

## Huge Thyroglossal Duct Cyst at the Supra-Sternal Notch in Adult Patient: Unusual Location, Unusual Size, and Unusual Age

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### Abstract

### Case Report

Thyroglossal duct cysts (TGDC), a very common cause of neck mass in children, represent the embryologic remnants of the descending thyroglossal duct. The majority of these swellings are presented as a tumor in the midline, usually located in the infrahyoid region or in close proximity to the hyoid bone. Most appear in children between 2 and 10 years of age; boys and girls are equally affected. Seeing TGDCS in the late second decade of life or later, like in our patient, is a rarity. We present a 37 years old male patient who presented with supra-sternal notch cyst which was diagnosed as TGDC only after histopathology. The rarity of such TGDC in such uncommon site, made us report this case.

**Keywords:** Thyroglossal duct cyst, supra-sternal notch, sistrunk's operation.

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## INTRODUCTION

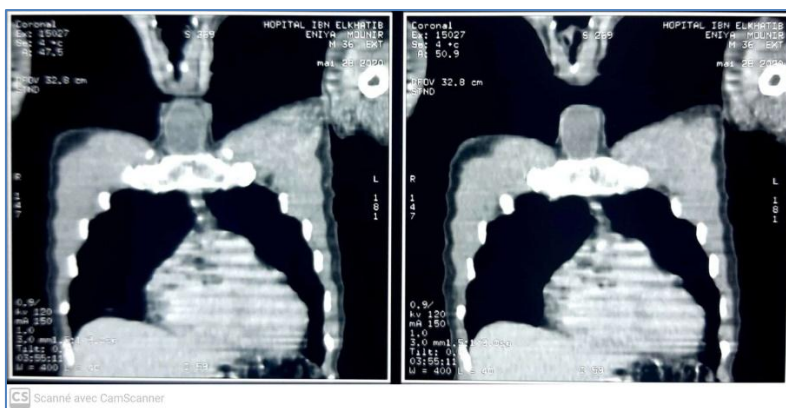
Thyroglossal duct cysts (TGDC) are the most common congenital cysts in the neck. It arises as a cystic expansion of a remnant of the TGD anywhere between the foramen cecum and the isthmus of the thyroid. Many cystic remnants of the thyroglossal tracts are never detected clinically. It occurs almost equally in both male and female. The typical cyst does, however, maintain a close relationship to the hyoid, thyrohyoid membrane, or thyroid cartilage, but it rarely occurs in the suprasternal notch and it is especially difficult to diagnose when it appears in this area because it is often difficult to differentiate from other cysts such as dermoid cysts, epidermoid cysts, brachial cysts, lymphangiomas, hydatid.

Cysts etc...Preoperative imaging is important to differentiate thyroglossal duct cyst from other lesions, to confirm the diagnosis, to identify the presence of functioning thyroid tissue in the neck, and to detect any possibility of malignant change within the cyst. Here, we present a 37 years old male patient who presented with a huge supra-sternal notch lump which was later proved to be TGDC by histopathology. The rarity of such huge cyst in such uncommon site made us report This case.

## CASE PRESENTATION

The patient was a 37-year-old male who was complaining of a slow-growing anterior neck mass over the past 2 years. He had no history of neck masses or prior swelling. He denied any sick contacts, or previous trauma. He had no family history of malignancy. On physical examination, he had a huge non-tender supra-sternal anterior neck cystic swelling measuring 9 cm in its biggest diameter and moves with swallowing. Related to the size, it was difficult to tell if it moves with protrusion of the tongue. No abnormalities detected in other systems examination. No other neck masses were palpated. On investigation, complete blood count was normal while neck ultrasound showed a well-circumscribed suprasternal heterogeneous cystic mass and normal thyroid in its position. Thyroid function tests were in the normal range.

Computed tomography (CT) scan of his neck showed a well-defined, suprasternal cystic mass. The thyroid gland was visualized in normal position, with no ectopic tissue or abnormal nodules. Fine needle aspiration cytology (FNAC) was not performed. A clinical diagnosis of thyroglossal duct cyst was made, and the patient was counseled regarding surgery and booked for excision.



