

THYROGLOSSAL DUCT CYSTS : An Analysis of 44 Cases

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H. Seven, M.D. / A. Ersoy, M.D.*** / T. Uzel, M.D.** / A. Şenvar, M.D.***

* Associate Professor, Otorhinolaryngology Clinic, Şişli Etfal Hospital, Istanbul, Turkey.

** Specialist, Otorhinolaryngology Clinic, Şişli Etfal Hospital, Istanbul, Turkey.

*** Resident, Otorhinolaryngology Clinic Şişli Etfal Hospital, Istanbul, Turkey.

ABSTRACT

Objective: The thyroglossal duct cyst (TDC) is the most common congenital neck mass and the second most common of all childhood cervical masses. Fistulas are almost always the result of infection with either spontaneous or surgical drainage. The purpose of this study is to review the clinical aspects and the results obtained with the surgical treatment of patients with TDC's and fistulas who have been treated over the past ten years in our department.

Methods: Forty-four patients with thyroglossal duct cysts or fistulas managed in the ORL Department of the Şişli Etfal Hospital over the past 10 years were reviewed.

Results: The most frequent clinical presentation was that of a cystic mass without any inflammatory signs (54.5%). All patients underwent the standard Sistrunk operation. There was one recurrence among the 44 patients. The most common histologic pattern was pseudostratified, ciliated, columnar epithelium (50%). Nine of the specimens (20.4%) contained ectopic thyroid tissue. One patient had papillary carcinoma in thyroid tissue of the cyst wall.

Conclusion: We advocate the Sistrunk procedure to be the choice of surgical treatment in order to prevent a possible recurrence.

Key Words: Thyroglossal duct cyst, neck mass.

INTRODUCTION

The successful management of thyroglossal duct remnants (TDR) depends on a sound understanding of the embryogenesis of the thyroid gland and the histopathology of the lesion (1). The thyroid anlage originates in the foramen cecum and descends anterior to the pharynx as a bilobed diverticulum,

maintaining a stalklike attachment to the base of the tongue (1). In its descent, the primordium passes in front of the precursor of the hyoid bone and ventral to the thyroid and cricoid cartilages. At the hyoid bone the thyroglossal duct may pass closely in front of the developing bone, through it, or close behind it (2).

In normal development, the connection between the cervical thyroid gland and the point of origin at the foramen cecum is obliterated, usually during the sixth to eighth week. Only a small depression at the base of the tongue (foramen cecum) remains as evidence of this stage of development. Cell elements of the thyroidal primordium, may, however, remain at any site along this stem and give rise not only to cysts and fistulas, but also to accessory thyroid tissue and even neoplasms (2).

The majority of lesions of the thyroglossal duct are located at midline in the neck and around the hyoid bone. The thyroglossal duct cyst (TDC) is the most common congenital cyst in the neck. The majority of TDCs are subcutaneous, but fistulas from duct do not normally occur. Fistulas are found in about one third of the cases, and are almost always the result of spontaneous drainage due to infection, inadequate surgery, or a prior drainage procedure (2,3). Sixty-one percent of these lesions are located between the thyroid gland and hyoid bone, 24% are suprahyoid, 13% suprasternal, and 1% to 2% intralingual (1).

Histologically, a TDC may have several different types of epithelial lining. Pseudostratified columnar and stratified squamous epithelium are the most common types of epithelial lining, and associated ectopic thyroid tissue is found in 5% to 20% of specimens (1,2).

Treatment of TDCs is surgical (4). Sistrunk (5) codified the surgical techniques in 1928 and described a procedure that included removal of the

cyst with resection of the duct above the hyoid bone and removal of the middle portion of the hyoid bone with the muscle surrounding the foramen cecum. It is this operation that forms the mainstay of today's surgical treatment of thyroglossal duct cysts and fistulas. If a remnant of a cyst or fistula is left behind, recurrence is inevitable (2).

The purpose of this study is to review the clinical aspects and the results obtained with the surgical treatment of patients with TDCs and fistulas who have been treated over the past 10 years in our department.

MATERIALS AND METHODS

The charts of 44 patients treated in the ORL Department at the Şişli Etfal Hospital, during the period 1987 to 1997 were reviewed. All had histologically proven thyroglossal remnants. Follow-up information was obtained from medical records and telephone conversations.

RESULTS

The sex distribution is shown in Table I. The study population is represented by 20 male and 24 female patients.

Table II portrays the age profile of patients at the time of the surgery. The average age was 21.2 years (range, 4 to 69 years). In these tables, the 69 year of age with papillary thyroid carcinoma arising from TDC was included into the cyst group.

All patients underwent the standard Sistrunk operation (excision of the cyst or fistula with resection of the duct above the hyoid bone and

middle portion of the hyoid bone with the muscle surrounding the foramen cecum).

