



THYROGLOSSAL DUCT ANOMALIES -AN INSTITUTIONAL EXPERIENCE

Preeti Bansal	3rd Year Resident, Department Of Ent, Bankura Sammilani Medical College And Hospital
Arvind Kumar Verma	Assistant Professor, Department Of Ent, Bankura Sammilani Medical College And Hospital
Somnath Saha	Professor, Head Of Department Of Ent, Burdwan Medical College And Hospital, West Bengal
Jha Ashutoshkumar Lalankumar	3rd Year Resident, Department Of Radiodiagnosis, Bankura Sammilani Medical College And Hospital

ABSTRACT

Thyroglossal duct anomalies are the most common cause of congenital neck masses in children. However, they can also be present in later life. These anomalies can have varying presentations.

Objectives- The main objective of this study was to determine the incidence, prevalence, and varied presentations of thyroglossal duct anomalies among both adults and children. **Materials and methods-** During a one-year period from February 2022 to February 2023, a prospective observational study was conducted at a rural tertiary care hospital. The study involved 12 patients who underwent surgery to treat thyroglossal duct cysts, with 7 of them being male and 5 being female. **Results-** The study consisted of twelve patients, with a male-to-female ratio of 1.4:1. The condition was found to be more prevalent in the age group under ten years, with the main presenting complaint being neck swelling. The swelling was mostly located in the suprahyoid region. After confirming the diagnosis, surgical management was done. **Conclusion-** Thyroglossal duct cysts can present in different age group and their location can also be different. It has various types of presenting features.

KEYWORDS : Thyroglossal duct anomalies, Lingual Thyroglossal duct cysts, Thyroglossal duct carcinoma.

INTRODUCTION

Thyroglossal duct anomalies are the most common cause of congenital neck masses in children.¹ However, they may also present later in life.

The clinical presentation of thyroglossal duct anomalies varies based on their anatomical location, signs and symptoms.

Differential diagnosis of thyroglossal duct anomalies includes ranula, dermoid cysts, lipoma, subhyoid bursitis, thyroid swelling, enlarged cervical lymph node, adenoma of the isthmus of the thyroid,² and epidermoid cysts.

Definitive diagnosis of thyroglossal duct anomalies can be made through imaging and cytological studies. Ultrasound is useful in confirming the diagnosis of thyroglossal duct cysts and detecting a normal thyroid gland in its usual position.³

Many studies have been carried out to understand the pattern of various presentations of thyroglossal duct anomalies. The main of the present study is to analyze various presentations, age distribution, and various locations in the rural part of Bengal.

MATERIAL AND METHODS

Study Type - It is a prospective observational study.

Study Setting And Timeline- The study was conducted in the department of Otorhinolaryngology of BSMCH with a time frame of 12 months, from the date of acceptance of synopsis.

Place Of Study – Department of Otorhinolaryngology, Bankura Sammilani Medical College and Hospital

Sample Size – The calculated sample size for this study is around 12.

Inclusion Criteria

All patients diagnosed with thyroglossal duct anomalies were

admitted to the Department of Otorhinolaryngology for surgery.

Exclusion Criteria

Failed to give consent

A total of 12 cases were admitted to the Department of Otorhinolaryngology from February 2022 to February 2023. Out of 12 patients, 7 were male and 5 were female.

METHODOLOGY

This study was conducted after getting the necessary clearance from the Institute Ethical Committee. All participants were aware of the study and gave informed consent to participate in the study. Recruitment of the participants for the study was done in the Department of Otorhinolaryngology, based on the inclusion and exclusion criteria during the study period.

