



Case report

A large thyroglossal duct cyst with atypical features in a 73-year-old male: A case report

Ahed Assaf^a, Mousa Barboura^a, Saja Karaja^{a,*}, Suleiman Khaddour^b, Nour Maoud^a, Nazem Dadah^c

^a University of Hama College of Human Medicine, Hama, Syria

^b University of Tishreen College of Human Medicine, Lattakia, Syria

^c Hama National Hospital, Hama, Syria

ARTICLE INFO

Keywords:

Thyroglossal duct
Thyroglossal duct cyst
Elderly people
Sistrunk operation
Case report

ABSTRACT

Introduction: Thyroglossal duct cysts (TGDCs) are congenital anomalies arising from incomplete obliteration of the thyroglossal duct (TGD), typically presenting in childhood. While rare in the elderly, they can occur in adulthood and may remain asymptomatic until complications such as infection or malignant transformation arise.

Presentation of case: A 73-year-old male presented with progressively enlarging left-sided neck swelling over 15 years. Clinical and radiological evaluation confirmed the diagnosis of a TGDC. Surgical excision was performed via the Sistrunk procedure, with post-operative histopathology confirming the pre-operative diagnosis of TGDC. The patient recovered well with no complications or recurrence.

Discussion: Clinical presentation of TGDC is typically an anterior neck enlargement or a non-tender midline neck mass, moving with swallowing, related to the hyoid bone. The typical differential diagnosis of TGDCs include cystic and midline neck masses. Atypically, our patient had a lateral cystic mass which was immobile with swallowing.

Conclusion: This case highlights the importance of considering TGDCs as a differential diagnosis in elderly patients despite their rarity. TGDCs may present with complications or atypical features of TGDCs which require more evaluation. Surgical intervention, specifically the Sistrunk procedure, remains the optimal management strategy for TGDCs, offering excellent outcomes and reducing the risk of recurrence.

1. Introduction

Thyroglossal duct cysts (TGDCs) are the most common congenital neck masses, arising from the persistent remnants of the thyroglossal duct (TGD) during embryonic development [1,2]. While typically presenting in childhood, TGDCs can also occur in adulthood, albeit less frequently, with cases in the elderly being exceptionally rare [1]. These cysts are characterized by a midline neck mass, often located near the hyoid bone, which moves with swallowing [1,3]. Most TGDCs are asymptomatic, but they can become infected, leading to abscess formation [3]. Malignant transformation of TGDCs is rare, occurring in less than 1 % of cases [3]. This report presents an unusual case of a large TGDC in an elderly patient.

2. Presentation of case

A diabetic 73-year-old male with hypertension and a previous history of chronic obstructive pulmonary disease (COPD) presented with a large neck swelling more pronounced at the left side of the neck, alongside with dysphagia, ear pain and feeling of discomfort in the pharynx in the last few months. Clinical examination showed a non-tender cystic swelling unmovable with swallowing, no other manifestations were observed (Fig. 1). This swelling developed gradually over the past 15 years. The patient reported inconsistent adherence to his prescribed medications. Blood tests of the patient were within normal limits. Computed tomography (CT) imaging revealed a large and well-defined thin-wall unilocular round cystic mass on the left side of the neck, which caused a deviation of the trachea and other components to the right, with no invasion of the surrounding tissues (Fig. 2). Clinical

* Corresponding author at: Faculty of Medicine, Hama University, Hama City, Hama, Syria.

E-mail address: sajaahmadkaraja935@gmail.com (S. Karaja).

<https://doi.org/10.1016/j.ijscr.2024.110421>

Received 15 September 2024; Received in revised form 4 October 2024; Accepted 8 October 2024

Available online 10 October 2024

2210-2612/© 2024 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Limited. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

and radiological features matched the diagnosis of a TGDC. A FNA was performed but the histopathological report showed only benign cytology findings of inflammatory type (Fig. 3). A surgical excision was performed, removing the cyst, the middle third of the hyoid bone, and the tract (Sistrunk operation). The atypical presentation in our case, characterized by lateralization and immobility with swallowing, is likely attributable to the presence of extensive fibrosis surrounding the thyroglossal duct cyst. This fibrosis, a consequence of the cyst's prolonged presence, may have impeded the cyst's normal mobility during swallowing and contributed to its gradual displacement toward the lateral aspect of the neck. The total resected specimen was sent for histopathological evaluation. The Histopathological report of the sample confirmed the diagnosis of TGDC, showing a cyst wall lined by ciliated pseudostratified columnar cells, underlined with basal membrane and thin fibrous tissue with benign thyroid follicles with no malignancy (Fig. 4). The patient's wound exhibited complete healing without any complications. Subsequent follow-up assessments for a year indicated no evidence of recurrence.

