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A Case of Thyroglossal Duct Cyst in a 13-Year-Old Female Patient on Her First Visit to the Hospital

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ABSTRACT

Thyroglossal duct cyst is the most common congenital neck abnormality, resulting from failure of the thyroglossal duct to obliterate during the embryogenesis of the thyroid gland. A 13-year-old female patient complaining of a lump under her chin for approximately 5 years prior to admission. Initially, the lump was painless, but two weeks before admission, it enlarged and was accompanied by throbbing pain and signs of local inflammation. Physical examination revealed a mass in the submental region with tenderness and erythema, without cervical lymph node enlargement. FNAB Examination result showed a thyroglossal duct cyst without signs of malignancy. Based on the anamnesis, physical examination, and supporting examination results, the patient was diagnosed with a thyroglossal duct cyst. The patient underwent a Sistrunk procedure under general anesthesia. The operation approximately 40 minutes and involved excision of the cyst and duct tract, resection of the middle part of hyoid bone, and placement of a handscoon drain. Postoperative wound care proceeded well, improvement in pain, stable condition, and no complications of bleeding or surgical wound infection. On the fourth postoperative day, the patient's condition was stable and she was allowed to go home with oral therapy.

Keywords: Thyroglossal duct cyst, Neck mass, Cystostomy procedure, Case report

INTRODUCTION

Thyroglossal duct cysts are the most common congenital abnormalities of the midline of the neck, resulting from failure of the thyroglossal duct to obliterate during the embryogenesis of the thyroid gland(Garefi & Garefis, 2025). Physiologically, the thyroglossal duct disappears after the thyroid migrates from the foramen cecum to its final position in the pretracheal region. Persistence of this duct can form a cyst that is generally located in the midline of the neck and moves when swallowing or sticking out the tongue. This condition is most commonly found in children, but it is not uncommon to be diagnosed in adulthood due to recurrent infections or progressive enlargement(Say & Açar, 2024).

Clinically, thyroglossal duct cysts are usually benign, but complications such as infection, fistula, and, in rare cases, malignant transformation may occur. Recent studies report that malignancy, particularly papillary thyroid carcinoma, may be found in approximately 1% of

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thyroglossal duct cyst cases, making thorough evaluation important, especially in adult patients(Qin et al., 2025).

Supportive examinations such as ultrasound and CT scans play a role in assessing the relationship between the cyst and surrounding tissue as well as the presence of normal thyroid tissue(Markou & Anatolitou, 2020).

The main management of thyroglossal duct cysts is surgical intervention through the Sistrunk procedure, which is still considered the gold standard because it significantly reduces the recurrence rate compared to simple excision. Recent literature confirms that the success of therapy is highly dependent on the complete removal of the cyst, including the duct tract and the middle part of the hyoid bone, and the placement of a drain. Therefore, understanding the embryological, clinical, and therapeutic aspects of thyroglossal duct cysts is very important for healthcare professionals in determining the optimal diagnosis and management(Markou & Anatolitou, 2020).

CASE REPORT

Mrs. D, 13 years old, came to the General Surgery Clinic at Cut Meutia Regional General Hospital complaining of a lump under her chin that had been present for 5 years prior to admission to the hospital, accompanied by a burning sensation similar to that of being splashed with chili sauce. The lump had been felt by the patient since she was 8 years old and had not caused any pain, but two weeks prior to admission, the swelling became painful and throbbing, growing larger day by day. Initially, the lump appeared in the middle of the chin area, parallel to the Adam's apple, and continued to enlarge like the Adam's apple. This complaint made the patient feel that the shape of her neck was different, causing discomfort when she looked in the mirror.

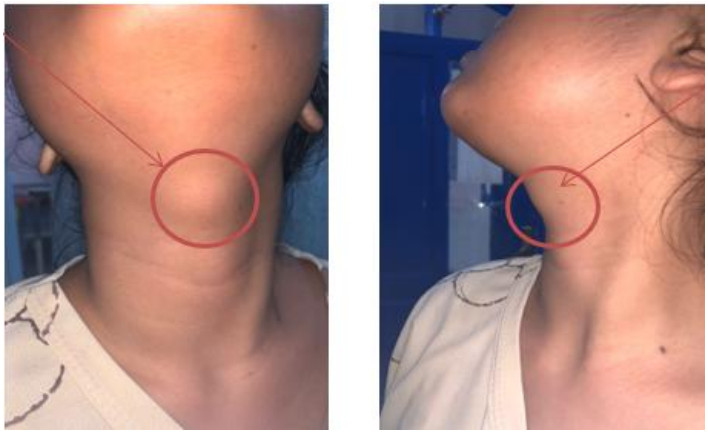

Figure 1. Preoperative Clinical Findings from the front and lateral views

Vital signs examination revealed compos mentis consciousness, pulse rate of 92 beats per minute, respiratory rate of 23 breaths per minute, and body temperature of 36.8℃. Physical examination revealed a lump in the submental region with indistinct borders, tense skin surface, and erythematous (+). Trismus was absent. Laboratory tests were within normal limits. Fine

