# THYROGLOSSAL DUCT CYST: A DESCRIPTIVE STUDY OF 41 CASES

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## *ABSTRACT*

***Objective:*** *To describe the clinical presentations and site distribution of the thyroglossal duct cyst.*

***Material and methods****: This descriptive study was conducted at the Department of ENT, District Headquarter Hospital Timergara from May 2001 to December 2007. The various presentations and management options were observed and documented using a semi structured proforma. Complications or recurrences, if any, were noted.*

***Results:*** *A total of 41 cases of thyroglossal duct cyst with a mean age of 16.7 ± 17.49 years were included in the study. There were nineteen female and twenty two male patients. There were 9 recurrent and 32 cases. Forty patients presented with midline cystic swelling that moved with protrusion of tongue, seven with sore throat, 4 with dysphagia and 3 with globus. Forty (97.57) cases were central [9 (21.97%) suprahyoid and 31(75.60%) infrahyoid] and 01(2.43%) presented with cystic swelling on left side of the neck All the cases were subjected to sistrunk operation.*

***Conclusion:*** *The most common presentation of thyroglossal duct cyst is a midline cystic swelling that moves with tongue protrusion. Thyroglossal duct cyst is present centrally in most of the cases.*

***Keywords****: Thyroglossal duct cyst (TDC), neck mass, congenital anomaly.*

## INTRODUCTION

Thyroglossal duct cyst (TDC) is the most common benign developmental lesion of the neck[1]. During the fourth week of development the thyroid enlage arises as an invigination of endoderm in the floor of pharynx between the tuberculum impar and posterior third of the tongue and develops caudally with the descent of great vessels[2].The thyroid primordium passes either anterior, posterior or through the hyoid bone in mid line of the neck.

The tract left behind usually atrophies and disappears, though the caudal end often remains as pyramidal lobe[3].

There are several theories regarding development of these cysts. The TDC my be formed as a result of recurrent throat inflammation that causes the tract to undergo cystic degeneration or a blocked thyroglossal duct expands as a result of accumulation of secretion. The epithelial lining is pseduo stratified ciliated columnar with some squamous epithelium[4].

TDC usually present in young children, although they may be found in patients of any age with equel sex distribution[5]. On physical examination they present as a painless mid line mass measuring usually 2 to 4 cm in diameter[6].The cyst moves upward with tongue protrusion, which is reflection of its connection with foramen cecum. Most of them are found below the hyoid with a quarter above it. Though ninety percent of thyrogossal duct cysts are found in mid line, ten percent are to one side of the neck, with 95 percent on the left and 5 percent on the right[7].

The cyst may become infected presenting as a painful tense mass. The patient will have odynophagia and the overlying skin will be erthymatous. This may result in sinus formation due to spontaneous rupture or a surgical drainage attempt[5].

Diagnosis is usually clinical, a proper history and physical examination are required for the correct diagnosis. Ultrasonography will help to confirm the diagnosis and identify the presence of normal thyroid gland in neck. Thyroid scans is needed when normal thyroid tissue is not found[8, 9].

Thyroglossal cysts are treated surgically by sistrunk operation. The purpose of the study

was to describe the clinical presentations and site distribution of the thyroglossal cyst.

## MATERIAL AND METHODS

This descriptive study was conducted at the Department of ENT, District Headquarter Hospital timergara from May 2001 to December 2007. A total of fourty one patients of all ages and both sexes operated by the same surgeon at DHQ Timergara during the study duration were included in the study. Patients with infected cysts or with systemic illness were excluded from the study. A detailed history and thorough physical examination was done. A semi structured proforma was made to collect all the necessary information of the patient. Ultrasound studies were done in all cases to confirm the cystic nature of the lesion and the presence of normal thyroid gland at its normal site. FNAC was not done as the facility was not available. Management was mainly surgical and Sistrunk operation was done in all cases. Cyst was removed through a horizontal incision made at the inferior border of the mass along with body of the hyoid and a core of suprahyoid muscles was removed. This was done to prevent any recurrence. Follow up was done at one, two, four week and six months interval for any complications and/or recurrence.

