Biomedical and Biopharmaceutical Research
Abbreviation: Biomed. Biopharm. Res.
Volume: 22: Issue: 02 |Year: 2025
Page Number: 357-362

A Rare Case of Large Thyroglossal Duct Cyst in the Anterior Tongue: A Case Report

Chaitra N[1], Prashanth V[2], Dechu Muddaiah[3], S Puneeth Nayak[4], Vybhavi MK[5], Lavanya M[6]
[1,2,3,4,5,6]Department of ENT , BGS GLOBAL INSTITUTE OF MEDICAL SCIENCE, BENGALURU 560055

Corresponding Author

Chaitra N
Department of ENT , BGS GLOBAL INSTITUTE OF MEDICAL SCIENCE, BENGALURU 560055

Article Received:05-06-2025

Article Accepted:13-07-2025

Abstract

Thyroglossal duct cysts (TGDCs) are the most common congenital cervical anomalies, typically presenting as midline neck swellings closely associated with the hyoid bone. While their occurrence in the tongue is rare, anterior tongue involvement is exceedingly uncommon. We present a rare case of a large TGDC located in the anterior two-thirds of the tongue in a 10-year-old male, successfully managed by transoral surgical excision. This case highlights the importance of including TGDC in the differential diagnosis of midline tongue swellings in pediatric patients.

Keywords: Thyroglossal duct cyst, anterior tongue swelling, congenital cervical anomaly, transoral excision, pediatric case.

INTRODUCTION

Thyroglossal duct cysts (TGDCs) are developmental anomalies resulting from the failure of involution of the thyroglossal duct, which is an epithelial tract formed during the descent of the thyroid gland from the foramen cecum at the base of the tongue to its final pretracheal position in the neck. They represent the most frequent congenital midline cervical lesions in children, accounting for approximately 70% of congenital neck masses [1]. TGDCs most commonly present below the hyoid bone but can be found anywhere along the embryological descent tract of the thyroid gland.

Lingual TGDCs are rare [3], comprising less than 3% of all thyroglossal duct cysts. Most of these occur near the base of the tongue, posteriorly near the foramen cecum. TGDCs arising from the anterior tongue, as described in our case, are extremely rare and may present diagnostic and therapeutic challenges. This report documents a rare case of a large anterior tongue TGDC, emphasizing its clinical presentation, radiological features, surgical management, and histopathological findings.

CASE REPORT

A 10-year-old child presented to the ENT outpatient department with a long-standing history of swelling in the tongue few months after birth. The swelling even though visible was neglected by the parents thinking it to be minor problem. The swelling had gradually increased in size, and the patient had developed progressive difficulty in chewing, swallowing (dysphagia), and articulating speech. Once the swallowing was significantly disturbed and there was continuous drooling of saliva patient's caretakers seeked medical advice and was referred to our tertiary care hospital for further management.

Clinical Examination

On examination, a diffuse, soft swelling measuring approximately 5×5 cm was observed, occupying the entire anterior two-thirds of the tongue and extending posteriorly pushing the tongue base. The overlying mucosa appeared normal. There was no external neck swelling or sinus tract. Dental malocclusion and mandibular deformity were evident (protrution of the alveolus), likely due to chronic pressure from the progressive swelling.

There was no palpable lymphadenopathy. Systemic examination was unremarkable. Provisional differential diagnoses included Ranula, Dermoid cyst, Epidermoid cyst, and Lingual thyroid. Given the midline location and chronicity, a TGDC was also considered as a possibility.

