

Thyroglossal tract abnormalities - a review of 62 cases

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Abstract:

A prospective study of 62 cases of thyroglossal tract abnormalities was done in the department of Otolaryngology and Head-Neck surgery of Chittagong Medical College Hospital, Chittagong, Shahid Shohrawardy Hospital Dhaka and Dhaka Medical College Hospital, Dhaka during the period of October 1991 to December 2003. The age range of the study population was from 1 year to 62 years with mean age of 9.5 years. Of the study cases most of them belong to paediatric age group and male-female ratio was 1.21:1. Majority, 46 (74.19%) of the cases are cysts and all but two cysts were in the midline. A few 6(9.67%) pathology were recurrent following previous attempt at surgery. Anatomically majority, 40 (64.52%) of them were located in the thyrohyoid region. Of the fistulae 12 (75%) of them were located in the thyrohyoid region. Of the fistulae 12 (75%) of the cases were iatrogenic. All patients had undergone Sistrunk's procedure and all (87.10%) but 8 patients (12.90%) were operated under general anaesthesia. Recurrence rate was 4.84% Only 16(25.80%) of the cases could be followed up upto three months. We conclude that the diagnosis of thyroglossal tract abnormalities is mainly clinical. Sistrunk's procedure is the best way of management & long term follow-up is essential to assess the recurrence.

Key Words: *Thyroglossal somis. Thyroglossal cyst.*

Introduction:

Thyroglossal tract abnormalities are the most common congenital cervical pathology in childhood but can be found in adults and elderly¹. The risk of infection and malignant transformation imposes its treatment². Embryologically during the fourth week of gestation the thyroid gland is developed from the median bud of the floor of the primitive pharynx which passes from the foramina caecum at the base of the tongue to the isthmus of the thyroid gland³. This thyroglossal tract normally atrophies and disappear between the fifth to tenth week of development. If this tract persists, it is possible for the tract to be caught in the hyoid bone as the later develops and joins from lateral to medial resulting in the tract running through the bone⁴. Thyroglossal cyst forms if the epithelial cells of the tract cease to remain inactive. Thyroglossal cyst represents 40% of all the primary tumours of the neck. The sex distribution is equal and age range is from birth to seventy years

with a mean age of 5.5 years. Of the published cases, 31.5% were under the age of 10.20.4% were in the second decade, 13.5% were in the third decade and 34.5% were older than 30 years. Ninety percent of the cases lie in the midline, 10% are lateralized of which 95% are on to the left and 5% are on to the right. In a published series where the position of the thyroglossal cysts were analyzed, 2.1% were intralingual, 22.1% were suprahyoid, 60.9% were thyrohyoid and 12.9% were suprasternal⁴. Thyroid tissue was present in the cyst wall in more than 60% cases from which thyroid carcinoma mostly papillary adenocarcinoma can arise. Squamous cell carcinoma arising from the epithelial lining has also been reported. Thyroglossal cyst if uninfected present as a painless, fluctuant swelling, mobile in all directions, on swallowing, or on protruding the tongue. Often such a cyst is so tense that it seems solid and in this state it can be wedged between the hyoid and the thyroid cartilage and thus appear fixed. If the cyst is infected the lump will be painful and misguided attempts at abscess drainage or spontaneous rupture will result in chronically discharging fistula⁵. Diagnosis of thyroglossal tract abnormalities are mainly clinical⁶. Fine needle aspiration cytology (FNAC), TSH assay, Scintigraphy, fistulogram and ultrasonography are important for evaluation and diagnosis in some cases⁷. Postoperative histopathology is necessary for final diagnosis and to exclude thyroglossal duct carcinoma⁸. Differential diagnosis of thyroglossal cyst includes dermoid cyst, infected lymph node, lipoma, minor salivary gland tumours, sebaceous cysts, and cartilaginous tumour of the thyroid, hypertrophied pyramidal lobe, and choriostoma⁴.

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Sistrunk's procedure, with dissection of the cyst or tract and removal of the body of the hyoid bone between the lesser horns with removal of a core of tissue including the raphe joining the mylohyoid muscles, a portion of the genioglossus muscles is the most accepted treatment⁷. In cases of fistula subsidence of inflammatory reactions approximately for six weeks before surgery is necessary. Even with a good technique, recurrence rate varies from 2.8%⁴. Recurrence occurs when the hyoid bone is not removed or when the cyst was previously infected. Missing a dumbbell cyst deep in the back of the hyoid bone, failing to recognize multiple tracts and dissecting too thin a core of tongue muscles are other possible causes of recurrence.

Aim and Objectives:

1. To specify some points about the symptomatology and preoperative evaluation necessary for diagnosis of thyroglossal tract abnormalities.
2. To analyse the factors which can explain recurrences following surgery.
3. To see the occurrence of malignancy in the thyroglossal tract abnormalities.

Materials and Methods:

Sixty-two cases of thyroglossal tract abnormalities were included in this series. These cases were selected randomly from the cases treated in Chittagong Medical College Hospital, Chittagong, Shahid Shohrawardy Hospital, Dhaka and Dhaka Medical College Hospital, Dhaka during the period from October 1991 to December 2003.

All the information including the history, clinical findings, investigation results and important pre-operative, post-operative and follow-up findings of the selected cases were recorded in the standardized protocol proposed for this study. Then all the data from these protocols were calculated, tabulated and analysed.

