

THYROGLOSSAL SINUS; DEMOGRAPHIC AND ANATOMICAL FEATURES OF THYROGLOSSAL SINUS

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ABSTRACT... Objective: To assess demographic and anatomical features of thyroglossal sinus. **Design:** Descriptive. **Setting:** ENT department Allied Hospital Faisalabad. **Period:** From Jan 2005 to June 2010. **Material and Methods:** The patients were admitted through ENT out patient department. The data was collected on the basis of history, physical examination, investigations, management and follow up. **Results:** Total 60 patients 35 males (58%) and 25 females (42%). The majority of patients were from second decade of life 28 (47%). The most common location of thyroglossal sinus was thyrohyoid 55 (92%). The etiology of thyroglossal sinus in majority of cases was iatrogenic 50 (83%). The common clinical presentation was discharging sinus in the neck 60 (100%). The histological diagnosis in all the cases was benign 60 (100%). All the patients were managed by Sistrunks operation 60 (100%). The recurrence was seen in 4 cases (07%). The incidence of thyroid carcinoma was 00%. Overall success rate was 93%. **Conclusions:** The prevalence of thyroglossal sinus is quite considerable. The majority of cases are iatrogenic which means that more awareness is required about diagnosis and proper management of thyroglossal cyst. The incision and drainage of thyroglossal cyst should be avoided to prevent the development of thyroglossal sinus. In all the cases the specimen should be sent for histopathology to rule out the thyroid carcinoma.

Key words: Thyroglossal sinus.

INTRODUCTION

The thyroglossal tract normally atrophies and disappears between fifth to tenth weeks. The thyroglossal tract extends from the foramen caecum at the dorsum of tongue to the thyroid gland. Any part of the tract can persist causing a sinus, fistulae or cyst. Most fistulae and sinuses are acquired following rupture or incision of infected thyroglossal cyst. Occasionally, a sinus tract is present in the midline without a visible cyst. This midline sinus tract represents the remnant of the thyroglossal duct. It may open into the region of the hyoid or lower above the sternal notch. The sex distribution of thyroglossal cyst is equal and the age range is from birth to 70 years with a mean age of 5.5 years. 75% present as midline swellings remainder can be found as far lateral as lateral tip of hyoid bone.

40% present below 10 years of age 65% present less than 35 years of age¹. The epithelial lining of the thyroglossal cyst is variable most commonly it is pseudo-stratified ciliated columnar but it may be squamous. Thyroid tissue is present in the cyst wall in more than 60% of the cases. It is from this tissue the thyroid carcinoma can arise. The incidence of carcinoma in thyroglossal cyst is 1%^{2,3}. It is often diagnosed incidentally after surgical excision. 94% are of thyroid origin and 6% are of squamous origin⁴. The malignancy

most often found is papillary carcinoma^{2,4,5}.

The incidence of thyroglossal cyst is 72% and 55% respectively among other cysts and congenital fistulas of the face and the neck^{6,7}. The formation of thyroglossal sinus is due to spontaneous rupture or surgical drainage of an infected thyroglossal cyst and is always secondary.

The thyroglossal cyst appears as mid line neck mass at or below the hyoid bone which is firm, non tender and moves with protrusion of tongue.

The thyroglossal sinus usually presents as an opening in the midline of the neck through which there is continuous or intermittent mucoid discharge from that opening.

It is important to confirm the presence of normal thyroid gland before doing Sistrunks operation because inadvertent removal of an ectopic thyroid gland may result in hypothyroidism⁸. The incidence of ectopic thyroid tissue is 1% to 2%². Therefore preoperative ultrasonography and thyroid scan are carried to rule out the possibility of the ectopic thyroid gland.

In location the thyroglossal cyst are 2% intralingual, 24% suprahyoid, 61% thyrohyoid and 13% are supra-sternal which shows that one in four is above the hyoid and three

out of four are below.

The thyroglossal sinus is managed by Sistrunks operation⁹ in this operation the whole of the thyroglossal cyst, its tract, the central portion of the hyoid bone and an ellipse of skin around the sinus are excised in toto. Methylene blue is injected to highlight the thyroglossal duct and make it easier to dissect. The recurrence rate after this procedure is 4%¹⁰.

Delay in treatment often results in another infection, which necessitates antibiotic therapy and delay of surgery until all the infection and inflammation are resolved because the recurrence rate is higher if an infected thyroglossal cyst or sinus is operated by sistrunk operation as compare with non infected case¹¹.