3. Discussion

Neck swellings typically arise from lymph nodes, thyroid, salivary glands and soft tissues [4,5]. TGDC is known to be the most prevalent among pediatric masses, mostly occurring as congenital anomalies but can also be observed at varying frequencies in adults, it can form anywhere on the migration route of the thyroid [3]. Our case discusses an unusual presentation of a large TGDC in an elderly patient who is 73 years old. This is unusual for this mass to appear in such ages especially when the patient reported that this swelling was gradually developed asymptotically over the past 15 years [3]. While the classical presentation of a TGDC involves an anterior, midline neck swelling, mobile with swallowing and tethered to the hyoid bone [7], our case deviated from this typical pattern. The patient presented with a lateral cystic mass that remained immobile during swallowing, a finding likely attributable to extensive fibrosis surrounding the lesion. The differential diagnosis of lateral cervical masses is broad and encompasses a range of benign and malignant entities. These include, but are not limited to, hemangioma, branchial cyst, neoplastic changes in lymph nodes (metastasis and lymphoma), infective lymphadenitis, foreign body reaction, sialadenitis, neoplastic changes in salivary glands, and carotid aneurysm or carotid body tumor [6]. While clinical examination can often suggest a TGDC, definitive diagnosis and assessment of the mass extent necessitate imaging studies prior to surgical intervention [7]. This case serves to illustrate the variability in clinical presentation of TGDCs and underscores the importance of comprehensive diagnostic evaluation in cases of lateral neck masses. Ultrasound is commonly used to diagnose TGDC and CT imaging might be performed to evaluate TGDC and thyroid abnormalities [3]. TGDC appears on CT as a low-density thin-wall

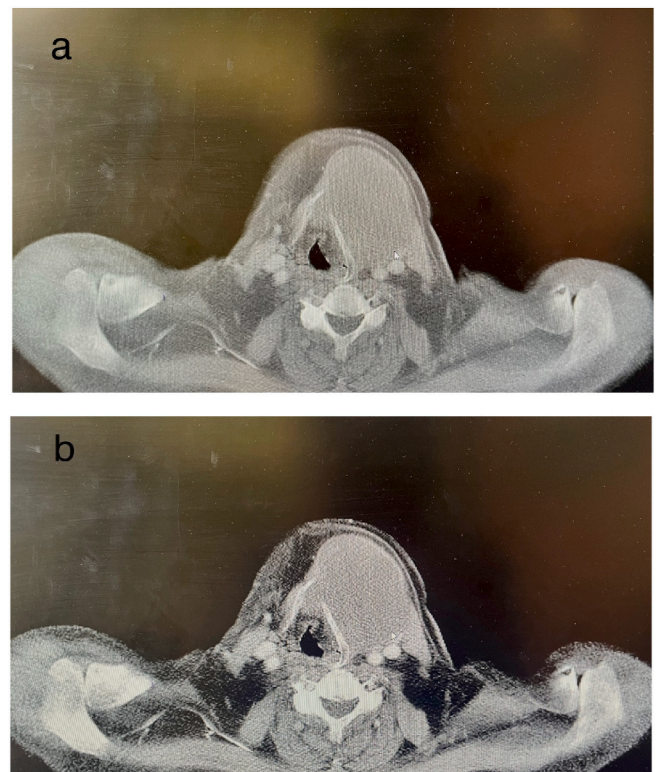


Fig. 2. CT imaging of the neck, (a) bone window CT image and (b) soft-tissue window CT image. Both images shows a large, well-defined, round cystic mass on the left side of the neck with a deviation of the trachea and other components to the right. The mass was in contact with the carotid sheath but showed no infiltration or interference. Dissection was characterized by sharpness due to significant fibrosis and dullness from retained dissection planes. Laterally, the mass was isolated from the pretracheal fascia due to contact without infiltration. After complete isolation from the left thyroid lobe, dissection proceeded medially and vertically toward the hyoid bone, culminating in the removal of its central portion.

