

Unusual Patients

A Thyroglossal Duct Cyst Presenting as a Thyroid Nodule in the Lateral Neck

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The patient is a 55-year-old female with a history of multinodular goiter. She was followed for several years for a dominant left-sided superior pole thyroid nodule. Several prior fine needle aspiration biopsies had been performed. All were consistent with the diagnosis of degenerative colloid nodule. Eventually she developed symptoms of intermittent choking and shortness of breath and presented for surgical evaluation. On physical examination, including ultrasound, a left-sided superior thyroid nodule was noted. At operation, the nodule was found to be completely separate from the thyroid. Dissection revealed a thyroglossal duct cyst (TDC) located lateral to the superior pole of the thyroid gland, attached to the mid portion of the hyoid bone by a pedicle. The standard Sistrunk procedure was performed. Here we describe an unusual late presentation of a TDC located lateral to a multinodular goiter and producing compressive symptoms.

Introduction

THYROGLOSSAL DUCT CYSTS (TDCs) develop from remnants of precursors of thyroid gland left behind during embryologic descent from the foramen cecum at the tongue base into the anterior neck during fetal development. This congenital lesion is most commonly a midline anterior neck mass in the pediatric population. They are characterized as a painless mass that moves during deglutition and with tongue protrusion. Complications include bacterial infection, enlargement, and suppuration. Dysphagia and tracheal compression may result. The TDC may contain the only thyroid tissue in the patient. For this reason, appropriate imaging studies are important before the cyst is removed. Thyroglossal duct cysts may undergo malignant transformation in approximately 1% of cases. The treatment for benign TDCs is surgical excision. The Sistrunk procedure includes removal of the cyst with its pedicle and the central portion of the hyoid bone with removal or high ligation of the tracts to the foramen cecum.

Case Report

A 55-year-old woman presented with multinodular goiter and enlarging left superior pole nodule. Symptoms included progressive dysphagia and airway obstruction in the supine position. Her follow-up and clinical investigation included

annual ultrasound exams with fine needle aspiration biopsies. The initial ultrasound in August 2004 revealed bilateral solid and cystic thyroid nodules. The dominant left lobe nodule was cystic and measured 2.45×2.43×3.85 cm. without solid components and without hypervascularity. The right lobe had two solid nodules measure 1.07×0.59×0.82 cm and 0.65×0.62×0.63 cm.

Fine needle aspiration of her right and left thyroid nodules revealed no malignant cells. Findings were consistent with nodular goiter with cystic degeneration. Left thyroid nodule biopsy showed few groups of follicular epithelial cells and stromal fragments in an abundant colloid background consistent with nodular goiter. The analysis was limited such as only few groups of follicular cells were present.

Serial scans, ultrasound exams, and biopsies were continued. On follow-up thyroid ultrasound in 2005, her left superior cystic thyroid nodule had increased in size to 4.3×3.0×2.4 cm (Fig. 1) and then to 5×2.9×2.6 cm in 2006 (Fig. 2). No other hot or cold defects were identified. Fine needle aspiration was negative for malignant cells and showed hemosiderin-laden macrophages on a background of colloid and degenerative debris. These findings were consistent with degenerative colloid nodule.

Past medical history was significant for chronic renal insufficiency which required dialysis one time. Additional history included coronary artery disease, hypertension and type 2



FIG. 1. Thyroid ultrasound image (about 1 year prior to surgery) showing, as it was described, large $4.3 \times 3.0 \times 2.4$ cm cystic mass superiorly in the left lobe of the thyroid.

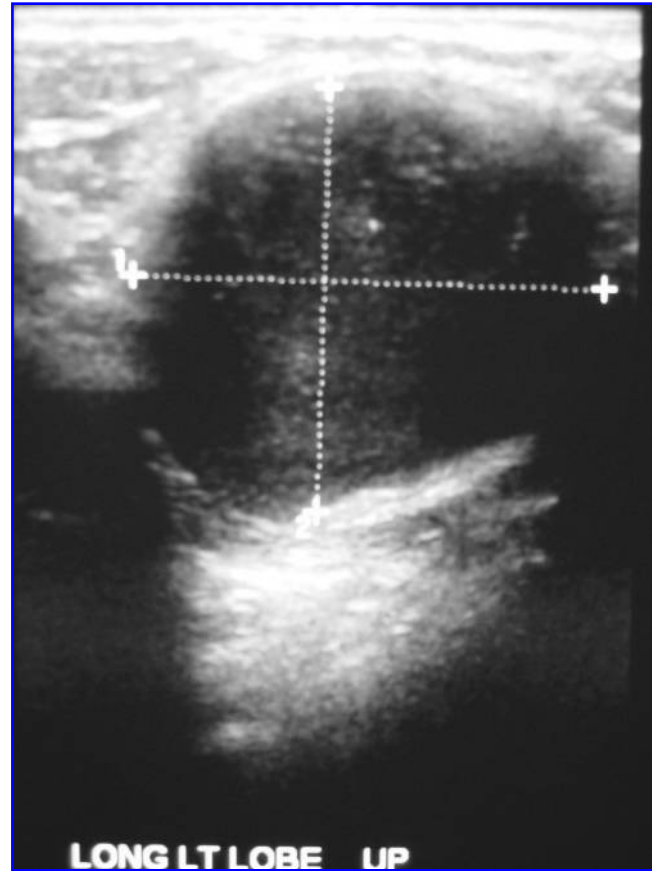


FIG. 2. Thyroid ultrasound image on 1 year follow-up study (right prior to surgery) showing that left superior thyroid mass increased in size.

diabetes. There were no complaints of fever, tachycardia, or shortness of breath, other than the acute supine obstructive events.

