

Delayed Diagnosis of a Congenital Neck Mass: Thyroglossal Duct Cyst in the Elderly

Marwan Khaled Shueai Al-hazzar¹, Ahmet Aksoy¹, Burak Avşar¹

¹ Sivas Cumhuriyet University, Faculty of Medicine, Department of Surgical Medical Sciences, Department of Otolaryngology, Sivas, Türkiye

Corresponding author: Marwan Khaled

Shueai Al-hazzar

Address: Sivas Cumhuriyet University,
Faculty of Medicine, Department of
Surgical Medical Sciences, Department of
Otolaryngology, Sivas, Türkiye

Tel: 05521712033

E-mail: marwan220356@gmail.com

Key Words: Thyroglossal Duct Cyst,
Sistrunk, Congenital neck mass, Vallecular
cyst, Prostate adenocarcinoma.

Application Date: 2025-03-04

Acceptance Date: 2025-06-11

ORCID IDs of the authors:

Marwan Khaled Shueai Al-hazzar: 0009-
0002-6940-8103

Ahmet Aksoy: 0000-0002-7744-8124

Burak Avşar: 0009-0006-3173-6768

Abstract

Thyroglossal duct cysts (TGDCs) are congenital neck anomalies commonly seen in children and young adults, with rare occurrence in individuals over 60, accounting for only 0.6% of cases. This report describes a 69-year-old male presenting with a submental mass, later diagnosed as TGDC alongside prostate carcinoma. A neck CT and MRI revealed a well-defined cystic lesion anterior to the hyoid, suggesting a congenital origin. The patient underwent a Sistrunk procedure involving excision of the cyst, duct, and part of the hyoid bone. At six months postoperatively, no recurrence or complications were observed. This case highlights the rare late-life presentation of TGDCs, which may mimic other pathologies on imaging. Accurate diagnosis and management underline the role of imaging and histopathology in confirming the diagnosis. While no metastasis was detected here, malignancy should be considered in patients with a history of cancer.

Keywords: Thyroglossal duct cyst; Sistrunk; Congenital neck mass; Vallecular cyst; Prostate adenocarcinoma.

Introduction

Thyroglossal duct cysts (TGDCs) are common pathologies that present as congenital midline neck masses. Outpatient settings report an incidence of 0.02%, which increases to 0.94% in cases requiring surgical intervention. ⁽¹⁾ TGDCs occur in pediatric and adult populations, demonstrating a bimodal age distribution with no significant difference in incidence between genders. ⁽²⁾ They typically present in childhood but rarely affect elderly patients. ⁽³⁾ Researchers have reported only a few cases in patients over seventy. ⁽⁴⁾ Papillary thyroid carcinoma occurs in approximately 4.3–4.4% of TGDCs, similar to thyroid nodules. ⁽⁵⁾ Surgeons treat TGDCs using the Sistrunk procedure, which involves removing the cyst, the tract, and the central part of the hyoid bone. This approach remains the gold standard, with recurrence rates ranging from 4.5% to 7.69%. ^(1,6) The presence of microscopic thyroglossal duct tissue above the hyoid bone increases the risk of recurrence. ⁽⁷⁾ Misdiagnosis and inadequate surgical techniques also contribute significantly to recurrence. ⁽⁸⁾ Adults are more likely than children to experience symptoms such as pain, dysphagia, or dysphonia, apart from a mass or infection. ⁽²⁾ Elderly patients may present with significant, sometimes massive, swellings that interfere with daily activities. ⁽³⁾ The risk of malignant transformation appears higher in elderly patients, underscoring the need for early and definitive excision. ⁽⁹⁾ Physicians should not exclude a TGDC diagnosis based on age or size and should follow standard management guidelines. ⁽³⁾ Careful evaluation and surgical intervention ensure appropriate treatment for TGDCs in older patients. We identified a thyroglossal duct cyst in our 69-year-old patient with prostate carcinoma after excising a submental mass that had developed over three months. We evaluated the diagnostic and treatment approaches for congenital neck masses in older patients based on the literature.