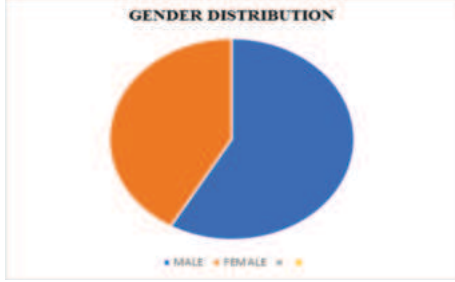
All the patients admitted to the ENT ward with a diagnosis of Thyroglossal duct anomalies underwent thorough clinical examination and proper history was taken. Routine blood investigations, thyroid profile, ultrasound, and FNAC were carried out.

Statistical Method

A Microsoft (MS) Excel sheet was used to compile the data, which was then analyzed using the proper statistical techniques. Continuous variables were described and summarized using the mean and standard deviation. For categorical variables, percentages and proportions were employed. Tables and other charts helped with the data display. Version 24 of the Statistical Software Packages for the Social Sciences (SPSS) was employed.

RESULTS

The study included all the patients with diagnosed Thyroglossal duct anomalies, admitted to the department of otorhinolaryngology, BSMCH in the period from February 2022 to February 2023. Out of 12 patients, 7 were male and 5 were female.



Age Distribution (TABLE 1)

AGE GROUPS	PERCENTAGE
0-10 YRS	7
11-20 YRS	2
21 -30 YRS	1
31-40 YRS	1
41-50 YRS	0
51-60 YRS	1
61-70 YRS	0
>71 YRS	0

Presenting Symptoms (TABLE 2)

NECK MASS	8
NECK DISCHARGE	0
NECK PAIN	0
DYSPHAGIA	4
DYSPNEA	0

Locations Of Thyroglossal Duct Remnants In The Neck In Relation To The Hyoid Bone (TABLE 3)

SUPRAHYOID	5
INFRAHYOID	6
OVER THE HYOID BONE	1

Types Of Anomaly (TABLE 4)

ANAMOLY	NO OF CASES	PERCENTAGE
Thyroglossal duct cysts	8	63.63
Thyroglossal sinus	0	0
Lingual thyroid gland	1	9.09
Lingual thyroglossal cyst	2	18.18
Thyroglossal carcinoma	1	9.09

The patients who presented in the hospital under ten years of age were 58.33%, between 11 to 20 years were 16.66%, between 21 to 30 years were 8.33%, 31 to 40 years were 8.33% and between 51 to 60 years were 8.33%. in the present study, we didn't find any patients in the age group between 41 to 50 years and above 60 years. maximum patients were in the age group under ten years. none of them had any family history of similar complaints in the present study. maximum patients presented with neck mass in the present study.

All operated patients were followed for one year and no major or minor complications were encountered during follow-up.



Figure 1: Thyroglossal Duct Cyst In Neck

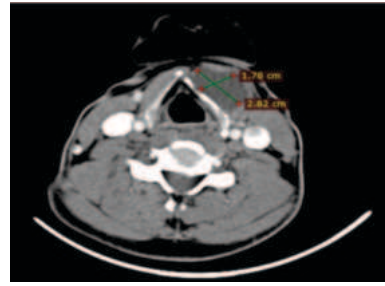


Figure 2: Cect Neck Showed Thyroglossal Duct Cyst Above Hyoid Level

DISCUSSION

During development, a diverticulum made of endodermal tissue forms in the center of the primitive ventral pharynx, between the first pharyngeal pouch and the second branchial arch. In this diverticulum, there is an endodermal thickening that ultimately forms the thyroid gland. As the gland moves downwards from the foramen of the caecum, it leaves behind a tract of epithelial tissue called the thyroglossal duct. Normally, this duct is involuted by the eighth to tenth week of fetal life. However, if it fails to do so, it can lead to the formation of thyroglossal duct cysts.

Thyroglossal duct anomalies are mostly managed with Sistrunk operation. Wolter Ellis Sistrunk was the first one who devised the technique of operation for thyroglossal duct cyst in 1920.⁴ There are chances of recurrence after surgery and sometimes cosmetic deformity.

The present study helped to understand the patterns of different clinical presentations, incidence, and prevalence in the rural part of West Bengal.