Results:

Table I
Age Distribution (n = 62):

Age range	Number	Percentage
Upto 5 yrs	24	38.70%
6-10 yrs	16	25.80%
11-15 yrs	6	9.67%
16-20 yrs	4	6.45%
21-25 yrs	4	6.45%
26-30 yrs	2	3.22%
Above 30 yrs	6	9.67%

In our series age ranges from 1 year to 62 years with a mean age of 9.5 years. Majority of the patients were between birth to 10 years 40(64.50%)

Table II
Sex Distribution (n = 62):

Sex	Number	Percentage
Male	34	54.83%
Female	28	45.17%

Male : Female ratio was 1.21:1

Table III
Presentation (n = 62):

Types	Number	Percentage
Cysts	46	74.19%
Fistula Nonrecurrent	10	16.12%
Recurrent	6	9.67%

Of the cases selected 46 (74.19%) were cysts and remainder were fistulae. Of the fistulae 6(9.67%) were recurrent following previous attempt at surgery.

Table IV
Presenting symptoms (n = 62):

Symptoms	Number	Percentage
Swelling Midline	44	70.97%
Lateralized	2	3.22%
Discharging sinus	16	25.80%
Pain	12	19.35%
Fever	4	6.45%

Most of the cases presented with swelling in the midline 44(70.97%) followed by discharging sinus 16(25.80%).

Table V
Site of the cysts/fistulae (n = 62):

Site	Number	Percentage
Intralingual	0	0%
Suprahyoid	14	22.58%
Thyrohyoid	40	64.52%
Suprasternal	8	12.90%

Most cases were thyrohyoid, 40 (64.52%)

Table VI
Aetiology of fistula (n = 16):

Aetiology	Number	Percentage
Iatrogenic Incision and drainage	6	37.5%
Following excision	6	37.5%
Spontaneous	4	25%

Majority 12 (75%) of the fistula were iatrogenic

Table VII
Type of anaesthesia (n = 62):

Type of anaesthesia	Number	Percentage
General	54	87.10%
Local	8	12.90%

Most of the operations were done under general anaesthesia 54 (87.10%). G.A.: LA-6.75:1

Table VIII
Post-operative complications (n = 62):

Complication	Number	Percentage
Haematoma	8	12.90%
Serum collection	6	9.67%
Post-operative infection	4	6.45%
Bad scar	4	6.45%
Recurrence	3	4.84%

No major complications were recorded in this study. Recurrence rate was 4.84%.

Table IX
Follow-up (n = 62):

Period	Number	Percentage
2 weeks	62	100%
4 weeks	50	80.64%
3 months	16	25.80%
After 3 months	4	6.45%

Though all the patients came for follow-up after 2 weeks, only 4 (6.45%) came after three months.

Discussion:

Before going to discussion, it should be mentioned that there is only a few publications on this topic in our country.

Table-I shows that children upto 5 years had shown highest incidence 24(38.70%) in our series followed by 6-10 year age group

16(25.80%). The mean age in our study was 9.5 years. This result is little dissimilar with a published study where the mean age was 5.5 years⁴. This dissimilar result may be due to the fact that in our country the patients usually present at a later age in the hospital due to negligence and poor socio-economic conditions.

Table-II shows, male-female ratio in this series was 1.21:1 which is different from the texts where male-female ratio is equal⁷. In our country males are more privileged than females. This may explain such male dominance in our study.

Table-III shows that among the study population 46 (74.19%) were cysts and 16(25.80%) were fistulae. This result correlates closely with a similar study where they found 23.63% were fistula among the study population⁶.

Table-IV shows the presenting symptoms in our study cases which are almost similar with different texts^{4,7,9}.

Table-VI shows the site of fistula. There was no intralingual thyroglossal cyst in our study. The percentage of other sites suprahyoid 14(22.58%), thyrohyoid 40(64.51%), suprasternal 8(12.90%) mimics closely with the texts⁴.

Table VII shows the aetiology of fistula where we found resulted from incision and drainage 6(37.5%), spontaneous rupture 4 (25%) and following excision the tract 6 (37.5%).

Table VII shows the type of anaesthesia used during surgery where all the cases had undergone Sistrunk's procedure. Eight patients (12.90%) were operated under local anaesthesia. In a patient aged 62 years general anaesthesia was contraindicated due to cardiac problems. The other 7 (11.29%) who underwent surgery under local anaesthesia were young adults and well motivated before surgery.

Table-VIII shows the complications those occurred following operation in our series which included haematoma 8(12.90%), serum collection 6(9.67%), post-operative infection 4(6.45%), bad scar 4 (6.45%). These minor complications are well recognized.

Table-IX shows that only 16(25.80%) patients came upto 3 months and only 4 (6.45%) came after 3 months. It may be due to the ignorance of the patients about the value of follow up and very remote residence of the patients. In our study recurrence rate was 4.84% which coincides with the standard text⁴.

Conclusion:

1. The diagnosis of thyroglossal tract abnormalities is mainly clinical. FNAC, scientigraphy, USG. serum TSH assay, fistulogram, are only supportive. Histopathology of the post-operative specimen can give the final diagnosis.
2. Sistrunk's procedure is the best way of management to avoid recurrences.
3. Subsidence of infection in cases of fistula is necessary to avoid recurrences following surgery.
4. Long term post-operative follow up is necessary to assess recurrences after surgery.

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