

# Thyroglossal Duct Cyst A Clinico Surgical Experience At Our Tertiary Care Center

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## Abstract

Most common congenital neck mass is thyroglossal cyst and occurs in less than 10% of the population. They occur due to failure of thyroglossal duct to involute and atrophy. Thyroglossal duct cysts mostly occur in pediatric age groups. Majority of them are found infrahyoid region. This is a prospective observational study for a period of one years from January 2021 to January 2022. 6 cases were diagnosed on the basis of clinical history, examination and USG findings suggestive of cyst. Data based on clinical diagnosis and surgical procedure in terms of size, site and presence of the duct was analyzed with confirmation of histopathological examination findings.

**Keywords:** Thyroglossal cyst, Hyoid bone, Recurrence, Thyroglossal duct

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## I. Introduction

Most common congenital midline neck lesion is thyroglossal duct cyst (TGDC) which is most common among the pediatric age group. It presents as painless swelling at any level between foramen caecum and upper chest, mostly located at and around the level of hyoid bone. Failure of obliteration of the embryogenic thyroglossal duct ends in thyroglossal cyst. This thyroglossal duct connects from foramen caecum to the thyroid gland. This migration takes place at around sixth week of gestation. Patients mostly present to the clinician at early adulthood. Mostly present in early childhood but not clinically apparent until adult age. This most commonly seen in males rather than females. 60-70% of lesion usually recognized by

age of 5 years, and 50-60% are diagnosed before age of 20 years. Even though diagnosis is done by clinical history and examination and radiological studies of the cyst, thyroid profile one of the most important assessment for accurate diagnosis. The Sistrunk's operation first described in 1920 s is still the standard surgical procedure for thyroglossal duct cyst.

## II. Materials And Methods

This is a prospective observational study which was done in the Department of ENT, Head and Neck surgery of Karpaga Vinayaga Institute of Medical Sciences for a period of one year from January 2021 to January 2022. 6 cases presented during this study period and were diagnosed on the basis of clinical history, examination, FNAC findings and radiological study findings suggestive of cyst.

The Inclusion criteria were: cases with normal thyroid on ultrasound, FNAC impression given as a cyst. Confirmation by the histopathological examination findings.

The Exclusion criteria were: past history with any neck surgeries, congenital anomalies.

All patients were taken up for a modified Sistrunk's operation where cyst along with body of hyoid and tract was excised. Surgical findings were observed in terms site of cyst and the presence of thyroglossal tract. Excised cyst were sent for histopathologic examination.

### III. Results And Observation

The mean age group involved in this study was 11.5 years. Majority were under 15 (49.8%) years of age. Comprise of 66.4% males while females were 33.2% of total population. 100% present with neck swelling out of which 66.4% of them present with asymptomatic neck swelling. Redness over swelling was seen in 33.2% of patients. Painful swelling and deglutination was seen in 33.2% of patients at presentation. Movement with protrusion of tongue and with swallowing was seen in 100% of patients. Cysts were seen to be located at different places. Majority of cysts were sub hyoid (49.8%) in location, followed by suprahyoid (33.2%) and over hyoid (16.6%). Mostly every cysts 100% were in midline. During surgical excision, thyroglossal ducts were observed to be patent for various lengths. Majority (49.8%) of patients had tract arising from cyst and disappearing at superior border of hyoid body. A complete patent thyroglossal duct was seen in one patient (16.6%) from cyst to base of tongue. Complete absent tract was seen in two patients (33.2%).

**Table : 1** Age distribution among the patients

| AGE GROUP | n (%)     | MALE      | FEMALE    |
|-----------|-----------|-----------|-----------|
| 0-15      | 3 (49.8%) | 2         | 1         |
| 16-30     | 1 (16.6%) | 1         | -         |
| 31-45     | 2 (33.2%) | 1         | 1         |
| Total     | 6 (100%)  | 4 (66.4%) | 2 (33.2%) |

**Table : 2** Frequency of the signs and symptoms

| SYMPTOMS & SIGNS               | n (%)     |
|--------------------------------|-----------|
| Painless midline neck swelling | 4 (66.4%) |
| Erythema & Painful swelling    | 2 (33.2%) |
| Discharging sinus              | -         |
| Moving with Deglutition        | 6 (100%)  |
| Moving with tongue protrusion  | 6 (100%)  |



Fig 1: showing midline thyroglossal cyst swelling

**Table : 3** Site of the cyst

| LOCATION   | n (%)     |
|------------|-----------|
| Suprahyoid | 2 (33.2%) |
| Hyoid      | 1 (16.6%) |
| Subhyoid   | 3 (49.8%) |