Case Presentation

A 69-year-old male patient visited our otolaryngology clinic with a swelling in the submental region, first noticed three months prior and gradually increasing in size. He had also been diagnosed with prostate adenocarcinoma. We obtained oral and written consent from the patient and his relatives to present his data in scientific studies without personal identification. Oncologists had not yet established a treatment plan. During the otolaryngological examination, we observed a 4x3 cm firm, mobile mass in the submental region that moved with swallowing. Laryngeal examination revealed cystic structures in the vallecular region, with regular vocal cord movements. Ultrasound examination identified a 3.5x3 mm well-defined, hypoechoic nodule in the right thyroid lobe. The thyroid gland's other parenchymal structure, echo pattern, and Doppler vascular activity appeared normal. In the submental area, ultrasound revealed a 5x4 cm hypoechoic lymph node with a markedly thinned fat hilus (suggesting lymphadenopathy). Neck CT scans showed a 12.5 mm well-defined lesion with coarse calcification posterior to the left vallecula epiglottica and two 9.5 mm cystic lesions near the midline (vallecular cyst?). CT imaging also revealed a 52x40x40 mm cystic lesion with well-defined thick walls anterior to the hyoid bone and near the submandibular gland ([Figure 1a](#) and [Figure 1b](#)). The differential diagnosis primarily suggested a dermoid cyst, with lower probabilities of the epidermoid cyst, necrotic lymphadenopathy, and abscess.

MRI identified a 43x40x50 mm smooth lobulated, expansile, axial and coronal sequences T1A mildly hyperintense, and T2A hyperintense lesion on the mouth floor ([Figure 2A-B](#) and [Figure 3A-B](#)). Diffusion-weighted imaging revealed no pathologic diffusion restriction. Post-contrast T1A series showed prominent peripheral capsular contrast enhancement. MRI findings suggested a dermoid cyst and indicated other benign cystic lesions as possibilities. The imaging also showed three cystic lesions measuring 1 cm in the vallecula localization ([Figure 3C](#)).

We operated on the patient under general anesthesia to address the neck mass and vallecular cystic formations. Direct laryngoscopy facilitated the excision of the vallecular cysts. During the surgery for the neck mass, we observed that the cyst extended to and fused with the hyoid bone. We performed the Sistrunk procedure by excising the cystic mass and tracing the hyoid bone corpus to the tongue base. Additionally, we excised a 1.3x0.9x0.5 cm-sized lymphadenopathy near the hyoid bone and a 1.5x1x0.8 cm-sized lesion, a separate soft tissue lesion adjacent to the cystic mass containing gelatinous fluid, thus completing the procedure. Pathologists reported histopathologic findings as lymphoepithelial cyst, TGDC, reactive lymph node, and mucocoele. After six months of follow-up, we observed no recurrence or complications. Related specialties are monitoring the patient due to prostate carcinoma.

Discussion

Thyroglossal duct cysts (TGDC) are common congenital developmental midline neck masses typically present in childhood or young adulthood. ^(3,10) However, cases are rarely reported in elderly patients, with only 0.6% occurring in individuals over 60. TGDC results from abnormal thyroid gland embryologic development. The thyroid gland descends from the foramen caecum at the tongue root to its normal anatomic position. Due to incomplete thyroglossal duct degeneration, TGDCs appear as cysts, ducts, or ectopic tissue near the hyoid bone. ⁽¹⁰⁾

While the malignant transformation of TGDCs is rare occurring in approximately 0.7% to 1% of cases ⁽¹¹⁾ this risk appears to be elevated in elderly patients. ⁽¹²⁾ Several case reports have described papillary thyroid carcinoma arising within TGDCs in patients over 60, often diagnosed only after surgical excision. ^(11,12) Although FNA is frequently used to assess malignancy risk, its diagnostic yield is highly variable. Thompson et al. reported that 85% of FNA samples in TGDCs were non-diagnostic ⁽¹³⁾, whereas Wong et al. found only 8% non-diagnostic samples, likely due to consistent use of ultrasound guidance. ⁽¹⁴⁾ Therefore, even when FNA findings are benign, surgical excision via the Sistrunk procedure remains essential for both therapeutic and diagnostic purposes, particularly in elderly patients or those with a history of malignancy. ^(11,12) This approach reduces recurrence risk and enables early detection of potential carcinoma.

