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CASE REPORT

LARGE THYROGLOSSAL DUCT CYST IN A 68-YEAR-OLD FEMALE: CASE REPORT

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Abstract

Background: Thyroglossal duct cyst (TGDC) is the most common congenital cervical anomaly, typically presenting in childhood or early adulthood. Its occurrence in elderly patients is uncommon and may pose diagnostic challenges, particularly when presenting with large size and compressive symptoms.
Case Presentation: We report a 68-year-old female who presented with a progressively enlarging anterior neck mass associated with dysphagia and mild dyspnea. Clinical examination and imaging revealed a well-circumscribed midline cystic lesion measuring 8.4 × 4.5 × 2.7 cm. The mass demonstrated characteristic movement with swallowing and tongue protrusion. MRI confirmed a normally located thyroid gland and excluded other pathologies. Surgical excision using the Sistrunk procedure was performed, and histopathological examination confirmed a nodular thyroid follicular lesion within the cyst wall. The postoperative course was uneventful, and the patient remained asymptomatic with no recurrence at follow-up.
Conclusion:TGDC, though rare in elderly individuals, should be considered in the differential diagnosis of midline neck masses. Large cysts may present with compressive symptoms, necessitating timely diagnosis and surgical management. The Sistrunk procedure remains the gold standard treatment, providing excellent outcomes with low recurrence rates.

Keywords: thyroglossal duct cyst; congenital neck mass; Sistrunk procedure; dysphagia; elderly patient

INTRODUCTION

Thyroglossal duct cysts (TGDCs) are the most common congenital midline neck anomalies, accounting for approximately 70% of congenital cervical masses [1,2]. These lesions typically present during the first two decades of life, with peak incidence in childhood and early adulthood [2,3]. Presentation in older adults is rare, with only a small number of cases reported in patients over 60 years [2,4]. The rarity in elderly patients can contribute to delayed diagnosis and increased likelihood of complications due to large size, compressive symptoms, or secondary infections [3,5].

TGDCs originate from remnants of the thyroglossal duct, an embryological structure that guides the descent of the thyroid gland from the foramen cecum at the base of the tongue to its definitive pretracheal position [6,7]. Normally, the thyroglossal duct involutes by the 10th gestational week. Failure of regression results in epithelial remnants that may form cysts anywhere along the midline path of thyroid descent, from the tongue base to the suprasternal notch [6,8]. These cysts are most commonly located adjacent to the hyoid bone, due to its intimate anatomical relationship with the thyroglossal tract [8].

Histologically, TGDCs are lined by either respiratory-type pseudostratified ciliated columnar epithelium or stratified squamous epithelium, with the latter often arising secondary to chronic inflammation [4,9]. The cyst wall may contain ectopic thyroid tissue, which can undergo nodular changes or rarely, malignant transformation [10–12]. Recurrent infections or trauma can induce fibrosis, enlargement, and calcification, complicating both clinical and radiological evaluation [5,13].

Clinically, TGDCs present as painless, mobile midline neck masses. The mobility during swallowing or tongue protrusion is a hallmark feature and aids in differentiating TGDCs from other cervical masses [5,14]. While most lesions remain small and asymptomatic, large cysts may compress adjacent structures, leading to dysphagia, dyspnea, airway compromise, or voice

changes [6,15]. These symptoms are more frequently observed in adult or elderly patients due to delayed presentation and progressive growth. Large TGDCs may also raise suspicion for neoplastic processes, particularly in older adults [7,16].

Preoperative imaging is essential for accurate diagnosis and surgical planning. Ultrasound is often the first-line modality, allowing identification of cystic structures and confirmation of a normally positioned thyroid gland [8,17]. MRI and CT are recommended for large, atypical, or complex lesions to delineate anatomical relationships, assess for solid components, and rule out malignancy [10,11,18]. Radionuclide thyroid scanning may also be indicated in cases where ectopic thyroid tissue is suspected, particularly if the orthotopic thyroid gland is absent or dysfunctional [9,19].

