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RESEARCH ARTICLE
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THYROGLOSSAL DUCT CYST: A CASE SERIES FROM A TERTIARY CARE CENTRE IN WESTERN UTTAR PRADESH

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ABSTRACT

BACKGROUND: Thyroglossal duct cyst (TGDC) is the most common congenital midline neck mass, arising from incomplete involution of the thyroglossal duct. Although frequently seen in children, TGDCs may also present in adults.

OBJECTIVE: To present a case series of patients with TGDC, highlighting clinical features, anatomical distribution, and surgical outcomes.

METHODS: We report a case series of 10 patients with TGDC managed surgically at a tertiary care hospital between March 2020 and March 2022. Clinical presentation, anatomical site, surgical procedure, and outcomes were analyzed.

RESULTS: Ten patients (7 males, 3 females) aged 7–37 years were included. The most common age groups affected were the first and second decades of life (80%). The subhyoid region was the commonest site (50%), followed by suprahyoid (40%) and suprasternal (10%). Six patients (60%) underwent the Sistrunk procedure and four (40%) underwent simple cyst excision. No recurrences were noted during follow-up.

CONCLUSION: TGDC is a common congenital midline neck mass with variable presentation across age groups. The Sistrunk procedure remains the definitive treatment, offering the lowest recurrence risk.

KEYWORDS: Thyroglossal duct cyst, congenital neck mass, Sistrunk procedure, case series

INTRODUCTION

Thyroglossal duct cysts (TGDCs) are the most common congenital cervical masses, accounting for 70–75% of cases. They arise due to incomplete involution of the thyroglossal duct, an

embryological tract extending from the foramen cecum to the thyroid gland. TGDCs typically present as painless midline swellings that move with tongue protrusion and deglutition, a key feature distinguishing them from thyroid swellings.

TGDCs can occur at any point along the duct's course, with common sites being subhyoid, suprahyoid, intralingual, and suprasternal. While the condition is most often seen in children, it may also present in adults. Complications include infection, fistula formation, and, rarely, malignant transformation.
Surgical excision is the treatment of choice. The Sistrunk procedure, involving removal of the cyst, central portion of the hyoid bone, and tract up to the foramen cecum, is considered the gold standard, as it significantly reduces recurrence compared with simple excision.

This article reports a case series of 10 patients with TGDC, describing clinical presentation, anatomical distribution, and surgical outcomes.

CASE SERIES – OBSERVATION AND RESULT

Age distribution: 4 patients (40%) were aged 1–10 years, 4 (40%) aged 11–20 years, 1 (10%) aged 21–30 years, and 1 (10%) aged 31–40 years.

AGE DISTRIBUTION

AGE GROUP	NO. OF CASES	PERCENTAGE
1 -10 YRS	4	40%
11 – 20 YRS	4	40%
21 -30 YRS	1	10%
31 – 40 YRS	1	10%

Legend : Table 1. Age distribution of patients with TGDC
The present study shows common age groups to be first and second decade. The youngest patient is 7 years of age and the oldest was 37 years of age
Sex distribution: 7 males (70%) and 3 females (30%).

SEX DISTRIBUTION

SEX	**NO. OF CASES**	**PERCENTAGE**
MALE	7	70%
FEMALE	3	30%

Legend : Table 2 . Sex distribution of TGDC cases
The incidence was more common in males
Anatomical site
5 patients (50%) had subhyoid cysts.
4 patients (40%) had suprahyoid cysts.
1 patient (10%) had a suprasternal cyst.

ANATOMICAL LOCATION

LOCATION	**NO. OF CASES**	**PERCENTAGE**
SUBHYOID	5	50%
SUPRAHYOID	4	40%
SUPRASTERNAL	1	10%

Legend: Table 3. Anatomical distribution of TGDCs

Subhyoid location was found to be most common

All patients presented with a midline, painless, progressively enlarging swelling since birth. The swellings were soft, cystic, mobile, non-tender, and moved with deglutition and tongue protrusion. None presented with pain, fever, or compressive symptoms.
Diagnosis was confirmed by ultrasonography and fine-needle aspiration cytology in all cases.
Management included
Sistrunk procedure: 6 patients (60%).
Simple cyst excision: 4 patients (40%).