lesion routinely unilocular, on the migration route of the thyroid, often seen in midline related to the hyoid bone [7]. We have used CT to assess the diagnosis of TGDCs. Fine needle aspiration (FNA) is a quick and inexpensive, yet sensitive and accurate technique for neck masses evaluation [6]. we performed a FNA, but the cytology findings of the FNA was limited to inflammatory type cytology in our case. The Sistrunk surgical operation is the ideal management of TGDC which requires an extensive resection that includes a part of the tongue tissue and the middle third of the hyoid bone which reduces the recurrence rates



Fig. 1. Huge nonpainful neck swelling more pronounced on the left side of the neck, the patient presented with cosmetic concerns.

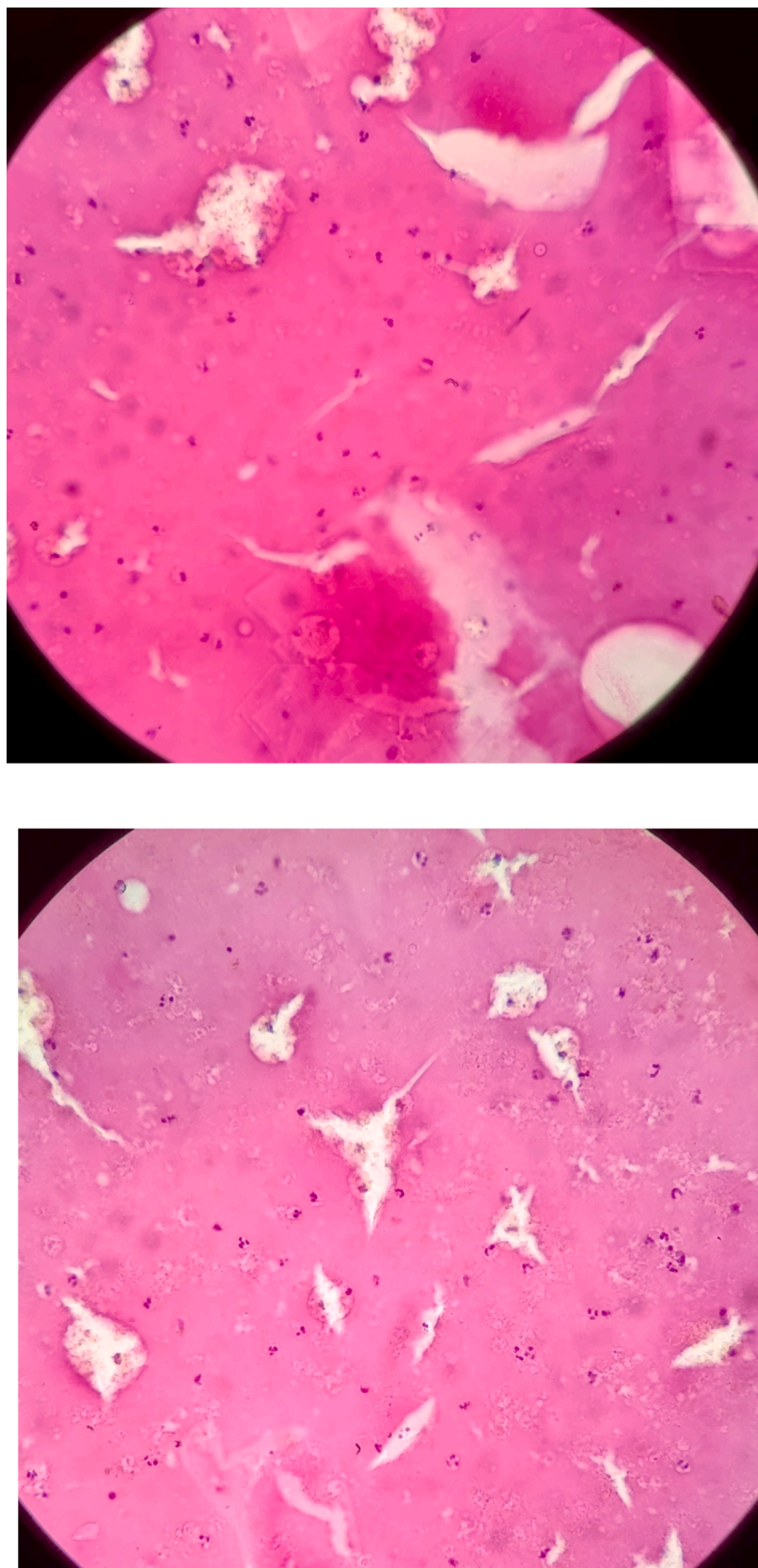


Fig. 3. Microscopic examination of cytology preparations reveal hypercellular fluid composed of inflammatory cells infiltrate of neutrophils, macrophages, with lymphocyte, histocytes, and other types of leukocytes, associated with red blood cells. There is no cytology findings of abnormal cells. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