The definitive treatment for TGDCs is the Sistrunk procedure, which involves excision of the cyst, the central portion of the hyoid bone, and the tract extending toward the foramen cecum [10]. This technique significantly reduces recurrence rates compared to simple cyst excision, with reported recurrence rates under 5% [11,15,20]. Complete removal of the tract and hyoid bone is particularly important in large cysts, as incomplete excision is associated with higher rates of recurrence [13,16].

Although TGDCs are predominantly benign, malignancy within the cyst is reported in approximately 1% of cases, most commonly as papillary thyroid carcinoma [7,21]. Consequently, thorough preoperative evaluation and histopathological examination are essential, especially in older adults and patients presenting with atypical features such as rapid growth, firmness, or adherence to surrounding structures [7,19,21].

In this report, we present a rare case of a large thyroglossal duct cyst in a 68-year-old female, highlighting clinical presentation, imaging, surgical management using the Sistrunk procedure, and histopathological findings. The case emphasizes the need for careful evaluation of anterior neck masses in elderly patients and reinforces best practices for surgical management and long-term follow-up.

CASE REPORT

A 68-year-old female was referred to the Department of Oral and Maxillofacial Surgery with a progressively enlarging midline neck mass. According to the patient's history, the lesion had been present for several years, with a gradual increase in size. There was no history of acute inflammation or prior surgical intervention in the cervical region.

On clinical examination, the mass was located in the anterior midline of the neck. On palpation, it was soft to moderately firm, non-tender, and demonstrated characteristic mobility during swallowing. The overlying skin was intact, with no evidence of erythema, ulceration, or sinus tract formation. No cervical lymphadenopathy was detected (Figure 1).

Figure 1. Preoperative anterior neck swelling.

Magnetic resonance imaging (MRI) of the neck revealed a well-circumscribed cystic lesion in the midline of the anterior neck, measuring 8.4 × 4.5 × 2.7 cm. The lesion was closely associated with the hyoid bone and demonstrated imaging characteristics consistent with a cystic structure, without evidence of solid components, local invasion, or malignant transformation (Figure 2A–C).

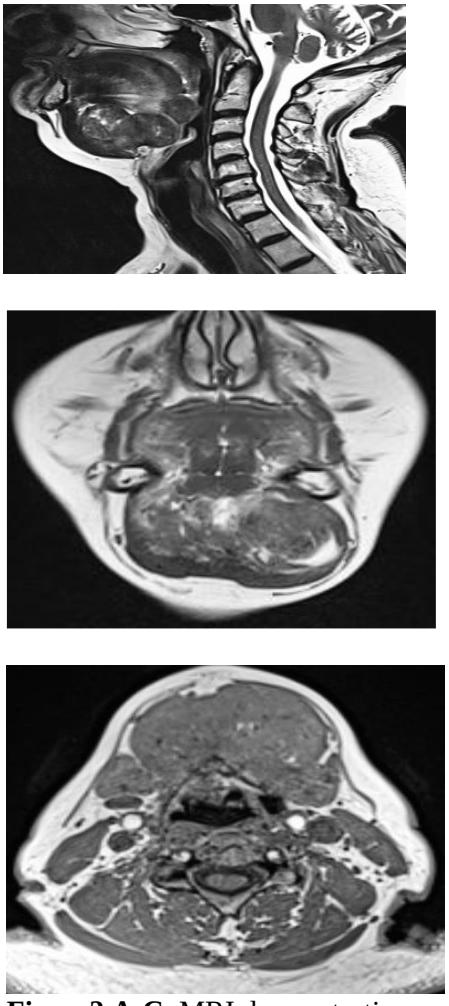
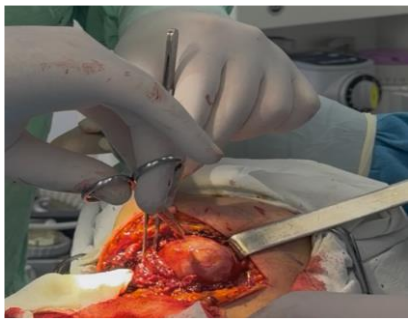


Figure2.A-C. MRI demonstrating a thyroglossal duct cyst.

Based on the clinical presentation and radiological findings, a diagnosis of thyroglossal duct cyst was established. The patient underwent surgical excision using the Sistrunk procedure under general anesthesia. A transverse cervical incision was made over the midline neck mass. Careful dissection was performed to expose the cyst, which was identified as a well-encapsulated lesion adherent to surrounding soft tissues. The cyst was meticulously dissected from adjacent structures while preserving vital anatomical structures.

