American Journal of
Biomedical Science & Research

www.biomedgrid.com
ISSN: 2642-1747

Research Article

Our Surgery Experience with Thyroglossal Ductus Cyst and Fistules

Serdar Ferit Toprak[1], Muhammed Ayral[2] and Serkan Dedeoğlu[3]*

[1]*Artuklu University, Department of Audiology, Turkey*

[2]*Dicle University, Department of Otorhinolaryngology, Turkey*

[3]*University of Health Sciences Gazi Yasargil Training and Research Hospital, Department of Otorhinolaryngology, Diyarbakir, Turkey*

***Corresponding author:** Serkan Dedeoğlu, University of Health Sciences Gazi Yasargil Training and Research Hospital, Department of Otorhinolaryngology, Diyarbakir, Turkey.

To Cite This Article: *Serdar Ferit T, Muhammed A, Serkan D. Our Surgery Experience with Thyroglossal Ductus Cyst and Fistules. Am J Biomed Sci & Res. 2022 17(3) AJBSR.MS.ID.002358,* DOI: 10.34297/AJBSR.2022.17.002358

Received: November 10, 2022; **Published:** November 21, 2022

Abstract

Objective: In this study, we aimed to analyze the clinical symptoms, examination signs, and treatments of 34 patients who were operated on with the diagnosis of thyroglossal duct cyst, together with the literature.

Methods: We retrospectively analyzed the medical reports of 34 patients operated on due to a thyroglossal duct cyst in our clinic. The patient's age, gender, location of the swelling in the neck region and whether they were fistulized, symptoms, USG results, and pathological results were recorded by us.

Results: Of the 34 patients, 20 were male, and 14 were female, and their ages ranged from 6 to 48 years (mean 14.3±11.7 years). The most common symptom was swelling in the middle of the neck (82%). Other symptoms were occasional discharge or fistula in the middle of the neck. Swelling or fistula mouth was in the midline of the neck in 28 patients and the paramedian region (4 on the right and two on the left) in 6 patients. In the symptoms of the cases, we see Fistula mouth in 9 and cyst formation in 25 cases. A neck ultrasound was performed on all patients. All our patients underwent a Sistrunk operation. Thyroglossal duct cysts recurred in only two of our patients, and they have been operated on again. The pathology results of all our patients were thyroglossal duct cysts.

Conclusion: Thyroglossal duct cysts and fistulas should not be forgotten in the differential diagnosis of patients presenting with inflammatory discharge and swelling in the middle region of the neck. Surgery should be performed to treat thyroglossal duct cysts because of the risk of cancer transformation. Sistrunk operation is in the first place in the treatment. It is the method with minor repetition.

Keywords: Thyroglossal Duct Cysts; Fistula; Sistrunk Surgery; Squamous Cell Epithelium; Embryo

Introduction

The most commonly observed congenital neck in the midline of the neck are thyroglossal duct cysts. Thyroglossal ductus, after the thyroid gland, has completed its embryonic development. During the embryo period, some cells migrate from the root of the tongue of the fetus to the lower part of the midline of the neck from the thyroid gland. This migration route is called the thyroglossal duct. After the thyroid gland is formed, this migration route must be closed. Sometimes some cells stuck on this migration path form a thyroglossal cyst. It occurs because it does not disappear and becomes cystic [1]. It constitutes more than 75% of congenital midline neck masses [2]. Thyroglossal duct cysts are usually in the middle of the neck. It usually does not cause any symptoms except a minor swelling in the midline of the neck, but if it becomes inflamed, there may be redness, pain, enlargement of the mass, and discharge from the mass. Very rarely, it may cause difficulty in swallowing and breathing. Movement of the mass with swallowing and movement of the tongue is an essential finding.

Cancer formations from thyroglossal duct cyst (papillary, follicular, etc.) [3]. Treatment is surgery because of its transformation into cancer. Sistrunk surgery in surgery is in the first place. The entire cyst tract and the hyoid bone corpus are excised in the Sistrunk operation. In our study, 34 patients underwent Sistrunk surgery with the diagnosis of a thyroglossal duct cyst. In this case, we searched the file data retrospectively.

Materials and Methods

We retrospectively reviewed the files of 34 patients operated on in our clinic with the diagnosis of thyroglossal duct cyst and fistula between January 2015 and January 2021. The patient's age, gender, location of the swelling in the neck region and whether they were fistulized, symptoms, USG results, and pathological results were recorded by us. This study was conducted by the Principles of the Declaration of Helsinki. Our study was approved by the ethics committee of Dicle University Faculty of Medicine, dated 06.05.2021, and numbered 309.

Results

Twenty of the 34 patients were male (59%), 14 were female (41%), and their ages were between 6 and 58 years (mean 14.3 ±11.8 years) (Table 1). The most common symptom was swelling in the middle of the neck (82%). Other symptoms are in the middle of the neck. It was seen as an inflammatory discharge or fistula mouth.