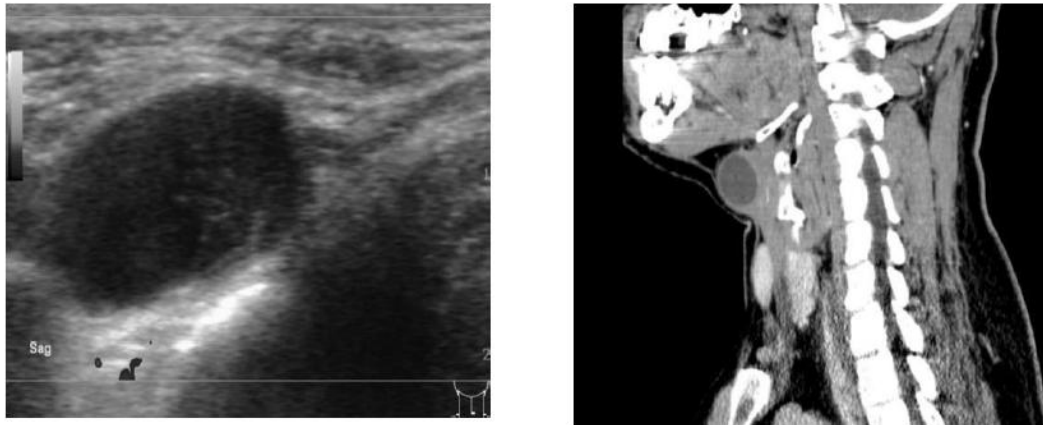


Fig: 2 showing USG and CT scan images in a patient with thyroglossal cyst

| SURGICAL EXTENT              | n (%)     |
|------------------------------|-----------|
| Tract upto base of tongue    | 1 (16.6%) |
| Tract upto suprahyoid region | 3 (49.8%) |
| No tract only cyst           | 2 (33.2%) |



Fig:3 Intraoperative image of thyroglossal duct cyst excision (sistrunk operation)

**DISCUSSION**

Thyroglossal duct cysts (TDCs) are the most common congenital neck mass in the midline. There were 4 (66.4%) males and 2 (33.2%) females in our study, which shows male predominance. Majority 3 (49.8%) of our patients were under 15 years of age. This is also in accordance with literature. All of our patients presented with painless neck swelling. Moorthy et al. in their study found typical painless swelling only in about 41.6% of the patients diagnosed of TDC while one more study by Kepertis et al. found 63.6% had palpable midline cystic mass. Thyroglossal duct cysts usually present clinically as congenital cysts, infected cysts or sinuses. Because of its relationship to both the hyoid bone and foramen cecum, the cyst typically moves cranially with swallowing and protrusion of the tongue. These manoeuvres may be difficult to elicit in small children. We found movement with protrusion of tongue and with swallowing in 100% of patients. Thyroglossal duct cysts have been seen to be located at different sites. We found majority 49.8% of cysts were subhyoid in location followed by suprahyoid in 33.2% and overhyoid in 16.6%. We found that thyroglossal duct was patent for different lengths and areas in different patients. In majority of patients 49.8% duct was seen coming out of thyroglossal cyst and disappearing at superior border of body of hyoid. A complete patent thyroglossal duct was seen in one patient 16.6% from cyst and entering base of tongue. Complete Absent tract was seen in two patients 33.2%. It has been shown that in the majority of cases the duct 'aborises', and there are many branches and duplications of the duct around the bone. Removing hyoid body is necessary to significantly reduce recurrence. Using classical Sistrunk's technique, Marshall and Becker described a recurrence rate of just 1.3% in their series of 310 cases. Nevertheless, the current published data give a recurrence rate of over 4% because nowadays a modified Sistrunk's operation is done where coring out suprahyoid tissue up to base of tongue is not done. We personally did not find any recurrence so far with this procedure but at the same time we believe classical Sistrunk's operation is still the procedure with least recurrence. It is estimated that only about 1% of the patients with TDC show malignant changes, the most common being papillary thyroid carcinoma.

#### IV. Conclusion

Thyroglossal duct cyst is the most common congenital midline neck swelling. Most of the cases are pediatric age grouped males. Majority of them present with visible midline neck swelling which moves with deglutination and tongue protrusion. Most of them are subhyoid in location. Complete patent duct from cyst to tongue musculature is rarely seen while most of the times, a patent duct just disappears at the superior border of body of hyoid. These cysts can rupture on surgical exploration. None of our cysts had malignant features.

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