Significant physical findings, with ultrasound, included a large left-sided neck mass approximately 5×5 cm, mobile, nontender, and soft. Multinodularity of the thyroid was present bilaterally, greater on the left. No lymphadenopathy was identified. At operation, a midneck incision was made, the left lobe of the thyroid was mobilized, and the nodule was separated from the superior pole of the thyroid by the strap muscles. The mass was mobilized superiorly and medially. Further dissection revealed a TDC located laterally to the superior pole of thyroid gland attached to the hyoid bone by a long tract going above and around the superior thyroid pole and entering the hyoid bone (Fig. 3). At that point we mobilized the midportion of the hyoid bone and performed standard Sistrunk procedure, which consists of removal of the TDC with the midportion of the hyoid and ligation of the tract at the base of the tongue. Postoperative pathology confirmed the diagnosis of TDC.

Discussion

TDCs are the most common midline neck masses in childhood but an uncommon finding in adults. Symptoms begin in

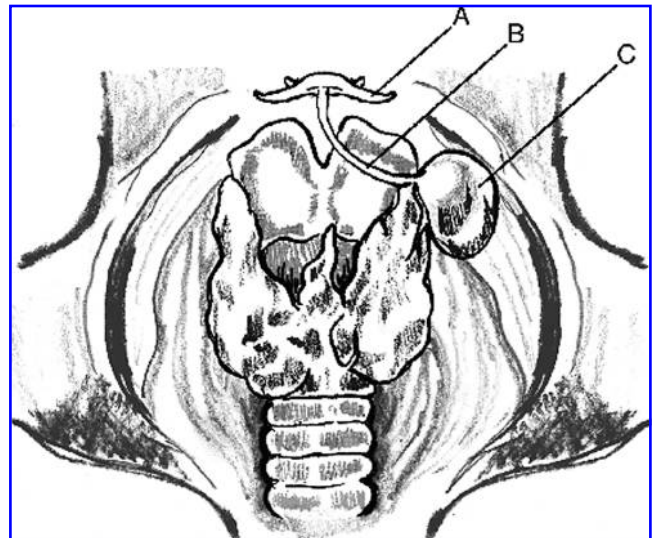


FIG. 3. Thyroglossal duct cysts located above the superior pole of the left thyroid lobe. A = the hyoid bone; B = thyroglossal duct tract connecting thyroglossal duct cyst to the hyoid bone; C = thyroglossal duct cyst.

early childhood as a mass or draining sinus. Infection may result from communication between the cyst and the mouth with subsequent abscess formation. Acute surgical intervention with drainage may be required. TDC may present at any age (1–3).

We described a case of a 55-year-old woman who presented with a presumed 5-cm left thyroid nodule. Follow-up care, including yearly thyroid ultrasound with fine needle aspiration biopsies confirmed the presence of a benign cystic nodule for several years. When she developed compressive symptoms she was referred for surgical consultation and treatment.

TDCs are uncommon in adults but should be a part of the differential diagnosis of a neck mass that should include branchial cleft cyst, lymphoepithelial cyst, thyroid gland lesions, cystic degeneration of metastatic cancer in a delphian lymph node, and lymphadenopathy (4). An example in the literature includes lateral neck swelling in a 50 year-old woman. This was thought to be a solitary thyroid nodule. The diagnosis after right hemithyroidectomy was intrathyroidal thyroglossal cyst (5). Other reports include a lateral neck mass which did not move with tongue protrusion and dysphagia. The preoperative diagnosis was thyroid goiter (6).

Although TDCs generally present as benign disease, malignant transformation occurs in 1% of cases. It was reported that these carcinomas may be multifocal and invade the thyroid itself. That is why most experts recommend performing total thyroidectomy in addition to the removal of TDC and the body of the hyoid bone (7,8). The higher rate of malignant transformation warrants early removal of all suspected TDCs presenting in elderly individuals (9). It is important to remember that there may be metastases to the delphian lymph node which may not be in its usual position with respect to the TDC containing thyroid carcinoma. It could be one node or chain of several nodes. The delphian lymph node receives its lymphatic drainage from the larynx, pyriform sinus, and thyroid gland. It was reported that 7–8% of the patient with laryngeal carcinoma have metastasis to the delphian lymph node. Metastases to the delphian lymph node have high predictive prognostic value. These patients have a decreased survival rate, more tumor recurrence, and more metastasis to lymph nodes of the lateral neck (10,11,12).

The group from Johns Hopkins Hospital (4) explored the role of fine-needle aspiration in making a preoperative diagnosis of TDC in 26 cases in a 15-year period. They showed that fine-needle aspiration is only moderately sensitive for a preoperative evaluation of TDC. Material was obtained by fine-needle aspiration biopsy with or without ultrasound guidance. Eleven cases of surgically resected TDCs were missed on prior fine-needle aspiration. Fine-needle aspiration showed a diagnostic sensitivity of 62% and a positive predictive value (PPV) of 69% for the diagnosis of TDC. The cytomorphologic features of TDC included abundant colloid, presence of macrophages, lymphocytes, or neutrophils with ciliated columnar or squamous type epithelium. Thyroid epithelium was present only in 11% (4).

The treatment for TDC (Sistrunk procedure) includes resection of the cyst with the tract, central portion of the hyoid bone and high ligation at the foramen cecum. Complications (9.08%) and recurrence (1.82%) are reported (13).

In conclusion, TDC should be in the differential diagnosis in adult patients presenting with a new and fast growing “thyroid” nodule, which appears to be cystic, and has fine-needle aspiration demonstrating abundant colloid, lymphocytes, and ciliated columnar or squamous epithelium.

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