

Adult Benign Laryngeal Cyst Mimicking a Thyroglossal Duct Cyst

Najlaa Raihana Juhari¹, Mohd Zulkiflee Abu Bakar²,
Tengku Ezulia Tengku Nun Ahmad³

¹Otorhinolaryngology Head and Neck Surgery Master Trainee, Otorhinolaryngology Head and Neck Surgery Department of University Malaya Medical Centre, Jalan Universiti, 59100 Bangsar Kuala Lumpur Malaysia

²Consultant Otorhinolaryngology Head and Neck Surgery, Otorhinolaryngology Head and Neck Surgery Department of University Malaya Medical Centre, Jalan Universiti, 59100 Bangsar Kuala Lumpur Malaysia

³Medical Lecturer Otorhinolaryngology Head and Neck Surgery, Otorhinolaryngology Head and Neck Surgery Department of University Malaya Medical Centre, Jalan Universiti, 59100 Bangsar Kuala Lumpur Malaysia

Corresponding Author: Najlaa Raihana Juhari

ABSTRACT

Benign laryngeal cysts represent a rare group, generally about 5%, of benign laryngeal lesions. The clinical presentations of benign laryngeal cysts can vary from being asymptomatic to severe symptoms, such as rapid onset epiglottitis, dyspnea, stridor, and signs of respiratory obstruction depending on the location and extension of the cyst. We report a 68-year-old male patient presented to our clinic with a 6-month history of progressive anterior cystic neck swelling, which moved on swallowing. He was asymptomatic otherwise. Thyroid profile was normal and computed tomography (CT) neck contrasted revealed a mass at the posterior part of the hyoid bone insinuating into visceral space between the thyroid cartilage extending toward the anterior neck inferior and the thyroid cartilage mimicking a thyroglossal duct cyst. Sistrunk procedure was performed and histopathological examination revealed a benign laryngeal cyst. There were no post-operative complications and no evidence of malignancy. The patient was followed up after 10 months with no recurrence. This article's objective is to emphasize on the importance of considering few other possible differentials in the anterior neck cystic swelling in adults with no conclusive evidence during investigations as well as to discuss its management.

Keywords: Benign laryngeal cyst, adult thyroglossal duct cyst, thyroglossal duct cyst, cyst in larynx, adult anterior neck swelling

INTRODUCTION

Benign laryngeal cysts represent a rare group, about 5%, of benign laryngeal lesions.^[1] Cysts of the larynx may be filled with fluid or air and may be lined by different epithelia, each of which has a different name based on the anatomic site as well as the histological appearance. Benign cysts (saccular, ductal, oncocytic, tonsillar, and dermoid) are usually distinct from laryngocele, which is usually a clinical or radiographic finding. These lesions might be a result of repeated increase in intralaryngeal pressure, infection, trauma, or

in association with tumor.^[2] The prevalence of each location varies, which has been documented in different studies. Normally, a patient presents with anterior neck swelling, hoarseness, dysphagia, dyspnea, and laryngeal stridor in case of a benign laryngeal cyst.

A direct laryngoscopy is useful in determining the location, origin, and extension of a lesion. Radio-imaging, such as CT scan, generally reveals the cysts in larynx as a well-defined, fluid-attenuation, non-enhancing rounded lesion.

Different forms of treatment have been described for laryngeal cysts, such as aspiration, marsupialization with laser ablation and a complete excision. Recurrence is directly related to the maintenance of remnants of the cyst wall.^[3]

The clinical presentation of a thyroglossal duct cyst (TGDC) in children has been very well described; however, in adults, they may have a more insidious presentation and the differential diagnosis is wider, thus making the diagnosis of TGDC in adults more difficult.

Thyroglossal duct cysts typically occur before 20 years of age and a substantial minority of patients over 20 at the time of diagnosis.^[4] The mean age is 5 years (4 months–70 years). The occurrence in the elderly is rare, with only 28% occurrence rate in individuals over the age of 50 and 10% over the age of 60.^[5,6] Most patients present with a symptomless lump in the neck, which rises on swallowing and protrusion of tongue usually, around 1-3 cm in diameter in the midline below the hyoid bone. Differential diagnosis can be broad including dermoid cyst, branchial cyst, laryngeal cyst, pyramidal lobe hyperplasia, teratoma, hamartoma, lipoma, sebaceous cyst, cavernous hemangioma, lymph nodes, etc. Generally, the symptoms for patients with cysts of the neck are nonspecific and heavily overlap with one another, and, thus, the difficulty in reaching the correct diagnosis.^[7] Thyroglossal cyst, if not considered as a differential diagnosis in cystic neck swelling may result in an incomplete excision and recurrence.^[8]

There was a case where the thyroglossal duct mimicked a laryngeal mass,^[9] but there has been no reported study on benign laryngeal cyst presenting like a thyroglossal duct cyst. We, herein, present a case of a benign laryngeal cyst that mimics the presentation of a thyroglossal duct cyst in adults, which has not been reported so far.