In elderly patients, a TGDC diagnosis poses challenges due to its rarity and potential for malignant transformation. Clinicians base the diagnostic process on clinical examination, imaging techniques, and histopathologic evaluation. ⁽⁹⁾ During physical examination, clinicians assess the movement of the mass during swallowing and tongue protrusion as cardinal findings. Ultrasonography accurately determines thyroid tissue presence, anatomical location, and malignancy-related findings. Scintigraphy is unnecessary if ultrasound accurately detects thyroid tissue's standard parenchymal structure and localization. Supportive tests such as neck CT, MRI, thyroid scintigraphy, thyroid function tests, and fine needle aspiration biopsy can aid in diagnosis. Experts disagree on prioritizing specific preoperative investigations. ⁽¹⁵⁾

While the Sistrunk procedure remains the standard of treatment for TGDC due to its low recurrence rate, simple excision is associated with recurrence rates as high as 45-55%. Alternative strategies such as conservative observation, FNA, or drainage can be considered in selected older patients or those unfit for surgery. Still, these approaches have limitations, including the risk of recurrence and missed malignancy. ⁽¹¹⁾

TGDC may present as giant neck masses in older patients and often require extensive imaging and cytologic evaluation to exclude malignancy. ⁽¹⁶⁾ Fine needle aspiration (FNA) helps detect malignancy, as thyroid carcinoma can occur in TGDC cases. ⁽¹⁷⁾ The Sistrunk surgical procedure, which excises the cyst, tract, and middle hyoid bone portion, remains the most

effective treatment technique with the lowest recurrence rate. ⁽³⁾ Clinicians should individualize treatment management based on anatomical location. Surgeons should consider TGDC in elderly patients with neck masses, as early definitive removal minimizes malignancy risk. ⁽⁹⁾

Filho et al. excised a TGDC in an 83-year-old female patient through enucleation without hyoid bone removal, reporting no recurrence after two years. ⁽¹⁰⁾ El-Ayman et al. performed the classical Sistrunk operation on an 85-year-old male patient with a TGDC that had grown slowly over 60 years, also reporting no recurrence. ⁽³⁾

This case supports the findings of Assaf et al. that TGDCs may remain asymptomatic into advanced age and mimic neoplastic processes in elderly patients. ⁽¹¹⁾ In contrast to the atypical lateral presentation in their report, the mobile midline mass in our patient allowed for earlier suspicion. We did not perform FNA cytology before excision of the mass because the patient's mass was in the midline, and the histopathology result would take time. It would not be decisive for a definitive diagnosis, and even if it were suspicious, it would not end the excision procedure. We did not perform needle aspiration because the imaging results ruled out malignancy.

The omission of FNA in our case, compared with its non-diagnostic outcome in theirs, highlights the limited utility of cytology in elderly patients with potential malignancy. Successful management with the Sistrunk procedure in both cases supports its role as the standard of care, and this case adds to the scant literature on TGDC in patients over 65 years of age, highlighting its importance in the differential diagnosis of neck masses in older adults. Considering our patient's prostate malignancy and the absence of cytologic sampling, we decided that the classical Sistrunk procedure was appropriate. During the six months of follow-up, we observed no recurrence or complications.

Conclusion:

Although rare in older patients, thyroglossal duct cysts should be included in the differential diagnosis of midline neck masses in all age groups. Diagnosis of these cysts involves clinical assessment, imaging, and histopathological confirmation. The Sistrunk procedure is the definitive treatment and typically results in minimal recurrence. This case highlights the importance of early surgical intervention to prevent complications, even in concurrent malignancy.

Ethical approval: Written patient consent was taken.

Author contributions: Concept (AA, MKSA, BA), Design (AA, MKSA), Data Collection and/or Processing (BA, MKSA), Analysis and/or Interpretation (AA), Writing (AA).