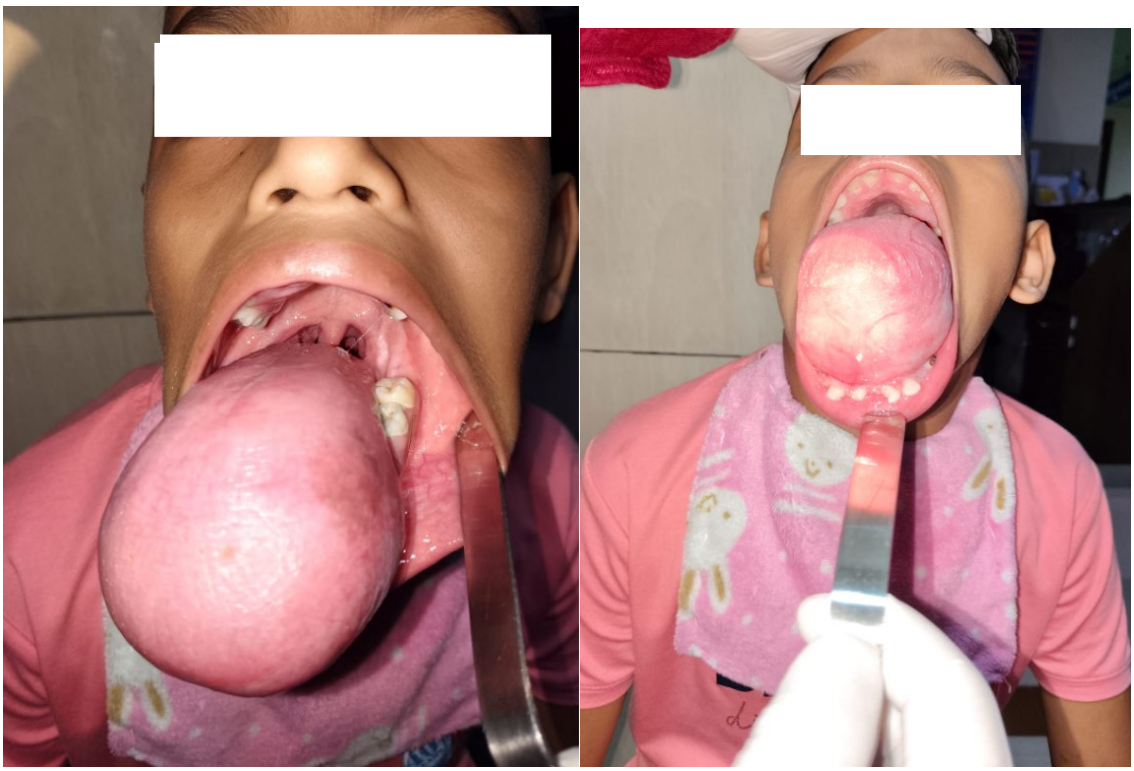
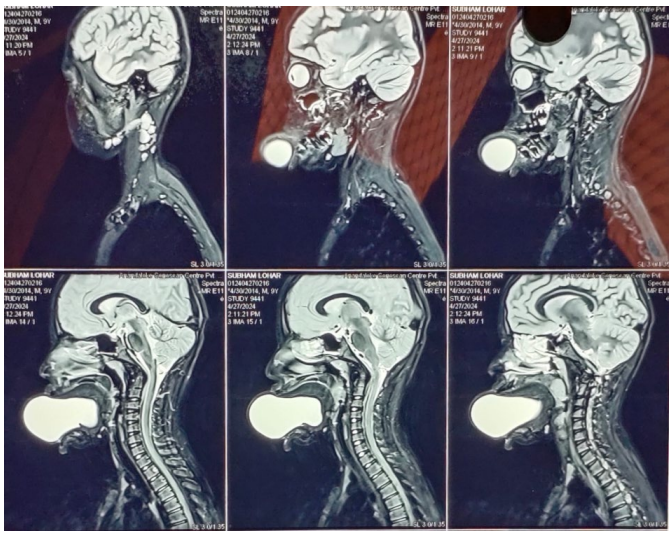


Fig 1 and 2 : Pre op photo showing the size and the extent of the cyst.

Magnetic resonance imaging (MRI) of the face and neck revealed a large, well-defined, oval-shaped, homogeneously hyperintense lesion in T2-weighted sequences, suggestive of high protein/fat content. The lesion was located in the midline sublingual space and extended from the level of the tongue base to the anterior two-thirds of the tongue, displacing the geniohyoid muscles laterally and the alveolar processes superiorly. There was no communication with surrounding tissues or evidence of infection.

These imaging findings were consistent with a congenital cystic lesion, most likely a TGDC, although a Ranula could not be definitively excluded.