## RESULTS

The mean age of the sample was 16.7 $\pm$ 17.49 years. Nineteen cases were female and twenty two male. Patients did present with more than one complaint. Forty patients presented with midline cystic swelling that moved with protrusion of tongue, seven with sore throat, 4 with dysphagia and 3 with globus (Table 1). Thirty two patients visited outpatient department for the first time while nine cases were recurrent due to non-excision of hyoid bone.

**Table 1: Presentation of Thyroglossal Duct Cyst (n=41)**

| | | |
|---|---|---|
| 1. | Midline neck cyst | 40 |
| 2. | Sore throat | 07 |
| 3. | Dysphagia | 04 |
| 4. | Globus | 03 |

Out of total 41 cases, 40 (97.57) cases were central [9 (21.97%) suprahyoid and 31(75.60%) infrahyoid] and 01(2.43%) presented with cystic swelling on left side of the neck that was confirmed as TDC by post operative histopathology (Table 2).

On ultrasound, Eight cases (19.5%) in our study were anechoic (02 suprahyoid and 06 infrahyoid) 32 hypoechoic (78.1%) (07 suprahyoid and 25 infrahyoid) and 01 case (2.4%) (left side of the neck) was reported as Hetrogenous (Table 3).

**Table 2: Site distribution (n=41)**

| Central | | Right side of the neck | Left side of the neck |
|---|---|---|---|
| Suprahyoid | Infrahyoid | | |
| 9 | 31 | - | 1 |

**Table 3: Ultrasound findings (n=41)**

| Site | Anechoic | Hypoechoic | Hetrogenous |
|---|---|---|---|
| Suprahyoid | 02 (4.9%) | 07 (17.1%) | - |
| Infrahyoid | 06 (14.6) | 25 (61%) | - |
| Left Side Neck | - | - | 01 |
| | 08 (19.5%) | 32 (78.1%) | 01 (2.4%) |

## DISCUSSION

Thyroglossal duct anomalies are the most common malformations in the neck and constitute 70% of all the congenital cervical masses. They are more common in children under the age of 5 years and 60% of lesions are diagnosed before the age of 20[1]. In our study there was no significant difference in sex distribution, though Hirshoren N et al reported a male predominance[2]. They may be found anywhere from base of tongue to manubrium[3]. We found most cases i.e. 75.6% in the infrahyoid region. Chon SH et al have reported TDC from the mediastinum[4]. Deaver MJ et al also found most cases inferior to the hyoid bone 65%[5]. It is frequently presented as midline neck mass that moves with swallowing and protrusion of the tongue. Lin ST et al studied patients with left sided TDCs[7] but only one case in our study had left sided neck swelling. Presenting features may be sore throat, pain, dysphagia, hoarseness, and globus[8]. However, we did not see any case of pain or hoarseness. They may present as infected cyst, discharging sinus, true fistula[1] or intra thyroid cyst[9].

Though the diagnosis is mainly clinical, ultrasonography is of great help[9]. We subjected all cases to ultrasound study and our finding of majority of cases with homogenously hypoechoic picture (78.1%) were different from the study done by Ahuja AT et al, who reported 28% each for anechoic, pseudosolid and heterogeneous picture[10].

About 1% of TDC are found ultimately to harbor thyroid carcinoma which was first reported by Ucherman in 1915[11]. All our cases were reported benign.

Most effective treatment for TDC is surgery (Sistrunk operation) and this was performed in all the cases[12]. Percutaneous ethanol injection for TDCs has also been reported for cases not fit for surgery[13]. Post-operative infection of the wound has been reported as the common complication of Sistrunk operation. Two patients of our study developed infection which was treated with antibiotics.

## CONCLUSION

TDC can be diagnosed on clinical basis and the most common presentation is a midline cystic swelling that moves with tongue protrusion and TDC is present centrally in most of the cases. Ultrasound can be used reliably as an appropriate imaging modality.

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