CASE PRESENTATION

A 68-year-old gentleman presented to our ENT clinic with a complaint of 6 months history of slowly progressing, painless bilateral submandibular, and anterior midline cystic neck swelling. The patient is otherwise asymptomatic with no complaints of dysphagia, stridor, hoarseness, or dyspnea.

A physical examination revealed that there is an enlarged submandibular swelling of 4 cm in the largest diameter bilaterally, non-tender, and firm with no changes in skin color. The anterior midline neck swelling, on the other hand, was 3.5 cm in the largest diameter, soft, and cystic on palpation, non-tender, moved up with swallowing but not with tongue protrusion (Figure 1). There was no observed increase in the size of the anterior neck lesion on the patient performing Valsalva maneuver. Our fiberoptic endoscopic examination was unremarkable.



Figure 1: Prominent anterior neck swelling that moves with swallowing.

A CT scan was performed, which revealed a well-defined mildly enhancing mass at the posterior part of the hyoid bone insinuating into the visceral space between the thyroid cartilage extending toward the anterior neck inferior to the thyroid cartilage at level T1 vertebra. It measures approximately 2.9 cm (AP) x 1.6 cm (W) x 3.7 cm (H) (Figure 2 and 3).

A fine needle aspiration cytology (FNAC) was obtained that showed reactive lymphoid cells from the submandibular

lesion and cystic content from the anterior neck lesion.

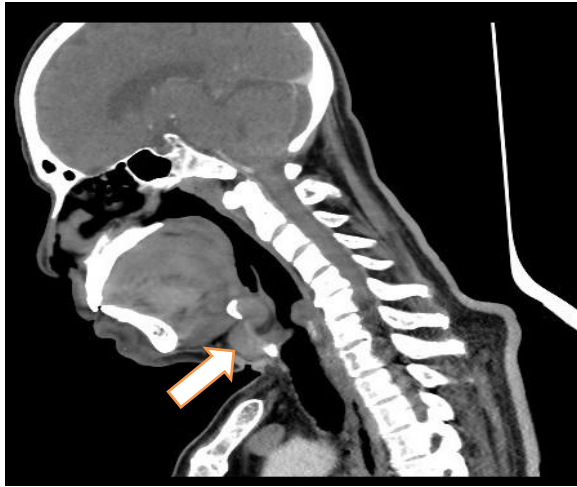


Figure 2: The Sagittal Post Contrast Computed Tomography (CT) scan of the patient showing the unique, inverted S-shaped appearance lesion arising from the posterior part of the hyoid bone insinuating into the visceral space between the thyroid cartilage extending toward the anterior neck inferior to the thyroid cartilage at level T1 vertebra. It measures approximately 2.9cm (AP) x 1.6cm (W) x 3.7cm (H).

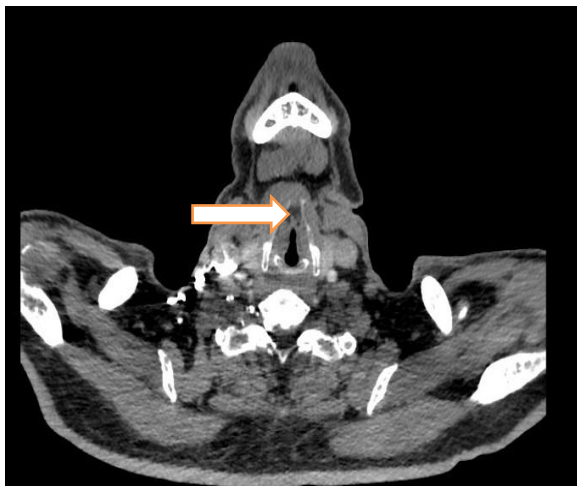


Figure 3: Axial Post Contrast Computed Tomography (CT) scan of the patient showing the lesion insinuating into the visceral space between the thyroid cartilage.

Based on the aforementioned clinical and radiological examinations, the patient was operated with a preoperative diagnosis of a thyroglossal duct cyst and submandibular gland tumor. We performed a selective neck dissection and the Sistrunk procedure.

During the surgery, an apron neck incision was made and the flap was raised in the subplatysmal plane. After raising the flap, the anterior neck mass was made visible by dissecting the bulging strap

muscles. It was found that the mass was located in the pre-epiglottic region, extending from superficial to deep space (Figure 4 and 5). It extended superiorly from posterior attachment of the hyoid bone, extending anteroinferiorly to the thyroid cartilage where it was firmly attached just below the laryngeal incisure of the thyroid cartilage, making a unique, inverted S-shaped appearance on the sagittal plane (Figure 2).