TREATMENT MODALITY

TYPE OF WOUND	NO. OF CASES	PERCENTAGE
SISTRUNK	6	60%
EXCISION	4	40%

Legend: Table 4. Surgical Management of TGDCs
Sistrunk approach was most commonly used to treat thyroglossal cyst.
No recurrences were observed during the follow-up period.

CASE 1

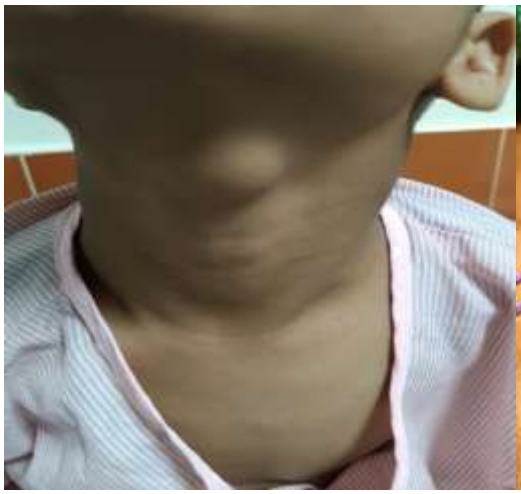

IMAGE 1 – SUPRAHYOID TDC

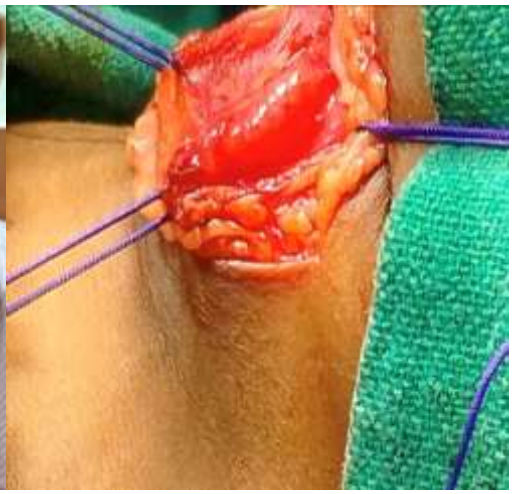

IMAGE 2 – INTRAOPERATIVE PICTURE

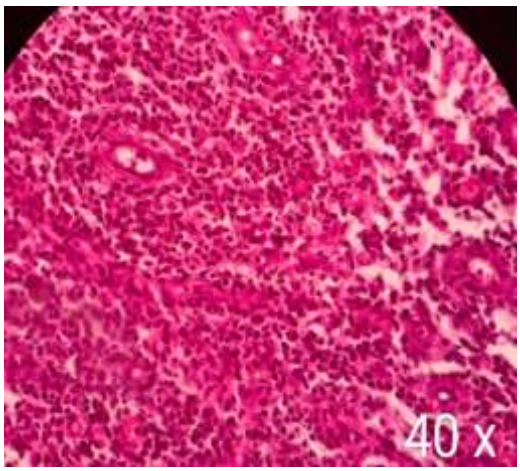

IMAGE 3 – MICROPHOTOGRAPH SHOWING CYST WALL AND SURROUNDING STROMA.