The thyroglossal duct tract extending toward the base of the tongue was identified and followed superiorly. Complete excision was achieved by removing the cyst en bloc together with the central portion of the hyoid bone and the associated tract, in accordance with the principles of the Sistrunk procedure (Figure 3A–C).



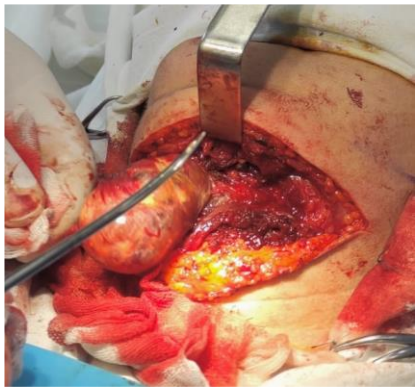
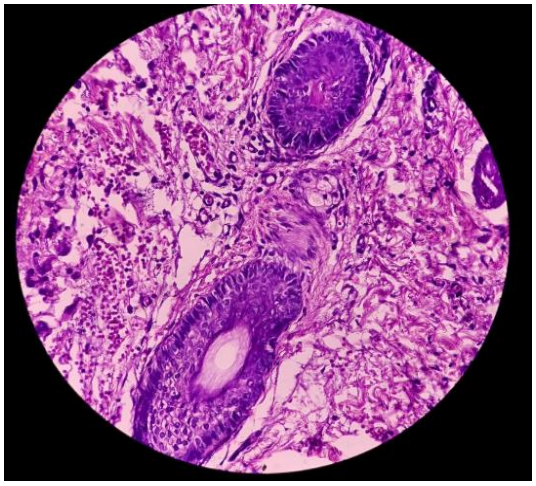


Figure3A-C. Intraoperative photographs demonstrating surgical excision of the thyroglossal duct cyst, and the resected specimen.

Hemostasis was secured, the surgical field was irrigated, and a closed-suction drain was placed. The wound was then closed in anatomical layers. The procedure was well tolerated, and no intraoperative complications were observed.

Macroscopic examination revealed a well-defined lesion measuring 8.4 × 4.5 × 2.7 cm, with a homogeneous grayish-yellow cut surface, focal areas of calcification, and the presence of colloid-like material. The excised specimen was submitted for histopathological evaluation. Microscopic examination using hematoxylin and eosin staining demonstrated nodular proliferation of thyroid follicles of variable sizes, along with aggregates of foamy macrophages. The surrounding stroma showed areas of sclerosis and hemorrhage, and cholesterol crystal clefts were also identified, indicating chronic degenerative changes within the lesion (Figure 4A,B)..



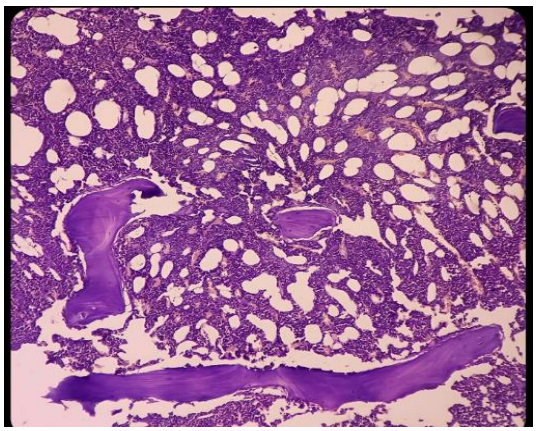


Figure 4 A.B Histopathological images Nodular thyroid follicular disease

Based on these findings, the histopathological diagnosis was established as nodular thyroid follicular disease, with no evidence of malignancy (table 1).

Table 1. Histopathological characteristics of the excised lesion

Feature	Description
Macroscopic appearance	8.4 × 4.5 × 2.7 cm; homogeneous; grayish-yellow; areas of calcification; colloid-like material
Microscopic findings	Nodules of proliferated thyroid follicles of varying sizes; foamy macrophages; sclerosis; hemorrhage; cholesterol crystal clefts
Histopathological diagnosis	Nodular thyroid follicular disease

The postoperative course was uneventful. On the first postoperative day, the surgical drain was functioning appropriately with minimal output, and the operative wound appeared clean, with no signs of infection or early complications (Figure 4).