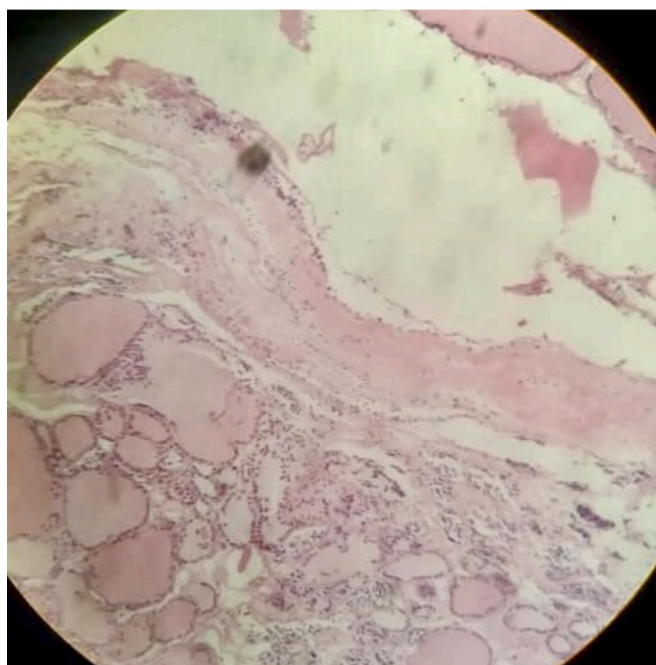
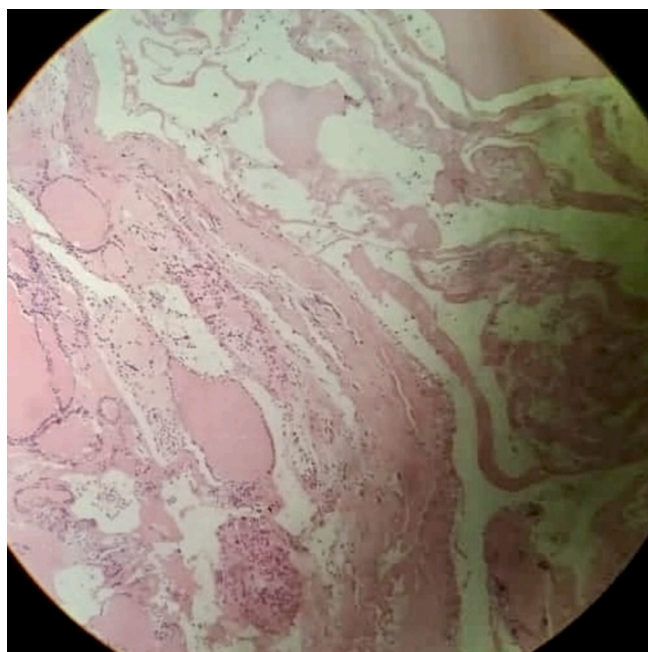


Fig. 4. Histological sample shows a cyst wall lined by ciliated pseudostratified columnar cells, underlined with basal membrane and thin fibrous tissue with benign thyroid follicles, conforming the pre-operative diagnosis of thyroglossal duct cyst.

whereas the recurrence rates reached (45 % to 55 %) in simple excision [3]. Surgical removal of the TGDC was performed in our patient to ensure the prevention of recurrent infections and the minimal risk of malignant development. There are few cases of TGDC in elderly people reported in literature including a case of an 85-year old male with a large long-standing TGDC, a case of a 65-year old male with a midline multilobular TGDC which had been growing over a year, and a case of 91-year old male with a large mass on the left side of the neck and mobile with swallowing [1,2,8].

4. Conclusion

While the incidence of TGDC may be less frequent in geriatric patients, the Sistrunk procedure remains the gold standard surgical intervention for the majority of TGDC cases. Patients may present with serious complications including infection and malignant transformation. TGDCs may atypically present as a lateral mass and immobility with swallowing.