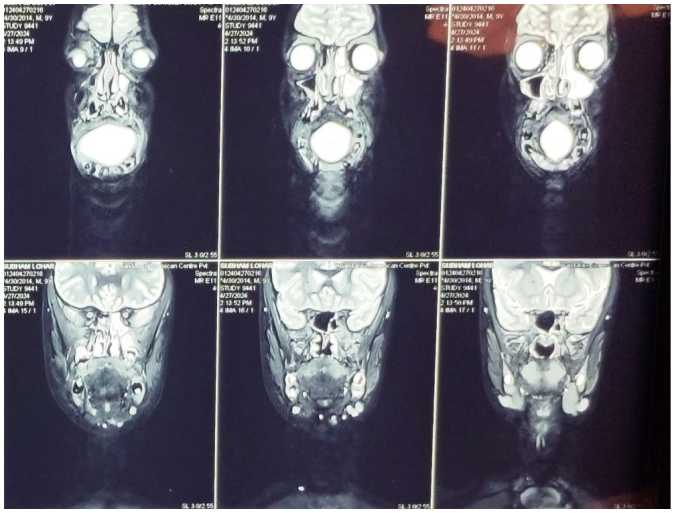


Fig 3 and 4: Contrast enhanced MRI showing extent of the cyst

Surgical Management

The patient was taken up for elective surgical excision under general anesthesia. Nasotracheal intubation was done. A transoral approach was chosen due to the intraoral location of the lesion. After adequate exposure, both sides lateral margin of tongue mucosal incision was made over the anterior tongue. Superior and inferior tongue flap was dissected and elevated dissecting over the cyst wall with careful preservation of the lingual artery, lingual vein and branches of the hypoglossal nerve. The cyst was extending upto the base tongue and uptill the hyoid bone with possible epicenter at the foramen caecum. The cyst was carefully dissected and excised in toto. The cyst was well-encapsulated, and care was taken to avoid rupture or injury to surrounding musculature. Hemostasis was achieved, romovac drain was kept and the mucosa was sutured primarily.

The excised specimen measured 5.5 cm in maximum dimension and was sent for histopathological examination.

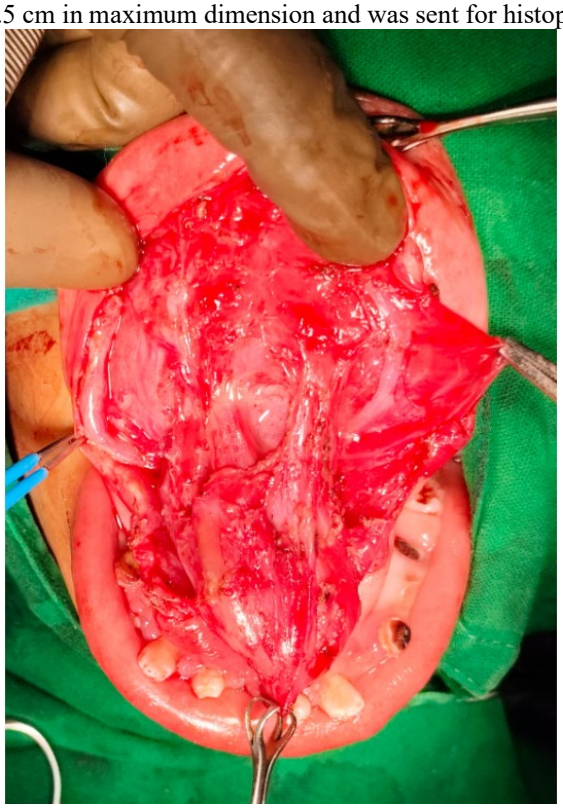


Fig 5: Intra op photo showing the preservation of lingual vessels and hypoglossal nerves

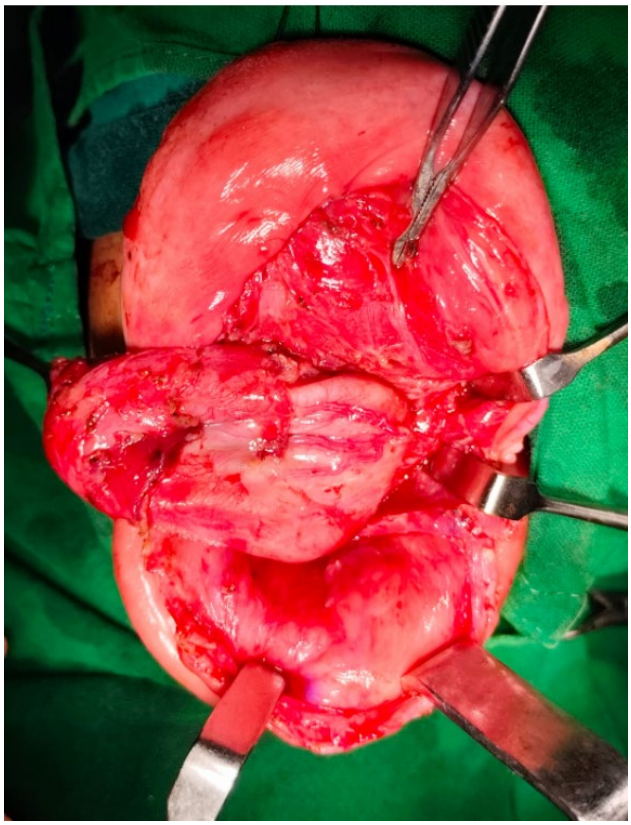


Fig 6 : Photo showing the extent of the cyst till the BOT and hyoid.