CASE 2

IMAGE 4 – SUBHYOID TDC

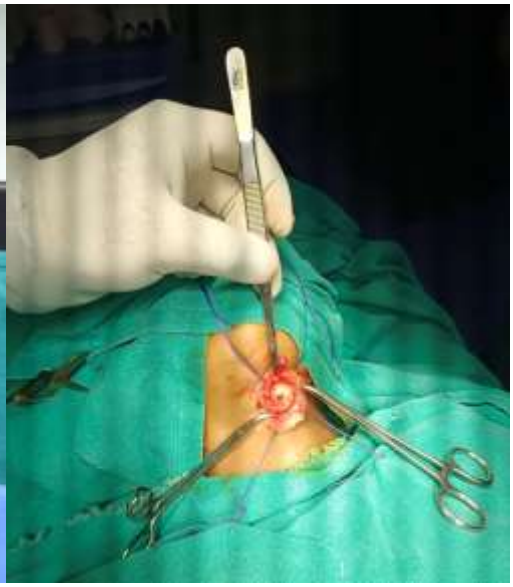

IMAGE 5 – INTRAOPERATIVE PICTURE

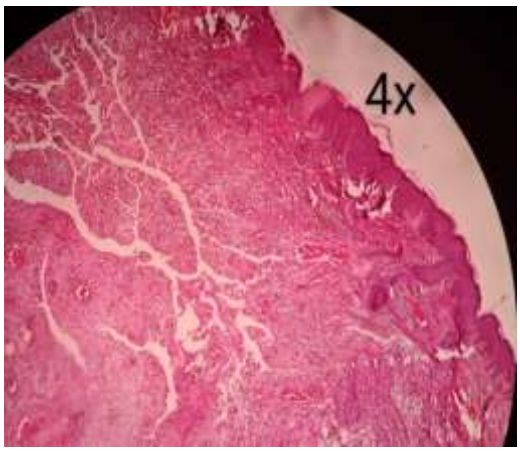

IMAGE 6 – MICROPHOTOGRAPH SHOWING CYST WALL AND EPITHELIAL LINING.

DISCUSSION

The thyroid gland develops from the foramen cecum during the fourth week of gestation. Normally, the thyroglossal duct involutes by the seventh week; persistence of this tract may result in TGDC, fistula, or sinus. The first endocrine gland to develop in utero is thyroid gland. It starts development by the end of fourth week of gestation, at the level of foramen cecum from an endodermal layer. By the fifth gestational week , the thyroglossal duct begins to atrophy, and by the end the thyroid gland would have been formed and it descends to its anatomical location by seventh week, during which the thyroglossal duct would have completely atrophied in majority of cases. Failure or incomplete involution of the thyroglossal duct leads to the development of a thyroglossal duct cyst, fistula or sinus.

These (TGDC's) are the most common congenital neck mass, accounting for 70-75% of the cases. Typically presenting as painless, midline neck mass moving with deglutition and tongue protrusion.

In most cases clinical history and physical examination are sufficient to make the correct diagnosis. On the other hand imaging is also important to confirm the diagnosis, so as to identify the presence of functioning thyroid tissue in the neck, and to detect any possibility of malignant change in the cyst.

TGDC should always be differentiated from other neck swellings such as lipoma, sebaceous cysts, dermoid cysts, infective lymphadenopathy and thyroid swelling.
Surgical excision is commonly indicated in patients with thyroglossal cyst presenting as midline neck mass with or without mass effect such as dyspnea, pain, dysphagia or any cosmetic reason or infected cyst.
It had been proposed that removing the central portion of hyoid bone along with thyroglossal duct cyst results in reducing the recurrence rate to around 20%. Later it was advocated, the additional removal of a core of tissue through base of the tongue uptill foramen caecum (described by Sistrunk) The operation was later modified with recommendation of the submucosal plane transection to avoid entry into the oropharynx.
This form of Sistrunk operation remains the choice of treatment for thyroglossal duct cysts. The recurrence rate with this procedure is around 3%-4% when compared to the local cyst excision which is associated with a higher rate of recurrence.
Our case series confirms that TGDC most commonly presents in the first two decades of life, with a male predominance. The subhyoid region was the most frequent site, in line with previous reports. Surgical excision remains the definitive treatment. Simple excision is associated with a high recurrence rate (up to 20%), whereas recurrence following the Sistrunk procedure is reported in only 3–4% of cases. In our series, no recurrence was noted, supporting the superiority of the Sistrunk technique.

CONCLUSION

TGDC is the most common congenital midline neck mass, presenting across age groups and at various anatomical sites. Awareness of its clinical spectrum is essential for timely diagnosis and management. The Sistrunk procedure remains the treatment of choice, with the lowest recurrence rates compared to simple excision.

PATIENT CONSENT

Written informed consent was obtained from all patients (or their guardians in the case of minors) for inclusion of their clinical details in this case series. Identifiable information has been omitted to preserve anonymity.

ETHICAL STATEMENT

This report describes a case series. Formal ethics committee approval was not required. Patient consent and confidentiality were maintained in accordance with the Declaration of Helsinki.

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