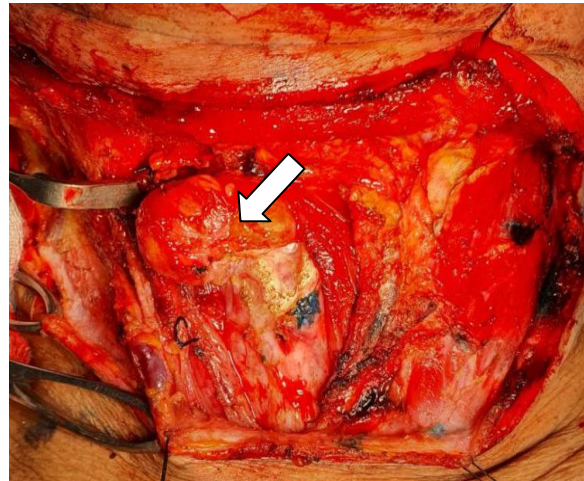


Figure 4: Intraoperative findings: The anterior neck mass located at the pre-epiglottic region, extending from superficial to deep space.



Figure 5: The gross appearance of the dissected anterior neck lesion with a part of the hyoid bone attached.

The cystic lesion was dissected from the surrounding tissues and fully excised together with the center of the hyoid bone about 2 cm. The cyst, during intraoperatively, was accidentally ruptured and revealed a thick mucopurulent inclusion. Tissues from the superior aspect

of the hyoid bone up to the foramen cecum were not removed, as it was not needed. The patient had an uneventful post-operative recovery and was discharged on day 7 after the removal of drains and skin sutures.

The histopathological assessment was obtained. Macroscopically, the cyst measured 3.5 x 1.2 x 1 cm in dimension, with a wall thickness of 0.4 cm. The cut section revealed a cyst with a smooth inner surface. No solid area, papillary structures and salivary gland structures were identified. Microscopically, the cystic lesion composed of a fibrovascular cyst wall lined by respiratory epithelium. No thyroid follicle or salivary acini and no evidence of malignancy were found. The pathological interpretation was consistent with a benign laryngeal cyst.

DISCUSSION

Laryngeal cysts may occur at any mucosa-lined location within the larynx and account for 5% to 10% of nonmalignant laryngeal lesions.^[1] In general, the symptoms for patients with laryngeal cysts are nonspecific and heavily overlap those of laryngocele. The most common laryngeal cysts are ductal cysts (75%), followed by saccular cysts (located between true and false cords). Tonsillar cysts show a predilection for the epiglottis, while ductal and oncocytic cysts predilect to the ventricular folds and the ventricle of Morgagni. Patients are usually older adults (50 to 60 years), with an equal gender distribution.² DeSanto studied 238 cases with laryngeal cystic lesions and mainly classified them into two types. The first type is laryngocele, which contains air in the cyst, and the second type is laryngeal cysts, which has mucus.^[10]

John Hilton first described laryngeal saccules, which are bilateral blind pouches that arise from the anterior roof of the laryngeal ventricle and ascend in the loose areolar tissue of the pre-epiglottic space between the thyroid cartilage and vestibular and aryepiglottic (AE) folds.^[11]

The gross appearance of laryngeal cysts is determined by the point of origin in the larynx and the type of cyst (saccular, ductal, oncocytic, and tonsillar). The cyst can be considered to be either external or internal to the larynx based on the degree of compression by the cyst and the extent of disease within the larynx.^[12] Laryngeal cysts generally do not communicate with the interior lumen in contrast to laryngocele; therefore, in this case, the patient did not develop any obstruction in the airway.

The thyroglossal duct tract starts from the foramen cecum, which is located at the base of tongue, and continues through the neck and lies anterior to the laryngeal cartilage. The duct passes anteriorly to the developing hyoid bone; however, as the bone continues to grow, it can continue to grow posteriorly, become anterior, or even grow to surround the duct. The duct is found very close to the medial line of the neck. The duct continues in the front of the thyrohyoid membrane, sternothyroid muscle, and sternohyoid muscle, before terminating in the inferior segment of the neck at the thyroid.^[13]

In view of the close proximity of the thyroglossal duct tract with larynx, it is difficult to ascertain the diagnosis preoperatively. The distinguishing features of this case, which point toward TGDC, are the facts that the neck lesion was located in the midline, moved up with deglutition in the vertical plane, cystic in nature, in close proximity to the hyoid bone, partially embedded within the strap musculature as it extends beyond the thyrohyoid membrane and did not involve the laryngeal ventricles.