As per the data collected from previous literature, maximum no of cases were found in more than 30 years of age.

In his prospective study of 2 years during 2000-2002, Vikas Sinha found the incidence to be more under ten years of age.⁵

The analysis showed the prevalence to be more in the age group of under ten years of age which is similar to the study by Vikas Sinha.⁵

In the present study, the incidence of thyroglossal duct anomalies was found to be higher under the age of 10 years of age.

Contrary to us, data collected from previous literature showed the maximum number of cases found in the age group of more than thirty years of age.

As per the previous literature, there is no gender predilection. Vikas Sinha et al analyzed 25 patients prospectively for a duration of 2 years and found the incidence of thyroglossal duct anomalies to be higher in males than females.⁵

In a retrospective study by Shakeel Uz Zaman, incidence was higher among males than females.⁶

Valerie et al analyzed 62 patients retrospectively and found the incidence to be higher among males than females.⁷

Lester et al analyzed 685 patients retrospectively and found no gender predilection.⁸

Shuanzeng in his study found the incidence to be more in females than males.⁹

Delwar et al in their study found the incidence to be higher in

females than males.¹⁰

In the present study, we found the incidence of thyroglossal duct anomalies to be higher among males than females, which is consistent with most of the previous studies in the literature.

Thyroglossal duct anomalies can present anywhere along the development path from foramen caecum to the base of the tongue.

In the present study, there were five cases, which were located in the suprahyoid location, one at the level of the hyoid bone, and six in the infrahyoid location.

Common presenting features of Thyroglossal duct anomalies are swelling in the neck, opening in the neck, discharge from opening, pain or discomfort, and dysphagia.

In the present study, eight patients presented with neck mass while four cases presented with dysphagia.

Lingual thyroglossal duct cysts are rare, seen in approximately 2-3 % of patients.

As per the retrospective study by Burkart from 1997 to 2008, the incidence of lingual thyroglossal duct cysts was 8.5 % (out of 189 patients, 16 patients had lingual thyroglossal duct cysts).¹¹

In a retrospective study by Shakeel Uz Zaman on fifty patients from July 2004 to June 2014, he didn't find a single case of lingual thyroglossal duct cyst in his decade of experience.⁶

In the study by Lester D.R. Thompson, he also didn't get any case of thyroglossal duct cysts at the base of the tongue among 685 cases.⁸

In the previous studies, there are very few case reports in which patients presented with thyroglossal duct cysts at the base of the tongue.

We did the study for a small duration of one year but it is interesting to note that we found the incidence of lingual thyroglossal duct cysts to be 18.18 %, which is much higher than the previous studies in the literature.

As per the literature, the incidence of thyroglossal duct carcinoma is less than one percent.

Shuanzeng et al. analyzed 242 patients retrospectively from the period 1989 to 2014 and found that 18 patients out of 242 had carcinoma, out of which 13 were female and five were male.⁹

Lester d.r. thompson analyzed 685 patients retrospectively from June 2005 to June 2015 and found 22 patients with thyroglossal duct carcinoma.⁸

Although thyroglossal duct carcinoma is very rare. still, in our one-year study, we found one case of thyroglossal duct carcinoma.

Ultrasonography is the investigation of choice to detect thyroglossal duct anomalies and has its own advantages of being simpler, cheaper, and without risk of radiation exposure. CT and MRI NECK are also being done in Thyroglossal duct anomaly diagnosis but in special circumstances. In our study, we underwent every patient with ultrasonography neck.

CONCLUSION

Thyroglossal duct cysts can present in different age group and

their location can also be different. It has various types of presenting features.

The reason for the difference in the prevalence of thyroglossal duct anomalies among residents of the rural part of Bengal is unclear or is not related to the geographical location. This difference might be due to the small size and small duration of the study.

The malignant degeneration of thyroglossal duct anomaly can also occur as found in the present study.

The gold standard treatment for thyroglossal duct anomalies is the Sistrunk operation.

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