Statement of financial support: No financial support was received for this study.

Conflict of interest: The authors have no conflict of interest related to this study.

Previous Presentation: This case report was presented as an e-poster at the 45th Turkish National Congress of Otorhinolaryngology and Head and Neck Surgery in Cyprus in October 2024.



References:

1. Delwar, A. H., Mazumder, J. A., Rashid, M. S., Mustafa, M. G., & Hossain, A. B. M. T. (2020). Incidence and outcome of thyroglossal duct cyst. *International Journal of Otorhinolaryngology and Head and Neck Surgery*, 6(4), 616.
2. Ren, W., Zhi, K., Zhao, L., & Gao, L. (2011). Presentations and management of thyroglossal duct cyst in children versus adults: A review of 106 cases. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*, 111(2), e1–e6.
3. El-Ayman, Y. A., Naguib, S. M., & Abdalla, W. M. (2018). Huge thyroglossal duct cyst in elderly patient: Case report. *International Journal of Surgery Case Reports*, 51, 415.
4. Arden, R. L., & Miller, L. K. (2017). Application of Trotter approach for large intralingual thyroglossal duct cyst in an 88-year-old patient. *Journal of Oral and Maxillofacial Surgery*, 75(9), 1921–1925.
5. Tew, S., Reeve, T. S., Poole, A. G., & Delbridge, L. (1995). Papillary thyroid carcinoma arising in thyroglossal duct cysts: Incidence and management. *Australian and New Zealand Journal of Surgery*, 65(10), 717–718.
6. de Tristan, J., Zenk, J., Künzel, J., Psychogios, G., & Iro, H. (2015). Thyroglossal duct cysts: 20 years' experience (1992–2011). *European Archives of Oto-Rhino-Laryngology*, 272, 2513–2519.
7. Garcia, E., Osterbauer, B., Parham, D., & Koempel, J. (2019). The incidence of microscopic thyroglossal duct tissue superior to the hyoid bone. *Laryngoscope*, 129(5), 1215–1217.
8. Kepertis, C., Anastasiadis, K., Lambropoulos, V., Mouravas, V., & Spyridakis, I. (2015). Diagnostic and surgical approach of thyroglossal duct cyst in children: Ten years data review. *Journal of Clinical and Diagnostic Research*, 9(12), PC13.
9. Ducic, Y. (2002). Thyroglossal duct cysts in the elderly population. *American Journal of Otolaryngology*, 23(1), 17–19.
10. Freire Filho, F. W. V., Costa, F. W. G., Turatti, E., & Cavalcante, R. B. (2012). Extensive thyroglossal duct cyst in 83-year-old patient. *New York State Dental Journal*, 78(3), 39–41.
11. Assaf, A., Barboura, M., Karaja, S., Khaddour, S., Maoud, N., & Dadah, N. (2024). A large thyroglossal duct cyst with atypical features in a 73-year-old male: A case report. *International journal of surgery case reports*, 124, 110421.
12. Pomponio, M. K., Conti, K. R., Ohlstein, J. F., Khan, I., & Koch, T. (2024). Thyroglossal Duct Cysts (TGDC) in the Elderly Population: The Role of Conservative Management. *Cureus*, 16(10), e72183.
13. Thompson, L. D., Herrera, H. B., & Lau, S. K. (2016). A Clinicopathologic Series of 685 Thyroglossal Duct Remnant Cysts. *Head and neck pathology*, 10(4), 465–474.
14. Wong, J., Lee, J. C., Grodski, S., Yeung, M., & Serpell, J. (2022). Cancer in thyroglossal duct cysts. *ANZ journal of surgery*, 92(3), 443–447.
15. Yaman, H., Alkan, N., Yılmaz, S., & Güçlü, E. (2010). Preoperative diagnostic methods in thyroglossal duct cysts. *KBB Forum*, 9(1), 1–4.
16. Solis Pazmiño, A. P., Rocha, C., Figueroa, L., & Garcia, C. (2023). SAT500 Thyroglossal duct cyst cancer: Diagnosis and management. *Journal of Endocrine Society*, 7(Suppl 1).
17. Rovira, A., Brunet, A., Jeannon, J.-P., Carroll, P. V., Touska, P., Hassan, F., Sandison, A., & Simó, R. (2023). Thyroglossal duct cyst carcinoma case series—Management strategy and outcomes. *Acta Otorrinolaringológica Española*, 74(4), 203–210.

