

Thyroglossal duct cyst

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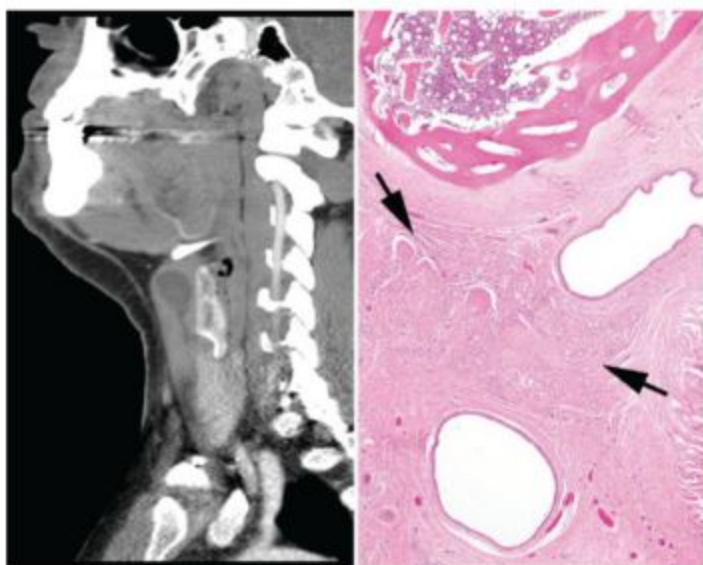


Figure 1. Left: A sagittal computed tomography scan shows a cyst below the hyoid bone in the midline neck, with a duct continuing inferiorly. Right: The hyoid bone is noted in proximity to epithelial lined cystic spaces. Thyroid follicles are noted (arrows) in the stroma.

Embryologically, the thyroglossal duct develops as the thyroid anlage descends from the foramen cecum at the base of the tongue to its final resting point in the pretracheal inferior midline neck. The duct usually involutes, but persistence may give rise to a clinical cyst. Thyroglossal duct remnant cysts (TGDCs) are one of the most common neck lesions seen clinically, showing a bimodal age distribution in the first and fifth decades, and identified in approximately 2.2/100,000 population at risk each year. While there is an equal sex distribution, males tend to predominate in pediatric patients while females predominate among adults.

Patients present with a mobile, painless midline neck mass, usually inferior to the hyoid bone (~75% of patients), showing movement with tongue protrusion. Infection, including fistula formation, is seen in approximately 10% of patients, although more often in children than adults. Imaging studies reveal the exact site of involvement (figure 1).

The recommended management for TGDC is the Sistrunk procedure, ensuring removal of the full length of the duct remnants by including the midportion of the hyoid bone along with a cylinder of tissue at the tongue base.

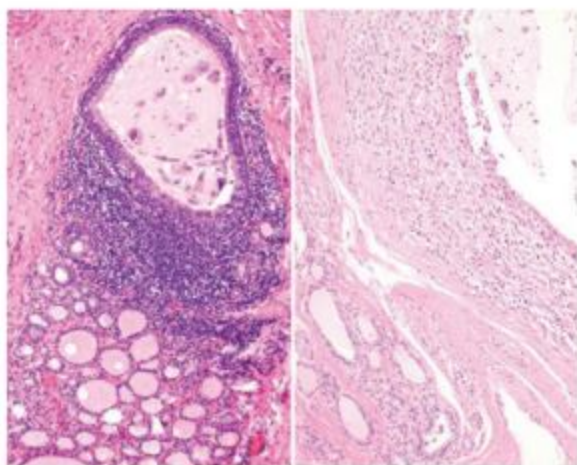


Figure 2. Left: A respiratory epithelial lined cyst associated with inflammation and small thyroid follicles comprise this thyroglossal duct cyst. Right: The cyst is lined by metaplastic squamous epithelium associated with histiocytes and epithelial erosion. Thyroid follicles are present (lower left).

Histologically, TGDCs are lined by respiratory epithelium, squamous epithelium, or a combination of both (figures 1 and 2). An inflammatory infiltrate is invariably present, associated with granulation-type tissue, which may obscure the epithelium when intense or showing a foreign-body giant cell reaction (figure 2). In about 70% of cases, microscopic foci of ectopic thyroid gland tissue will be seen within the wall of the cyst or within the adjacent soft tissue (figures 1 and 2). The foci are minute in many instances, requiring careful review, sometimes even including a TTF1 immunohistochemistry study.

In approximately 3% of cases, an associated thyroid gland carcinoma may be seen; most (>99%) are papillary thyroid carcinomas. The differential diagnosis includes a branchial cleft cyst, a bronchogenic cyst, an epidermal inclusion cyst, or a dermoid cyst, but the anatomic site, histologic lining, and identification of thyroid tissue help with this separation.

Suggested reading

- Ren W, Zhi K, Zhao L, Gao L. Presentations and management of thyroglossal duct cyst in children versus adults: A review of 106 cases. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2011;111(2):e1-6.
- Thompson LD, Herrera HB, Lau SK. A clinicopathologic series of 685 thyroglossal duct remnant cysts. *Head Neck Pathol* 2016;10(4):465-74.
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a well-characterized etiology; it is caused by an overload of uric acid in the body, resulting in recurrent attacks of acute inflammatory arthritis. Most patients with gout experience acute flares, commonly beginning in the lower extremities, such as the first metatarsophalangeal, midtarsal, ankle, or knee joint,¹ followed by recurrent attacks and the subsequent formation of gouty tophi.

Deposition of monosodium urate crystals also can occur in the ear as painless auricular gouty tophi, the most common form of gouty tophus occurring in the head and neck region.² The auricle, with its supersaturation of blood uric acid due to decreased temperature and reduced blood flow, is prone to develop gouty tophi. Auricular gouty tophi can either present concomitantly with other soft-tissue tophi or develop as a unique and initial sign of gout, as reported in previous literature² and in our case.

Differential diagnoses for nodules or papules on the auricle include chondrodermatitis nodularis helices, actinic keratosis, verruca vulgaris, amyloids, or even malignancies such as basal cell carcinoma or squamous cell carcinoma.³ Preoperative diagnosis of such papulonodular lesions may be difficult.

Hyperuricemia does not usually cause gout. Patients with gout usually exhibit high serum urate levels for a period greater than 5 years,⁴ whereas the end product, gouty tophi, will take a longer period (~10 years) to develop. Although gout generally occurs in the middle-aged population and seldom affects children and young adults,⁵ triggering factors such as a high purine diet, alcohol use, and diuretic therapy may contribute to the development of gout at a young age. Our case highlights the impact of dietary and lifestyle habits, with auricular gouty tophi presenting in a relatively young adult.

References

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3. Weedon D. Elastotic nodules of the ear. *J Cutan Pathol* 1981;8(6):429-33.
4. Campion EW, Glynn RJ, DeLabry LO. Asymptomatic hyperuricemia. Risks and consequences in the Normative Aging Study. *Am J Med* 1987;82(3):421-6.
5. Polukhin E, Durvasula J. Tophaceous gout—even today. *Front Immunol* 2013;4:284.