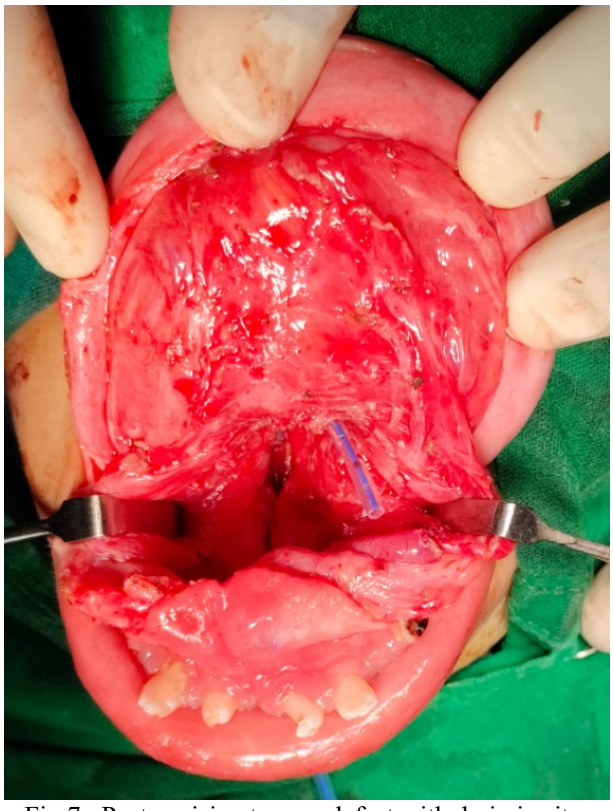


Fig 7 : Post excision tongue defect with drain in situ.

Histopathology

Histopathological analysis confirmed the diagnosis of a benign thyroglossal duct cyst. The cyst wall was lined by pseudostratified columnar epithelium with areas of squamous metaplasia. No evidence of dysplasia or malignancy was found. Thyroid tissue was not identified in the cyst wall.

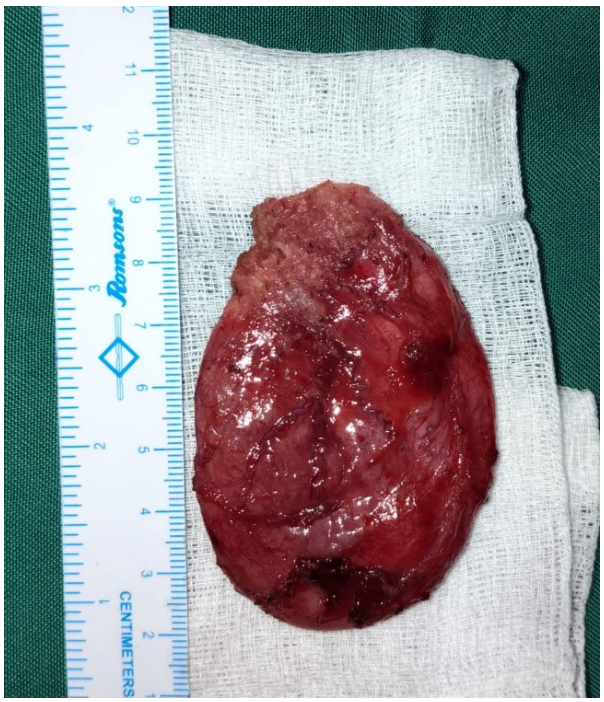


Fig 8 : Excised cyst in toto.

Postoperative Course

The patient had an uneventful postoperative recovery. Oral feeds were resumed gradually over the next few days. Tongue movements were normal postoperatively. At 3 months follow-up, the patient reported significant improvement in speech and swallowing. The tongue appeared normal in contour with complete resolution of the swelling. Dental assessment was recommended for correction of malocclusion and protrusion. There were no signs of recurrence.

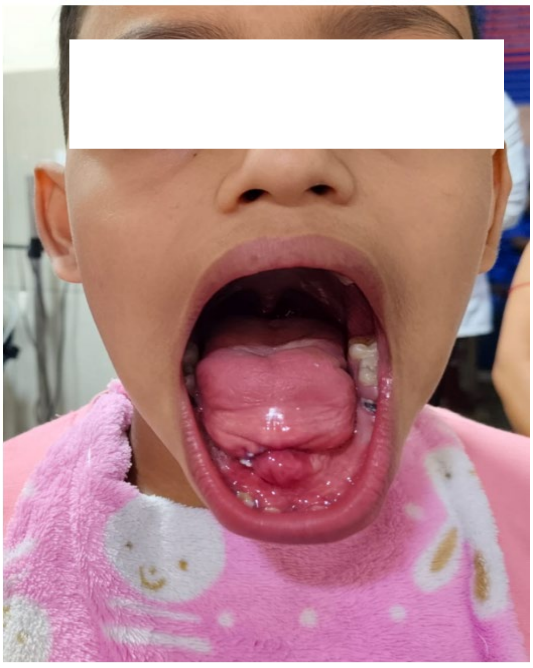


Fig 9 : Post op 2 weeks healed wound.

