheostomy may be necessary.[10]

CONCLUSION

Laryngocele is a benign laryngeal pathology seen more commonly in males with peak incidence in 6th decade of life. There is a well-documented association between laryngeal carcinoma and laryngocele. The definitive treatment is surgical resection, with an external approach through the thyrohyoid membrane allowing the surgeon to spare the vocal cords from injury. An endoscopic approach with use of a CO_2 laser to marsupialize the lesion is only favourable for small internal laryngoceles. Post operative long term follows up becomes crucial in the presence of varied histopathological findings.

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