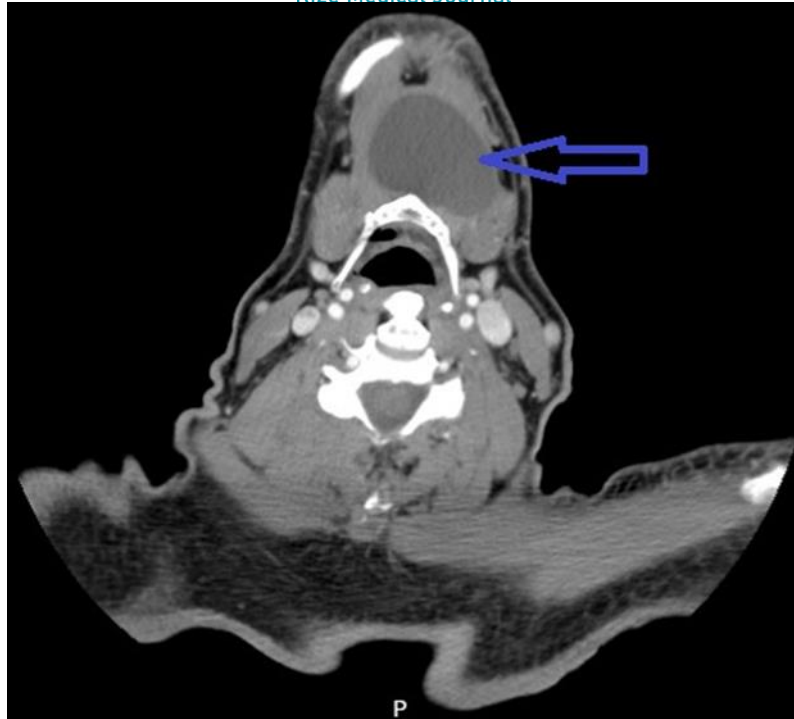


Figure 1a. A contrast-enhanced neck CT shows a cystic mass extending to the anterior aspect of the hyoid bone in the axial plane (blue arrow).



Figure 1b. The coronal plane of a contrast-enhanced neck CT shows a cystic mass (blue arrow).