Swelling or fistula mouth was in the midline in 28 patients and the paramedian region (4 on the right and two on the left) in 6 patients (Table 2).

Table 1: Age range, age at surgery, age at onset of symptoms.

Age Range	Age of Surgery	Age at Onset of Symptoms
0-10	6 (18%)	18 (52%)
20-Nov	9 (26%)	10 (29%)
21-30	13 (38%)	4 (12%)
31-40	3 (9%)	1 (3%)
41-50	1 (3%)	1 (3%)
51-60	2 (6%)	1 (3%)

Table 2: Comparison according to the location of the lesion.

Location	Number of Patients	Percentile Rate
Midline	28	82%
Left of midline	2	6%
Right of midline	4	12%

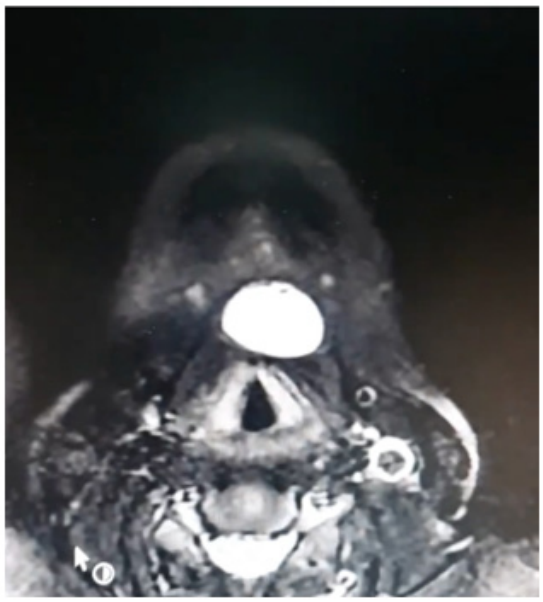

Figure 1: MR image of thyroglossal duct cyst.

Clinical appearances of the patients were fistula in 9 (27%) and cysts in 25 (73 %). A neck ultrasound was performed on all patients. On USG, a cystic or fistulized cystic lesion with a dense fluid was detected. However, a fluid-filled cystic appearance was seen in the neck MRI images (Figure 1). We operated Sistrunk on all our patients (Figure 2). Thyroglossal duct cysts recurred in only two of our patients and have been operated on again. In pathological examination results, The thyroglossal duct cyst of all patients was similar to the cyst. None of the results showed carcinoma.

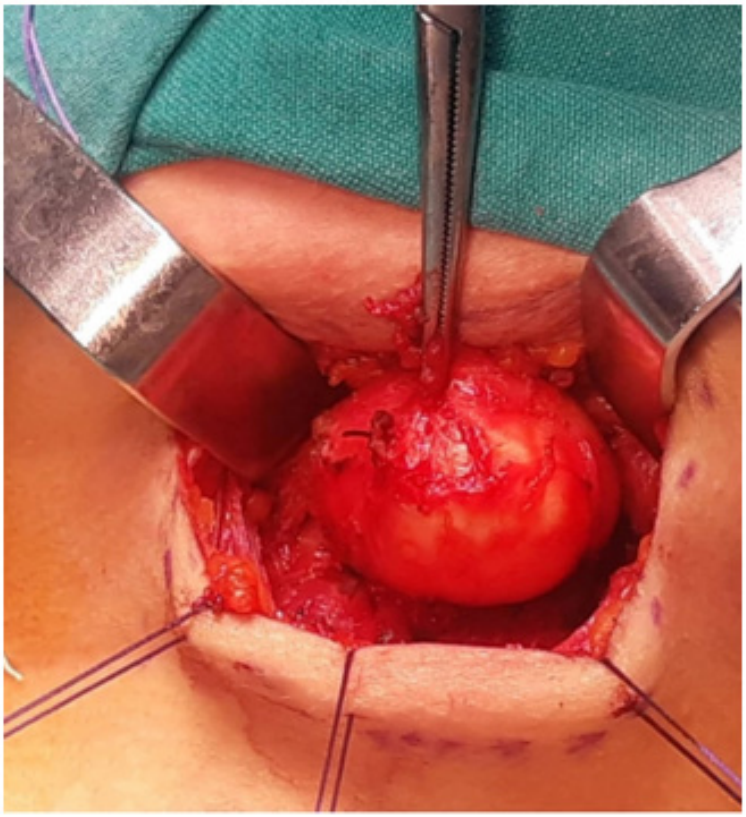

Figure 2: Sistrunk operation.

