

THYROGLOSSAL DUCT CYSTS: OUT COME OF SISTRUNK OPERATION

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ABSTRACT

Background: Thyroglossal duct cyst is the most common cause of congenital neck swelling. The recurrence rate of thyroglossal duct cysts removed by Sistrunk or other procedures is 4% and 50% respectively. The objectives of this study were to determine the gender & age distribution, laterality & location of thyroglossal duct cysts and outcome of Sistrunk Operation in the management of thyroglossal duct cysts in terms of recurrence.

Material & Methods: This cross-sectional study was carried out from June 2009 to July 2012 at Departments of ENT, KGNawaz Hospital, Bannu and MMM Teaching Hospital, Dera Ismail Khan. All confirmed cases of thyroglossal duct cysts were included in the study. Sistrunk operation was done in all patients. Variables were gender, age, laterality and location of the cysts and recurrence of the disease. Follow up was for 6 months to see for any recurrence. Statistical analysis was done giving frequency and percentage.

Results: Out of 25 patients of thyroglossal duct cysts, 8 (32%) were males and 17(68%) were females with male-to-female ratio of 1:2.1. Mean age of the patients was 15.13 ± 4.83 with a range of 6-35 years. The commonest age group involved was 11-15 years with frequency of 10 (40%). The laterality of cysts was midline in 20 (80%) and lateral in 5 (20%) patients. Most of the thyroglossal duct cysts were located in the infrahyoid position 11 (44%). Recurrence rate after the Sistrunk procedure was 2 (8%).

Conclusion: Recurrence of thyroglossal duct cyst remains low when the Sistrunk procedure is employed.

KEY WORDS: Thyroglossal Duct Cyst; Congenital Anomaly; Sistrunk Operation.

This article may be cited as: Said M, Khan MI, Khan W, Marwar M. Thyroglossal duct cysts: outcome of Sistrunk operation. *Gomal J Med Sci* 2013; 11:142-4.

INTRODUCTION

Thyroglossal duct cysts are the most common cause of congenital neck swelling. They may be found in as many as 7% of the population. Although they are present from birth, they usually become symptomatic in early childhood as a mass or draining sinus. Infection and abscess formation are frequent complications due to a communication between the cyst and the mouth with subsequent contamination by oral flora.¹

Although these cysts are most commonly found just inferior to the hyoid (66%), they can be located between the tongue and hyoid (25%) and just over 10% are related to the thyroid. In 90% of cases the cysts are in the midline but in 10% these may be situated lateral to midline, usually on left side. Some

patients present with acute infection and abscess formation. This may end in a draining fistula as a result of spontaneous rupture or surgical drainage.^{2,3}

Ultrasound scanning is the investigation of choice which will confirm the diagnosis and will identify the presence of functioning thyroid in the neck. Thyroid function tests and/ or a radioisotope scan may be performed if the patient is clinically hypothyroid or if no thyroid gland is seen on ultrasound scan. A fine needle aspirate is needed to confirm the diagnosis if the mass is suprahyoid to help differentiate it from a dermoid cyst or submental lymph node.⁴

Elective surgical excision is the treatment of choice for uncomplicated thyroglossal duct cysts to prevent infection of the cyst. The Sistrunks procedure is performed, rather than simple excision, to reduce recurrence risk.⁵ Infected cysts or sinuses are managed first by treating the infection and once the infection clears, the patient may undergo an elective Sistrunks procedure. By using Sistrunks procedure to treat thyroglossal cyst, the recurrence rate is reduced from 50% to 4%.¹

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The objectives of this study were to determine the gender & age distribution, laterality & location of thyroglossal duct cysts and outcome of Sistrunk operation in the management of thyroglossal duct cysts in terms of recurrence.

MATERIAL AND METHODS

This cross-sectional study was carried out from June 2009 to July 2012 at Departments of ENT, Khalifa Gul Nawaz Hospital, Bannu and Mufti Mehmood Memorial Teaching Hospital, Dera Ismail Khan, Pakistan. The study was approved by the Ethics and Research Committee of the hospital. All confirmed cases of thyroglossal duct cysts (TGDCs) of either sex and of any age were included in the study. All subjects were admitted a day before surgery. A written informed consent was obtained from each patient or their parents (in case of paediatric patients) that participated in the study. A detailed history and physical examination were carried out. Each swelling was examined for site of location, consistency, fluctuation, transillumination and upwards movement of the swelling with swallowing and on protrusion of the tongue. History of previous surgery was also obtained. Thyroid scan and Ultrasonography and thyroid function tests were done in all cases. FNAC was done to confirm the diagnosis of thyroglossal duct cyst.