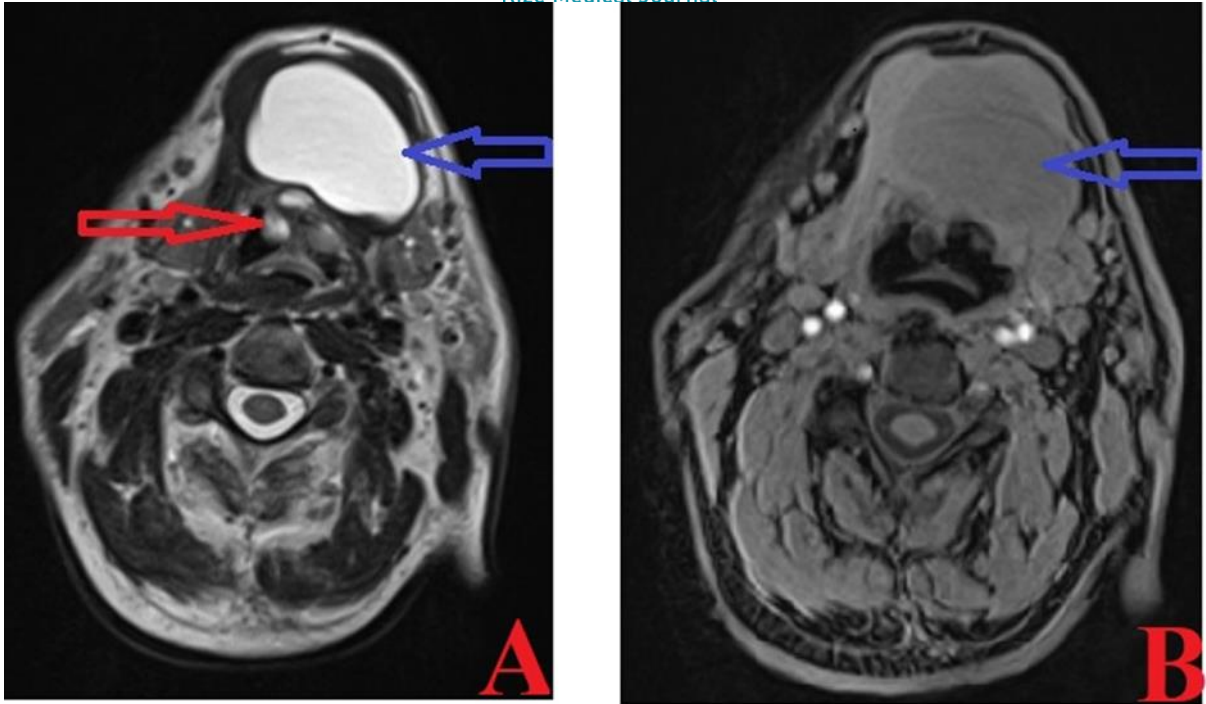


Figure 2. Magnetic resonance imaging (MRI) shows a cystic mass (blue arrow) and valvular cysts (A) (red arrow) in T2 (A) and T1 (B) axial plane.

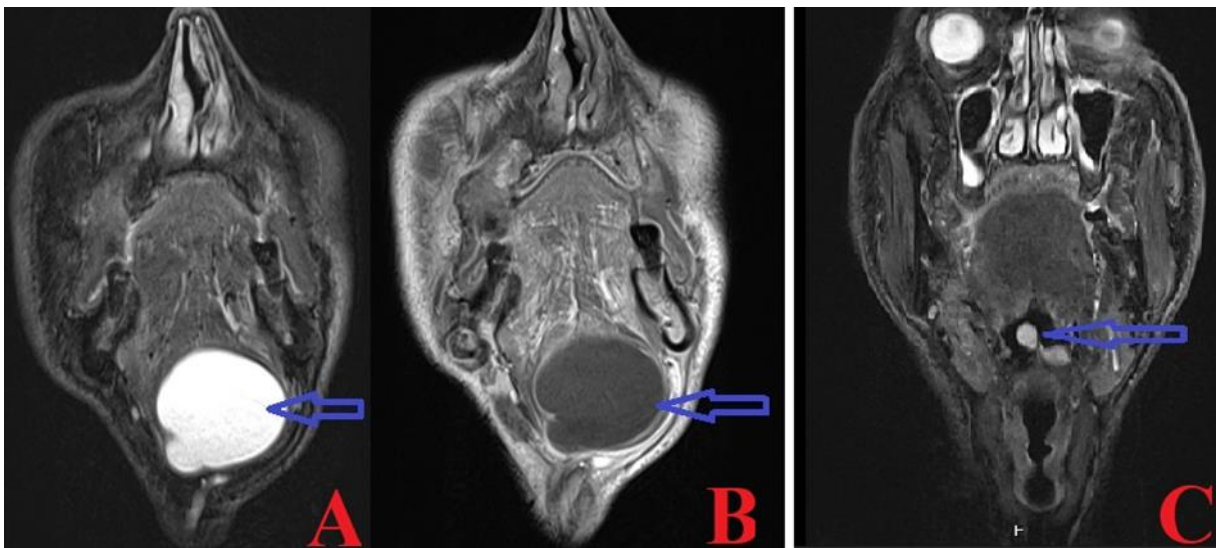


Figure 3. The coronal plane of the MRI shows a cystic mass (A, B) and valvular cysts (blue arrow) (C) in T2 (A), T1 (B), and T2 (C) sequences.