Postoperative complications were infrequent and minor. One patient had a transient local cellulitis that cleared after a short course of antibiotics. One patient had a suture granuloma that healed after local removal of the foreign body (suture material). The overall complication rate was 4.5%.

Distribution of the specimens according to histologic pattern is shown in Table III. Pseudostratified, ciliated, columnar epithelium (50%) and stratified squamous (27.3%) are the most common types of epithelial lining. The remaining patterns were mixed or contained epithelial cells that could not be typed. Nine of the specimens (20.4%) contained ectopic thyroid tissue. A papillary thyroid carcinoma was found arising from the TDC.

The average follow-up period was 6.5 years (range, 3 months to 10 years). There was one recurrence among the 44 patients, or an overall recurrence rate was 2.3%. The time interval for recurrence was 5 months. Two patients were operated elsewhere by simple excision of the cyst without hyoid bone resection and referred to our department because of the recurrence. These two cases were also operated with the same technique and there was no evidence of recurrence in the 4-year follow-up.

The signs and symptoms of patients at the time of their admittance are presented in Table-IV. The most frequent symptom was a mass in the neck with 54%. All cases were diagnosed to have acute infection so the operation was performed after preoperatively antibiotic therapy. However, some infected cysts developed a fistula despite antibiotic treatment.

Table I. Sex Distribution of Patients According to Lesions

Lesions	Sex		Total
	Female	Male	
Fistula	8	9	17
Cyst	16	11	27
Total	24	20	44

Table II. Age Distribution of Patients According to Lesions

Lesions	Age-Group				Mean-Age
	0-10	11-20	21-40	40↑	
Fistula	2	5	8	2	28.8
Cyst	12	10	2	3	16.5
Total	14	15	10	5	21.2

Table III. Histologic pattern of Specimens

Histologic Pattern	(%)
Pseudostratified columnar	50
Squamous	27.3
Mixed	18.2
Unknown	4.5

Table IV. Clinical Presentation of Patients Before Surgery

Presenting Complaint	No. Patients
Neck mass	24
Discharge (fistula)	11
Infected mass	9

DISCUSSION

Remnants of the thyroglossal tract are reported in 7% of the overall population (6). The thyroglossal duct cyst is the most common congenital neck mass and the second most common of all childhood cervical masses (3,7). Shanmugham (8) has analysed the age distribution of 1,044 patients with thyroglossal duct cysts. About half of the patients have been under 10 years of age and only 6 patients have been over 70 years old. The male to female ratio is nearly equal. In our study, ages ranged from 4 to 69 years with a mean of 21.2 years. Only two of our patients were over the age of 60 and one of them had papillary carcinoma in thyroid tissue of the cyst wall, therefore we emphasize that these lesions must be approached with a higher level of suspicion in the elderly.

A slowly enlarging asymptomatic mass in the anterior neck area is the most common presenting symptom (1). Fifty-four percent of our total patient population had this clinical finding. Occasionally, TDCs are symptomatic, with the presence of infection and discharge (9). These findings were described in 45.5% of our cases.

Histologically, a TDC may have several different types of epithelial lining. Pseudostratified columnar

epithelium (54%), and stratified squamous epithelium (34%) are the most common histologic pattern. Transitional (6%) and cuboidal (6%) epithelium comprise the remainder (10). The frequency of the ectopic thyroid tissue in the specimens is reported to range from 5% to 75% in the literature (1,2,7,11). The findings of our study are consistent with the literature.

Surgery is the treatment of choice for thyroglossal duct cysts and fistulas (4,12). Recurrence and the potential for malignancy are two main problems in the treatment of TDC. It is well known that surgical failure is often the result of inadequate resection (1,9,12). Sade and Rosen (13) have shown that more than one half of the pathologic specimens of Sistrunk procedures contain multiple sinus tracts above the hyoid bone. Rabinov, et al; (14) have documented with contrast radiography the presence of branched fistula tracts in some patients with recurrent TDC. Sistrunk operation is widely accepted as the best procedure to prevent recurrence with recurrence rates between 1.5% and 7% (1,4,7,15,16). Simple cystectomy is the main cause of recurrence of the TDCs. Lawson and Fallis (17) have reported a 68% recurrence rate in 145 cases following local cyst excision and a 4% recurrence rate after the Sistrunk procedure.

In our study only 1 recurrence (2.3%) was observed. The time interval for recurrence was 5 months. This patient that was reoperated with wide resection, have shown no evidence of recurrence at the end of five years. Two patients were operated elsewhere by simple excision of the cyst without hyoid bone resection and referred to our department because of the recurrence. These two cases were also operated with the same technique and there was no evidence of recurrence in a 4-year follow-up.

The results of our study are consistent with the findings previously reported by other authors. These findings emphasize the importance of utilizing Sistrunk operation to prevent a possible recurrence.

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