MATERIAL AND METHODS

It was a descriptive study conducted upon 60 patients suffering from thyroglossal sinus in the department of ENT Allied Hospital Faisalabad from Jan 2005 to June 2010. The detailed history, clinical examination, routine investigations were carried out. Standard Performa was prepared duly filled for each patient. All the Patients suffering from thyroglossal sinus were selected randomly. All the patients were screened by performing thyroid profile and thyroid scan to rule out the possibility of ectopic thyroid. All the patients were operated by Sistrunks operation. The follow up was carried out from 6 months to 12 months.

The patients with histologically proven thyroglossal sinus were included in the study and the patients with thyroglossal cyst were excluded.

RESULTS

Total 60 patients 35 males (58%) and 25 females (42%). The majority of patients were from second decade of life 28 (47%). The most common location of thyroglossal sinus was thyrohyoid 55 (92%). The incidence of thyroglossal sinus was 1 case per month. The etiology of of thyroglossal sinus in majority of cases was atrogenic 50 (83%). The common clinical presentation was discharging sinus in the neck 60 (100%). The histological

diagnosis in all the cases was benign 60 (100%). All the patients were managed by Sistrunks operation 60 (100%). The recurrence was seen in 4 cases (07%). The incidence of thyroid carcinoma was 00%. Overall success rate was 93%.

Table-I. Sex distribution in patients (n=60)

Sex	No. of patients	%age
Male	35	58%
Female	25	42%
Total	60	100%

Table-II. Age distribution of patients (n=60)

Age	No. of patients	%age
5-10 yrs	02	03%
11-20 yrs	28	47%
21-30 yrs	20	33%
31-40 yrs	10	17%
Total	60	100%

Table-III. Symptoms of patients (n=60)

Symptoms	No. of patients	%age
Discharging sinus	60	100%
Midline neck mass	-	-
Fever	-	-
Odynophagia	-	-

Table-IV. Location of sinus at the time of presentation (n=60)

Location	No. of patients	%age
Intralingual	-	-
Suprahyoid	05	08%
Thyrohyoid	55	92%
Suprasternal	-	-
Total	60	100%

Table-V. Etiology of thyroglossal sinus (n=60)

Disease	No. of patients	%age
Spontaneous rupture of infected cyst	10	17%
Iatrogenic due to incision and drainage of infected cyst	50	83%
Total	60	100%

Table-VI. Complications associated with Sistrunk procedure (n=60)

Complications	No. of patients	%age
Hemorrhage	-	-
Haematoma	-	-
Recurrence	04	07%
Keloid formation	-	-

DISCUSSION

The formation of thyroglossal sinus is due to either spontaneous rupture of an infected thyroglossal cyst or more commonly it follows incision and drainage of an infected thyroglossal cyst due to lack of proper diagnosis.

The main clinical presentation of patients having thyroglossal sinus is persistent mucoid discharge from an opening in the middle of neck as compare to mass in neck associated with thyroglossal cyst.

In our study the no of patients below 10 years were 3% and less than 35 years were 83% as compare with the study conducted by Brewis C et al¹ in which it was 40% and 60% respectively.

In a study conducted by Brousseau V J et al¹⁴ there was bimodal distribution for age at presentation of thyroglossal cyst but this finding was not present in our study.

The infrahyoid location is common both for thyroglossal sinus and cyst. The recurrence rate in our study was 7% as compare to the studies of Dedivitis RA

et al¹², Michelini ME et al¹³, Turkyilmaz Z et al¹⁰ in which it was 1.82%, 11.8%, 4% respectively.

The factors associated with recurrence are inaccurate initial diagnosis, infection, unusual presentation and lack of base of tongue musculature removal. The level of surgeon training affected the surgical outcome¹⁵.

The primary thyroglossal sinus is treated by Sistrunk procedure⁹. The recurrent thyroglossal sinus is treated by an en bloc central neck muscle dissection which is logical and effective surgical technique for these cases^{16,17}.

When the thyroglossal sinus is infected it should not be operated before the infection is controlled because of high recurrence rate¹¹.

The surgical management and post-operative outcome between adults and children is the same¹⁴.

CONCLUSION

The prevalence of thyroglossal sinus is quite considerable. The majority of cases are iatrogenic which means that more awareness is required about diagnosis and proper management of thyroglossal cyst. The incision and drainage of thyroglossal cyst should be avoided to prevent the development of thyroglossal sinus. In all the cases the specimen should be sent for histopathology to rule out the thyroid carcinoma.

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**It's not enough that we
 do our best; sometimes
 we have to do what's required.**

Sir Winston Churchill