In all patients Sistrunk procedure was performed under general anaesthesia in which the cyst was removed along with the central portion of the hyoid bone with meticulous excision of persistent thyroglossal duct up to the foramen cecum. Prophylactic antibiotics were given to all patients for one week postoperatively. Follow-up was done for 6 months on every two months basis. On every follow up visit, each patient was examined for any recurrent visible or palpable swelling or fistula on the same site or along the tract. Two patients, who had recurrence, were re-operated six months later.

Gender, age in years and age grouping were demographic variables. Laterality, location of the cysts & recurrence of disease were research variables. Six age strata were as; 6-10, 11-15, 16-20, 21-25, 26-30 and 31-35 years. Age in years was analyzed as mean, SD and range, being a ratio data. Gender, age grouping, laterality and location of the lesion and recurrence of disease, being categorical data, were analyzed as frequency (number) and relative frequency (%). Statistical analysis was done using SPSS version 17.

RESULTS

Out of 25 patients of thyroglossal duct cysts, 8 (32%) were males and 17 (68%) were females with male-to-female ratio of 1:2.1. Mean age of the patients was 15.13 ± 4.83 , with a range of 6-35 years.

Age grouping of patients is given in table 1.

Table-1. Age grouping of patients of Thyroglossal duct cysts.

Age group	Frequency	Percentage
06-10	06	24%
11-15	10	40%
16-20	04	16%
21-25	03	12%
26-30	01	4%
31-35	01	4%
Total	25	100%

The commonest age group involved was 11-15 years with frequency of 10 (40%). The laterality of cysts was midline in 20 (80%) and lateral in 5 (20%) patients. The location of the thyroglossal duct cysts was infrahyoid position in 11 (44%) followed by suprahyoid position in 9 (36%) as shown in table 2. Recurrence rate after the Sistrunk procedure was 2 (8%).

Table No 2: Location of Thyroglossal duct cysts.

Location of TD cysts	Frequency	Percentage
Infrahyoid cysts	11	44%
Suprahyoid cysts	09	36%
Juxtahyoid cysts	04	16%
Suprasternal cysts	01	04%
Total	25	100%

DISCUSSION

Thyroglossal duct cysts are still the commonest cause of midline benign cystic neck lesions. Most commonly, they present in the first decade of life, however they are also seen in adults as well.⁶ The age range of our patients was almost similar to that reported in literature.⁷ On the other hand in the study by Mohan et al, all of the patients were from adult group.¹ While Pelausa ME series included only children.⁸

In our study, females were more commonly affected than males. These results are in agreement with the literature reports.^{7,8} But contrary to these reports, more than half of the patients were male as reported in other studies.^{10,11} No sex predilection has been reported by Allard.¹² These differences in gender distribution may be attributed to genetic and geographic differences.

Regarding location, our results showed that most of the TGDCs were midline, approximately similar to the results of 2 previous studies.^{13,14} In our

study as well as supported by other researchers^{14,15} most lesions in the off-midline location occurred on the left. This may be explained by the fact that the levator glandulae thyroidea muscle is ordinarily found on the left. The location of TGDCs relative to the hyoid bone was somewhat different i.e. 44% infrahyoid in our study in comparison to another study with 38.9% located at infrahyoid level.¹ About 1% to 2% of TGDCs are reported to be at the base of the tongue.¹⁶

The recurrence rate for thyroglossal duct cysts after a Sistrunk operation is 5% compared with 20% if the hyoid cartilage is not removed.¹³ The recurrence rate after Sistrunk operation was seen in 8% patients in our series compared to higher rates of 12.1%,¹¹ 15.8%¹⁷ and 24%.⁹ This positive outcome may be due to the adequate hyoid bone resection and removal of persistent infra or suprahyoid tract remnants in cases of recurrent thyroglossal duct cysts. Both patient related and surgeon related factors may be responsible for recurrence. Patient related factors may include preoperative infection or fistula, multiple tracts, skin involvement by the cyst, previous surgical intervention and lobulation of the cyst. While surgeon related factors may include perforation of the cyst at the time of excision, not identifying the multiple tracts and inadequate removal of the central portion of the hyoid bone.

Lower recurrence rate (3.7%) after a Sistrunk procedure was reported by Türkyilmaz Z et al; however, he could not identify related special features such as inflammation, perforation at surgery, presentation with fistula or previous drainage of the cyst.¹⁸

The present study is limited because of the small study group. A large sized, prospective, randomized and a multi centre study is recommended to study the out come of Sistrunk operation for excision of thyroglossal duct cysts.

CONCLUSION

Recurrence of thyroglossal duct cyst remains low when the Sistrunk procedure is employed.

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CONFLICT OF INTEREST
 Authors declare no conflict of interest.
GRANT SUPPORT AND FINANCIAL DISCLOSURE
 None declared.