Neck masses that typically move up with swallowing is always related to the origin of thyroid. However, the larynx moves up and down with swallowing while the thyroid gland is attached to the larynx by the ligament of berry. Therefore, to differentiate the origin using a deglutition test only is difficult in this case.

Although clinical history and examination may or may not suggest the diagnosis, imaging is critical to confirm the

clinical suspicion, accurately assess the complete anatomical extent of the lesion, and plan treatment.

Here, we performed a total excision of the mass. Our patient was followed for 10 months without complications and recurrence. In this case, even without definitive diagnosis on the basis of a CT scan and fine needle aspiration cytology, he did benefit from an external approach of the Sistrunk's, where the cyst can be completely excised. It was therefore essential to keep the thyroglossal duct cyst as a differential and proceed with an excision of the cyst along with the central part of body of the hyoid up to the base of the tongue.

CONCLUSION

This case is a rare case where an adult presenting as an extra laryngeal midline neck cystic swelling, which moved up with swallowing on presentation. The histopathology confirmed benign laryngeal cyst and patient did benefit from the Sistrunk's approach of complete excision.

Nevertheless, without conclusive evidence of a thyroglossal duct cyst on investigation, it is still wise to keep this as differential diagnosis and treat accordingly to ensure complete excision of the tract and reducing the incidence of recurrence.

In conclusion, although uncommon, laryngeal cysts should be considered in the differential diagnosis of the cases with cystic anterior neck swelling in adults. Furthermore, an indirect laryngoscope and a radiological imaging, such as CT scan and MRI scan, may help in the diagnosis and add to the current knowledge of differentiating features of cystic neck masses in adult.

Conflict of Interest

The authors declare no conflicts of interest.

Ethics Approval and Consent to Participate

Our institution's Research Ethics Board does not require a review or approval for case reports.

Consent for Publication

Informed consent for publication was obtained from the patient.

REFERENCES

1. Henderson LT, Denny III JC, Teichgraber J. Airway-obstructing epiglottic cyst. *Annals of Otolaryngology & Laryngology*. 1985 Sep; 94(5):473-6.
2. Lester DR. Thompson. *Laryngoceles: Head and Neck Pathology* (Second Edition), 2013; "<https://www.sciencedirect.com/topics/medicine-and-dentistry/laryngocele/pdf>"
3. Cahali RB, Zimbres SA, Tsuji DH, Cahali MB, Sennes LU. Cistos supraglóticos de laringe: aspectos etiológicos, clínicos e terapêuticos. *Revista Brasileira de Otorrinolaringologia*. 2002 Oct;68(5):663-6.
4. Mondin V, Ferlito A, Muzzi E, Silver CE, Fagan JJ, Devaney KO, Rinaldo A. Thyroglossal duct cyst: personal experience and literature review. *Auris Nasus Larynx*. 2008 Mar 1;35(1):11-25.
5. Baisakhiya N. Giant thyroglossal cyst in an elderly patient. *Indian Journal of Otolaryngology and Head & Neck Surgery*. 2011 Jul 1;63(1):27-8.
6. Katz AD, Hachigian M. Thyroglossal duct cysts: a thirty year experience with emphasis on occurrence in older patients. *The American Journal of Surgery*. 1988 Jun 1;155(6):741-3.
7. Stell and Maran's *Head and Neck Surgery*. 4th ed UK Butterworth Heinemann, 2000.
8. Brousseau VJ, Solare CA, Xu M, Krakovitz P, Koltai PJ. Thyroglossal duct cyst. Presentation and management in children versus adults. *Int J Paediatric Otorhinolaryngology* 2003; 67: 1285-90.
9. Slotnick D, Som PM, Giebfried J, Biller HF. Thyroglossal duct cysts that mimic laryngeal masses. *The Laryngoscope*. 1987 Jun;97(6):742-5.
10. Desanto LW, Devine KD, Weiland LH. Cysts of the larynx—classification. *The Laryngoscope*. 1970 Jan;80(1):145-76.

11. Porter PW, Vilensky JA. The laryngeal saccule: clinical significance. *Clinical Anatomy*. 2012 Jul;25(5):647-9.
 12. Lester D.R. Thompson. Non-neoplastic lesions of the larynx, hypopharynx, and trachea in *Head and Neck Pathology (Second Edition)*, 2013.
 13. Koeller KK, Alamo L, Adair CF, Smirniotopoulos JG. From the Archives of the AFIP: Congenital cystic masses of the neck: Radiologic-pathologic correlation. *Radiographics*. 1999 Jan;19(1):121-46.
- How to cite this article: Juhari NR, Bakar MZA, Tengku Ezulia Tengku Nun Ahmad. Adult benign laryngeal cyst mimicking a thyroglossal duct cyst. *Int J Health Sci Res*. 2020; 10(12):187-192.