**Fig-1: Neck and thoracic computed tomography scan with contrast showing a homogenous, midline suprasternal cystic mass**

The patient was planned for Sistrunk's operation under general anesthesia. Intra-operatively the cyst was found to extend from the hyoid bone to the supra-sternal notch crossing anterior to the isthmus of the thyroid. Complete excision of the cyst was done. Gross specimen was sent for histopathological examination. Serial sectioning revealed a cystic mass filled with brown gelatinous material. An adherent fragment of bone was present. The diagnosis of thyroglossal duct cyst was confirmed histologically. He had an uneventful recovery following the operation, with no complications and no recurrence to date.



**Fig-2: Photo showing the excised thyroglossal duct cyst, including the splayed out body of the hyoid bone.**

## DISCUSSION

Although thyroglossal duct cysts generally present clinically in children, it is important to understand that the lesion can present in adults as well, sometimes much later in life [1].

The thyroid gland remains connected to the foramen caecum by a thyroglossal duct, which eventually involutes and disappears. A thyroglossal duct cyst may appear at any point in the migratory pathway taken by the thyroid gland during its development including the thyroid gland *per se*. Among true cysts, TGDC is the most commonly seen cyst in the neck, especially in the first decade of life [2, 3]. Seeing

TGDCS in the late second decade of life or later, like in our patient, is a rarity.

Masses or cysts in the supra-sternal notch can be easily confused with goiter as the latter is the most frequent form. Our patient not only had the TGDC in unusual site, but also uncommonly huge cyst. The size is a likely explanation why it was below the thyroid *i.e.* when the cyst progressively enlarges it can grow anterior and below the isthmus of the thyroid gland as seen in our patient during the surgery.

Diagnosis usually involves thorough history with physical examination and combination of imaging modalities including ultrasonography, CT scan, MRI and radioisotope scanning.

Ultrasound (US) can detect thyroglossal duct cyst with a sensitivity of 84.22% and is the most commonly used imaging modality in the workup of thyroglossal duct cysts [4, 5]. US findings usually demonstrate unilocular anechoic cysts or pseudosolid lesions with thin walls and posterior acoustic enhancement. US has been demonstrated to be useful in determining the presence of ectopic thyroid tissue and the presence otherwise of a normal thyroid. The use of US, however, is difficult to rule out other cystic pathologies such as dermoid cysts, vascular tumours or abscessed lymph nodes. CT can provide additional diagnostic information with the use of contrast. Usually thyroglossal duct cysts appear as midline fluid-attenuated masses with thin walls [6]. Misdiagnosis based on clinical history and imaging occurs at a frequency of 9.6%–12.5% [5].

The standard of care for patients with TGDC is Sistrunk's operation, which is removing the cyst with the body (central part) of the Hyoid bone and ligation of the duct at the foramen of cecum [7, 8]. However, most surgeons do not excise the foramen caecum with mucosa to avoid postoperative pharyngo-cutaneous fistula. Occasionally, the thyroglossal duct branches and duplicates around the hyoid bone. For this reason, some authors suggest coring out the base of tongue to a depth

of 5 mm to encompass the foramen cecum without violating the mucosa[4]. Recurrence rates post-Sistrunk procedure are on the order of 1.9%–5.3% [4-9]. Recurrence rates for those undergoing simple cystectomy approach 55.6% if the final diagnosis is thyroglossal duct cyst and the hyoid bone is left intact[9].

## CONCLUSION

Thyroglossal duct cysts classically present as a cystic mass anywhere along the line of descent of the thyroid gland, from the foramen cecum at the posterior tongue to the final position of the thyroid gland along the first or second tracheal rings. Nonetheless, here we illustrate the possibility of deviation from this classical teaching, underscoring the need to maintain a wide differential diagnosis when working up neck masses in adults.

Clinical knowledge of the workup and differential diagnosis of thyroglossal duct cyst is essential for family medicine physicians, otolaryngologists and all clinicians taking care of adult patients.

Any midline cystic neck mass in an adult patient should raise suspicion for thyroglossal duct cyst, and the lesion should be removed with Sistrunk procedure rather than simple excision to minimise risk of recurrence.

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