Discussion

Thirty-four patients were 20 males (59%) and 14 females (41%), and their ages were between 6 and 58 years (mean 14.3±11.8 years). Although they can be seen at any time, they occur most frequently in the first ten years, and the ratio of women to men is the same [4]. When we looked at the literature, it was observed that there was no significant difference between the male and female sexes [5,6]. Thyroglossal duct remnants have been reported in approximately 7% of the adult population [7]. In our study, the number of male patients was 20 (59%), and the number of female patients was 14 (41%). It was observed that the number of male patients was not much different from the number of female patients. The number of patients in the age range of onset of symptoms was 18 (52%) in the first decade, which was found to be consistent with the literature. There is a wide age range in thyroglossal duct cysts. Although it is mainly seen in the childhood age group, it may occur in any age group [5,8,9].

Thyroglossal duct cysts appear as a painless mass in the midline of the neck. Rarely, it may occur in the lateral part of the neck [10,11]. In our study, 28 patients had swelling in the midline of the neck (82%), and six patients had swelling in the paramedian region (18%). In the literature, it is seen that it rarely occurs in the lateral region of the neck.

It usually appears as a mass that moves with the tongue pulled outwards and swallowing. Unless the swelling is infected, it is soft, painless, and movable by palpation. The patients present swelling or infection around the swelling as a complaint [12]. In 82% of our patients, the first admission was swelling in the neck.

In the review of 1534 patients with thyroglossal duct cyst, Allard reported that 500 patients (32.6%) presented with fistula [5]. The fistula rate in our study was 27% approximately the same as in the study by Allard.

Ultrasound is not expensive and does not need sedation in children; Its advantages are that it does not contain radiation, is not invasive, and provides valuable information about the mass and normal thyroid tissue[13]. USG was performed in all of our patients, and We obtained an image compatible with a thyroglossal

duct cyst. Preoperatively, it should be confirmed that the thyroid gland is in a normal anatomical position and thyroid function test is within normal limits. If ectopic thyroid tissue is suspected, thyroid scintigraphy is used in the differential diagnosis [14].

Two types of carcinoma developing from thyroid tissue elements and squamous cell epithelium have been reported in thyroglossal cysts with a 1-2 percent malignancy rate. The most common pathology is papillary adenocarcinoma. This is followed by follicular adenocarcinoma and squamous cell carcinoma [15]. In our study, the results of the pathological examination were similar to the thyroglossal duct cyst of the patients. However, no sign of carcinoma was detected by us in any of them.

Schlange first proposed the removal of the body of the hyoid bone and the cyst in 1893. The recurrence rate with this method was reported to be 20% [16]. Later, Walter Ellis Sistrunk proposed the removal of the cyst with the body of the hyoid bone and the cyst tract by following the cyst to the foramen cecum and named this operation after himself. The recurrence rate with the Sistrunk operation was reported to be 3-4%. It has been demonstrated that an incorrect surgical procedure such as cystectomy alone is a primary reason for the high recurrence rate. Misdiagnosis, inadequate surgery, infection of the cyst, drainage of the cyst, perforation of the cyst during surgery, and being younger than two years of age are factors that increase the risk of recurrence. In the treatment of TDC, extended Sistrunk surgery in which anterior infrahyoid tissues and some of the strep muscles are removed or comprehensive central neck dissection is performed [17]. In our study, the recurrence rate after the Sistrunk operation was 0.05%. We also underwent surgery with the Sistrunk operation method in all our cases. Recurrence occurred in only two of our patients. One of these patients was eight years old, and the other 11 years old. Both of our patients had an operation fistula. There were no signs of infection. After the follow-up of our patients, they have operated on again, and we detected no recurrence afterward.

Conclusion

Due to inflammatory discharge and swelling in the middle region of the neck, Thyroglossal duct cysts and fistulas should be protected by us in the differential diagnosis of the patients. Thyroglossal duct cysts can occur at any age. USG is a routine imaging technique. Since there is a possibility of malignancy in thyroglossal duct cysts, the treatment is surgical. Sistrunk operation should be the standard gold treatment for these patients.

Author Contributions

Idea/Concept: Serkan Dedeoğlu, Muhammed Ayral; Design: Serkan Dedeoğlu Supervision/Consultancy: Serkan Dedeoğlu, Muhammed Ayral; Data Collection and/or Processing: Serkan Dedeoğlu, Serdar Ferit Toprak ; Analysis and/or Comment: Serkan Dedeoğlu, Muhammed Ayral, Serdar Ferit Toprak ; Literature Review: Serkan Dedeoğlu, Muhammed Ayral ; Writing of the Article: Serkan Dedeoğlu, Serdar Ferit Toprak

Financial Resource

During this study, any pharmaceutical company directly connects with the subject of the research. This company provides or produces medical instruments, equipment, and materials, or any commercial company, or any moral support.

Acknowledgement

None.

Conflict of Interest

Regarding this study, the authors or their family members do not have a potential conflict of interest, scientific and medical committee membership or relationship with its members, consultancy, expertise, employment in any company, shareholding, or similar situations.

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