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needle aspiration biopsy (FNAB) at the anatomical pathology laboratory revealed a thyroglossal duct cyst

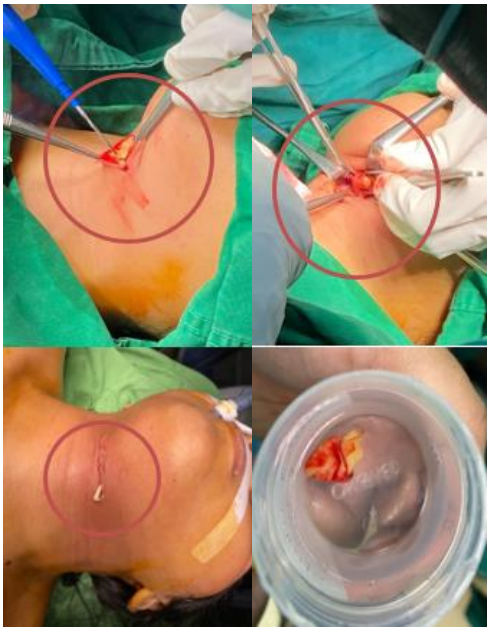

Figure 2. Sistrunk Procedure

The patient was diagnosed with a thyroglossal duct cyst. The definitive management for this patient was surgical intervention using the Sistrunk procedure. In this case, the patient was given post-operative pharmacological management in the form of 20 gtt/I Ringer's Lactate infusion, 50 mg/12h ranitidine injection, 500 mg/12h metamizole sodium, and 500 mg/8h tranexamic acid.

Figure 3. Sistrunk Procedure

Post-procedure education has given included bed rest, caring for the postoperative wound, and consuming nutritious food. The patient was permitted to undergo outpatient treatment on the fourth day of hospitalization with improved condition. The medications administered during outpatient treatment were cefixime 2x100mg, omeprazole 2x30mg, and paracetamol 3x500mg, followed by a follow-up visit at the surgical clinic.

DISCUSSION

A 13-year-old female patient presented with a complaint of a lump under her chin for approximately 5 years prior to admission to the hospital. The lump was located in the midline of the neck (submental region), initially painless and slowly enlarging, then accompanied by throbbing pain and progressive swelling in the last two weeks. A history of a long-standing neck lump, located in the midline, with enlargement and pain, suggests a congenital neck abnormality with secondary infection, one of which is a thyroglossal duct cyst(Huang et al., 2023).

Embryologically, thyroglossal duct cysts occur due to failure of the thyroglossal duct to obliterate during the migration of the thyroid gland from the foramen cecum to its final position in the anterior neck. Remnants of this duct can persist and develop into cysts along the thyroid migration pathway, most commonly in the infrahyoid and submental regions. The clinical findings in this patient are consistent with the characteristics of a thyroglossal duct cyst, namely a mass in the midline of the neck that has been present since childhood and has undergone progressive enlargement(Mustafa et al., 2021).

Physical examination revealed a mass in the submental region with tenderness, warmth, and accompanying skin erythema, indicating an inflammatory or infectious process. No significant enlargement of the cervical lymph nodes was found. Vital signs were relatively stable. These findings support the diagnosis of thyroglossal duct cyst. FNAB examination of the neck mass showed squamous cells without signs of malignancy, leading to a conclusion of thyroglossal duct cyst. These results help rule out malignancy and reinforce the working diagnosis of thyroglossal duct cyst. Other differential diagnoses such as epidermoid cyst, nodular goiter, submandibular abscess, and submandibular cellulitis were considered, but became less likely based on the characteristic location of the mass, the chronic course of the disease, and the FNAB results(Guo et al., 2023).

The definitive management for this patient was surgical intervention using the Sistrunk procedure. This procedure is the gold standard in the management of thyroglossal duct cysts because it involves excision of the cyst, duct tract, and resection of the middle part of the hyoid bone, thereby significantly reducing the recurrence rate compared to simple excision. In this case, the Sistrunk procedure was performed according to principles, with complete cyst removal and the placement of a handscoon drain for monitoring postoperative wound healing(Dahiya et al., 2025).

The postoperative course and wound healing were assessed as good. After follow-up care, the patient's condition gradually improved. The prognosis in this case is considered dubia ad bonam in terms of function, recovery, and survival, given that thyroglossal duct cysts are benign abnormalities with a high recovery rate when treated adequately(Tan et al., 2023).

CONCLUSION

This case demonstrates that thyroglossal duct cysts can persist since childhood and only cause significant complaints when progressive enlargement occurs. In this patient, the diagnosis of thyroglossal duct cyst can be established through careful clinical evaluation and appropriate supporting examinations. Management with the Sistrunk procedure as definitive therapy and hand-held drainage for wound healing monitoring yielded good clinical results without significant postoperative complications. Proper evaluation and adequate surgical management play a crucial role in achieving a favorable prognosis and preventing recurrence.

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