Abbreviations

TGDCs	Thyroglossal duct cysts
TGD	Thyroglossal duct
COPD	Chronic obstructive pulmonary disease
CT	Computed tomography
FNA	Fine needle aspiration

Declaration of generative AI in scientific writing

None.

Methods

The Work has been reported in line with SCARE criteria [9].

Ethical approval

Not applicable because this paper has been reported from Hama University College of Human Medicine, Hama, Syria and our mentioned institution does not require ethical approval for reporting individual cases.

Funding

None.

Author contribution

Ahed Assaf, Mousa Barboura, Saja Karaja, Suleiman Khaddour, and Nour Maoud: Data Curation, Writing – review & editing, Writing – original draft.

Nazem Dadah: Writing – review & editing, Supervision.

All authors read and approved the final manuscript.

Guarantor

Saja Karaja.

Research registration number

Not applicable.

Conflict of interest statement

None.

Acknowledgment

Assistance with the study: the authors would like to express their sincere gratitude to Dr. Habib Jarboun, Department of Pathology, Damascus University, Damascus, Syria, and Dr. Simon Youssef, Pathology Department, Hama National Hospital, Hama, Syria; for providing the pathological images used in this study.

References

- [1] N. Baisakhiya, Giant thyroglossal cyst in an elderly patient, *Indian J. Otolaryngol. Head Neck Surg.* 63 (Suppl. 1) (Jul 2011) 27–28, <https://doi.org/10.1007/s12070-011-0179-9> (Epub 2011 Apr 6. PMID: 22754829; PMCID: PMC3146692).
- [2] Y.A. El-Ayman, S.M. Naguib, W.M. Abdalla, huge thyroglossal duct cyst in elderly patient: case report, *Int. J. Surg. Case Rep.* 51 (2018) 415–418, <https://doi.org/10.1016/j.ijscr.2018.09.025> (Epub 2018 Sep 21. PMID: 30360239; PMCID: PMC6168932).
- [3] J. Amos, C. Shermetaro, Thyroglossal duct cyst. [Updated 2023 Jun 26], in: StatPearls [Internet], StatPearls Publishing, Treasure Island (FL), Jan 2024. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK519057>.
- [4] R.D. Rosen, A. Sapra, Embryology, Thyroid. [Updated 2023 May 1], in: StatPearls [Internet], StatPearls Publishing, Treasure Island (FL), Jan 2024. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK551611>.
- [5] A. Gupta, S. Sharma, S. Qureshi, S. Jadia, Neck masses: Clinico-radio-pathological evaluation. *Indian, J. Otolaryngol. Head Neck Surg.* 74 (Suppl. 3) (Dec 2022) 6054–6058, <https://doi.org/10.1007/s12070-021-02711-9> (Epub 2021 Jun 29. PMID: 36742780; PMCID: PMC9895209).
- [6] M. Gleeson, A. Herbert, A. Richards, Management of lateral neck masses in adults, *BMJ* 320 (7248) (Jun 3 2000) 1521–1524, <https://doi.org/10.1136/bmj.320.7248.1521>. PMID: 10834900; PMCID: PMC1118107.
- [7] A. Corvino, S. Pignata, M.R. Campanino, F. Corvino, F. Giurazza, D. Tafuri, F. Pinto, O. Catalano, Thyroglossal duct cysts and site-specific differential diagnoses: imaging findings with emphasis on ultrasound assessment, *J. Ultrasound* 23 (2) (Jun 2020) 139–149, <https://doi.org/10.1007/s40477-020-00433-2> (Epub 2020 Feb 12. PMID: 32052384; PMCID: PMC7242578).
- [8] S. Wang, B. Li, Y. Tang, F. Chen, Huge thyroglossal duct cyst in an over-aged patient: a case report, *Asian J. Surg.* 46 (6) (Jun 2023) 2635–2636, <https://doi.org/10.1016/j.asjsur.2022.12.156> (Epub 2023 Jan 13. PMID: 36642549).
- [9] C. Sohrabi, G. Mathew, N. Maria, A. Kerwan, T. Franchi, R.A. Agha, The SCARE 2023 guideline: updating consensus surgical case report (SCARE) guidelines, *Int. J. Surg. Lond. Engl.* 109 (5) (2023) 1136.