Figure 4. Postoperative day 1.

The drain and sutures were removed sequentially without difficulty. The wound demonstrated satisfactory healing by primary intention, with no evidence of infection or dehiscence. The patient was discharged in good general condition and remained asymptomatic, with no signs of recurrence at follow-up (Figure 5).

Figure 5. Postoperative state one month after surgery.

DISCUSSION

TGDCs are rare in elderly patients, with most lesions diagnosed before the third decade of life [1,2]. Delayed presentation in older adults allows cysts to attain considerable size, potentially causing compressive symptoms such as dysphagia, dyspnea, or voice changes, as observed in this patient [3–5]. Cosmetic concerns may also become a primary complaint in elderly individuals, adding a psychosocial dimension to management [4,6].

Embryologically, TGDCs arise from incomplete involution of the thyroglossal tract, a remnant of thyroid migration [6,7]. The most frequent anatomical location is adjacent to the hyoid bone, consistent with our case [8,9]. The cyst may also extend toward the tongue base, necessitating meticulous dissection during surgery to prevent injury to surrounding structures [10].

Large cysts pose unique challenges. First, size increases the risk of compressive symptoms and potential airway compromise [15]. Second, cysts may adhere to adjacent muscles, fascia, or vascular structures, increasing operative complexity and risk of complications [9,14]. Preoperative imaging, particularly MRI, provides accurate delineation of cyst extent, relationships to the hyoid bone, and exclusion of solid or malignant components[10,11,18].

In this case, MRI allowed safe operative planning and precise en bloc excision. The Sistrunk procedure remains the gold standard for TGDC management, involving removal of the cyst, central hyoid, and tract toward the foramen cecum [10,12–15]. Recurrence is rare (<5%) when the procedure is performed correctly, compared to higher recurrence after simple cyst excision 11,16,20. Complete excision is particularly critical for large lesions, which are more prone to incomplete removal due to anatomical distortion and adhesions [13,14].

Histopathological findings in this case demonstrated nodular thyroid follicular tissue within the cyst wall, a recognized though atypical variant of TGDC[17,18]. Ectopic thyroid tissue within TGDCs is not uncommon, and it may undergo nodular or cystic changes. Identification of thyroid tissue is critical to differentiate benign changes from malignancy, especially in elderly patients [19–21]. Although malignant transformation is rare, papillary thyroid carcinoma is the most commonly reported malignancy arising in TGDCs [7,21,22].

Comprehensive preoperative evaluation should include assessment of thyroid function and location to avoid inadvertent removal of the patient's only functional thyroid tissue [9,24]. In this case, imaging confirmed a normal orthotopic thyroid gland, and postoperative thyroid function remained stable.

Despite favorable prognosis with the Sistrunk procedure, clinicians should remain vigilant for

complications, including infection, recurrence, or, rarely, carcinoma within the cyst [21–23]. Long-term follow-up is recommended to ensure sustained clinical success, particularly in elderly patients with large cysts.

Limitations

This case report describes a single patient, limiting generalizability. Extended follow-up was not available, and additional cases are necessary to better define surgical outcomes, recurrence rates, and functional sequelae in elderly patients.

Future Directions

Prospective studies evaluating TGDC outcomes in elderly versus younger adults.

Assessment of advanced imaging modalities for preoperative planning in complex lesions.

Investigation of molecular and histopathological characteristics of TGDC variants to better understand neoplastic potential.

CONCLUSION

Large thyroglossal duct cysts in elderly patients are rare but can present with compressive symptoms and surgical challenges. Preoperative imaging, particularly MRI, is crucial for precise anatomical delineation and operative planning. The Sistrunk procedure provides definitive treatment with minimal recurrence. Histopathological evaluation is essential to identify ectopic thyroid tissue or malignancy. Long-term follow-up ensures optimal outcomes.

DECLARATION

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Conflict of Interest

None to declare.

Ethical Approval

“Not applicable”

Consent for publication

“Not applicable”

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