

Clinical Science

Preoperative evaluation of thyroglossal duct cysts: children versus adults—is there a difference?



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Abstract

BACKGROUND: Thyroglossal duct cysts (TGDCs) are common in children but also present in adults. This study evaluates the preoperative management and postoperative outcomes in patients with a resected TGDC.

METHODS: A retrospective analysis was performed on patients with a surgically treated TGDC. Clinicopathologic variables and treatment outcomes were obtained by chart review.

RESULTS: A total of 79 patients (44 pediatric and 35 adult) were identified. The majority of patients in both groups presented with a neck mass. Compared with children, adults were significantly more likely to undergo preoperative imaging and fine-needle aspiration biopsy. Malignancy was not identified in any patient on preoperative workup or postoperative pathology.

CONCLUSIONS: Adults with a TGDC are more likely to undergo preoperative imaging and biopsy. The infrequent occurrence of TGDC cancer or concurrent thyroid pathology suggests that the diagnosis of a TGDC may be made on clinical grounds in adult patients although ultrasound (\pm fine-needle aspiration biopsy) may be a useful supplementary modality.

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The thyroglossal duct is an embryologic structure that represents a connection between the tongue at the foramen cecum and the developing thyroid gland. The duct normally involutes during the 8th to 10th week of gestation. The development of a thyroglossal duct cyst (TGDC) occurs if the duct remains persistently patent. TGDCs are the most commonly diagnosed neck mass in children; however, this

condition is also prevalent in the adult population. These cysts are usually located inferior to the hyoid bone although they may occur anywhere between the base of the tongue and the superior aspect of the thyroid gland. Typically, the patient presents with a painless midline neck mass although occasionally the cyst may become infected and require a course of oral antibiotic therapy. Traditionally, the diagnosis of a TGDC is made on the basis of a thorough history and physical examination and is accomplished without the use of imaging or fine-needle aspiration biopsy (FNAB). TGDCs are generally excised using the Sistrunk procedure in which the cyst and its tract are resected along with the midportion of the hyoid bone, which ensures low recurrence rates.

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This study was undertaken to examine the presentation and outcomes of TGDCs managed surgically at a single tertiary care institution with particular attention to differences in adult versus pediatric patients. Specifically, particular attention was given to the use of preoperative imaging and preoperative FNAB/cytology. Postoperative outcomes were also examined, with a specific focus on recurrence and final pathologic findings.

Materials and Methods

Study population

After obtaining institutional review board approval, the pathology database was used to identify patients with a histologically confirmed TGDC at University of Iowa Hospitals and Clinics, Iowa City, IA, between January 2000 and September 2011. Eighty-seven patients with TGDCs were identified. Patients with an incidental finding of a TGDC (noted during the management of a different disease process, $n = 8$) were excluded from the study population. A total of 79 patients formed the final study population.

Data acquisition

Patient charts were reviewed to obtain demographic information and clinicopathologic characteristics. Specifically, the initial presenting symptoms, use of preoperative imaging (including ultrasound, computed tomographic [CT] scanning, magnetic resonance imaging [MRI], and positron emission tomography), use of preoperative biopsy, and details of surgical treatment were noted. Follow-up data with respect to outcomes (including complications and recurrence) were also noted.

Statistical tests

Differences among patient groups were evaluated using the chi-square test. All statistical tests were performed using SPSS (IBM, New York, NY), and $P < .05$ was considered statistically significant.

Results

Demographics

A total of 79 patients were included in the final analysis. Pediatric patients were defined as any patient under the age of 18 years, and adult patients were defined as age 18 and

older. A total of 44 pediatric patients and 35 adult patients were identified. [Table 1](#) summarizes the demographic characteristics of these groups.

Presenting symptoms

Presenting symptoms and signs are shown in [Table 2](#). The most frequent presenting symptom in both pediatric and adult groups was a neck mass (66% vs 71%, respectively). In the pediatric patients, neck swelling, neck infection, history of a TGDC, and dysphagia were also present. Adult patients presented with neck swelling (20%) and a prior history of a TGDC (6%), but none presented with neck infection or dysphagia. Three patients did not have documentation of primary presenting signs or symptoms.

Preoperative imaging

Overall, 45 (57%) patients underwent preoperative imaging studies. Within the pediatric group, 15 (34%) patients underwent imaging. Ten (67%) of these children underwent CT scanning only, 1 (67%) underwent ultrasonography only, and 2 (13%) underwent MRI only. One patient underwent both ultrasonography and CT scanning, and 1 patient underwent both MRI and CT imaging. Adults were significantly more likely to undergo preoperative imaging compared with children (86% vs 34.1%, $P < .0001$). In the adult group, 30 (86%) patients underwent imaging. [Table 3](#) summarizes all imaging undergone by the various groups of patients. Of these, 25 (83%) underwent CT imaging alone, 1 (3%) ultrasound alone, 2 (7%) MRI alone, and 2 (7%) both CT scanning and ultrasound. Two patients were found to have thyroid nodules while undergoing imaging for TGDCs.

Preoperative cytology

FNAB was performed in a total of 17 patients (22%) and was more frequently performed in adults versus children (43% vs 5%, $P < .0001$). Nine (53%) patients who underwent FNAB were found to have “cystic contents” or provided a formal diagnosis of a “thyroglossal duct cyst.” The remaining 5 (29%) had nonspecific findings on FNAB, including adipocytes, histiocytes, and inflammatory cells. Two patients were found to have thyroid nodules on CT imaging or ultrasound. These nodules were biopsied and found to be benign. No patients undergoing imaging for a TGDC were found to have cancer in the thyroid gland itself.

Table 1 Patient demographics

	Adults	Children	Total
N	35	44	79
Age, mean (range)	42.7 y (17.5–86.8 y)	6.1 y (5 wk–17.5 y)	22.3 y (5 wk–86.8 y)
M:F, %	63:27	55:45	58:42

F = female; M = male.

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