DISCUSSION

Thyroglossal duct anomalies originate from incomplete involution of the thyroglossal tract, which typically obliterates by the 10th week of gestation. Residual epithelial tissue can give rise to cysts, tracts, or fistulas. While most TGDCs are located in the midline neck between the hyoid bone and thyroid cartilage, a small percentage are found in the tongue.

Lingual TGDCs are rare [3], and those presenting in the anterior tongue are even rarer. To our knowledge, very few cases have been documented in the literature. The rarity of this location can delay diagnosis and treatment.

The classical presentation of TGDC is a painless midline neck swelling that moves with tongue protrusion or deglutition. In lingual TGDCs, symptoms such as dysphagia, dysarthria, airway obstruction, or feeding difficulties may be seen depending on the size and location of the cyst.

MRI is the imaging modality of choice [2] due to its superior soft tissue contrast and ability to delineate the lesion's extent. T2 hyperintensity and non-enhancing cystic characteristics are typical of TGDC.

The standard treatment is complete surgical excision. In cases with neck involvement, the Sistrunk procedure [1] (removal of the cyst, tract, and midportion of the hyoid bone) is recommended to reduce recurrence. However, for purely intraoral tongue lesions, a transoral approach is effective and avoids external scarring. Critical nerves and vessels encountered during the cyst dissection has to be carefully preserved and removal of the entire cyst and tract will ensure no recurrence

Histopathologically, TGDCs may be lined by various epithelia [4] including pseudostratified columnar, cuboidal, or squamous. Ectopic thyroid tissue may occasionally be present.

Our case is notable for the unusually large size and rare anterior tongue location. Surgical excision via a transoral approach resulted in complete resolution with excellent cosmetic and functional outcomes.

CONCLUSION

Thyroglossal duct cysts, though common in the midline neck, can rarely present in the tongue. Lingual TGDCs should be considered in the differential diagnosis of midline tongue swellings in pediatric patients, especially when associated with speech or swallowing difficulties. MRI is the preferred imaging modality for diagnosis. Complete surgical excision remains the mainstay of treatment, and the transoral approach offers excellent outcomes for intraoral lesions. This case emphasizes the importance of early recognition and appropriate surgical management of atypical TGDCs.

REFERENCES

1. Watkinson JC, Clarke RW. Scott-Brown's Otorhinolaryngology: Head and Neck Surgery. 8th ed. CRC Press; 2018.
2. Taha A, Emadeldin B, Frey DM, Taha-Mehltretter S. Thyroglossal Duct Cyst: A Case Report and Literature Review. Case Rep Otolaryngol. 2022;2022:Article ID 8463721.
3. Mondin V, Ferlito A, Muzzi E, et al. Thyroglossal duct cyst: personal experience and literature review. Auris Nasus Larynx. 2008;35(1):11-25.
4. Allard RH. The thyroglossal cyst. Head Neck Surg 1982;5(2):134e46. Available at: http://www.ncbi.nlm.nih.gov/pubmed/7169333.
5. Mukul S., Kumar A., Mokhtar E. Sublingual thyroglossal duct cyst (SLTGDC): An unusual location. J. Pediatric Surg. Case. 2016;10:3–6. doi: 10.1016/j.epsc.2016.04.010
6. Gupta P, Maddalozzo J. Preoperative sonography in presumed thyroglossal duct cysts. Arch Otolaryngol Head Neck Surg 2001;127(2):200e2. http://dx. doi.org/10.1001/archotol.127.2.200
7. Lindstrom DR, Conley SF, Arvedson JC, Beecher RB, Carr MH. Anterior lingual thyroglossal cyst: antenatal diagnosis, management, and long-term outcome. Int J Pediatr Otorhinolaryngol 2003;67(9):1031e4. Available at: http://www. ncbi.nlm.nih.gov/pubmed/12907063.
8. Brewis C, Mahadevan M, Bailey CM, Drake DP. Investigation and treatment of thyroglossal cysts in children. J R Soc Med 2000;93(1):18e21. Available at: http://www.ncbi.nlm.nih.gov/pubmed/10700841.
9. Pounds LA. Neck masses of congenital origin. Pediatr Clin North Am 1981; 28(4):841e4. Available at: http://www.ncbi.nlm.nih.gov/pubmed/7312455.