Thyroglossal duct cyst: An unusual presentation

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Abstract
Most thyroglossal duct cysts are located at or very close to the midline. They generally manifest as painless neck swellings, and they move on protrusion of the tongue and during deglutition. We describe a case of thyroglossal duct cyst that was unusual in that the cyst was located far from the midline, it did not move on protrusion of the tongue, and it was associated with symptoms of dysphagia and extensive neck swelling that mimicked a colloid goiter.

Introduction
Thyroglossal duct cysts are the most common congenital neck masses, accounting for as many as 70% of all congenital neck anomalies.1 No gender predilection has been reported, and the age of affected patients ranges from birth to 70 years; approximately 50% of patients present before the age of 20 years.2 Some 90% of thyroglossal duct cysts lie at or very close to the midline.2 These cysts generally move during tongue protrusion and deglutition. In this article, we describe a case of thyroglossal duct cyst that was unusual with respect to its location and its immobility during tongue protrusion.

Case report
A 42-year-old woman was referred to our outpatient clinic with a 6-month history of swelling on the right side of her neck. The size of the swelling had increased markedly over the previous month, and the patient began to experience difficulty swallowing. She did not complain of any pain or other symptoms.

Clinical examination revealed that a 7 × 4-cm cystic swelling was centered in the front of the neck on the right side of the midline (figure 1). The swelling extended superiorly up to the inferior border of the hyoid bone, inferiorly up to the middle of the thyroid cartilage, and laterally up to the anterior border of the sternocleidomastoid muscle. It was mobile on swallowing but did not move with protrusion of the tongue. No cervical lymphadenopathy was present. Following the clinical examination, our differential diagnoses were colloid goiter, branchial cyst, and thyroglossal duct cyst.

Findings on routine laboratory tests and thyroid function studies were normal. Computed tomography (CT) of the neck demonstrated a cystic structure below the strap muscles (figure 2). Ultrasonography showed a unilocular cystic mass and a normal-appearing thyroid gland. A radionuclide thyroid scan obtained before surgery revealed that there was no ectopic thyroid tissue within the cyst or the cyst wall.

After preoperative counseling, the patient was taken for surgery under general anesthesia. An incision was made along a skin crease, and flaps were elevated on both sides for good exposure of the surgical field (figure 3, A). The large cyst was separate from the thyroid gland, but it adhered to the thyroid cartilage. The thyroglossal duct extended from the cyst to the hyoid bone. The cyst and the duct were excised along with the body of the hyoid bone (figure 3, B). The cyst measured 7.5 × 3.5 cm. A suction drain was inserted, and the wound was closed. The patient’s postoperative recovery was uneventful.

According to the histopathologic analysis, the cyst was lined with pseudostratified ciliated columnar epithelium, predominantly and focally squamous epithelium. The subepithelium showed dense lymphocytic infiltrate. On follow-up at 18 months, the patient remained free of symptoms.

Discussion
The thyroid gland begins to develop during the 3rd week of fetal life as a median outgrowth from the floor of the primitive pharynx. The normal migration of the primitive thyroid from the foramen cecum to its mature position in the anterior neck results in the creation of the thyroglossal duct. The lumen of the duct is usually obliterated by the 9th or 10th week of gestation.3 However, endothelial ele-
ments of the ductal lining may produce mucus, resulting in the development of a cyst. Approximately 7% of the population have thyroglossal duct remnants. There are four general types of thyroglossal duct based on location: thyrohyoid (60.9% of cases), suprathyroid (24.1%), suprasternal (12.9%), and intralingual (2.1%).

Thyroglossal duct cysts are epithelium-lined cysts that can arise at any point along the duct’s course, from the foramen cecum at the base of the tongue to the lower midline of the neck.

Clinical features. Patients typically present with a painless midline swelling below the hyoid bone. The cysts are often complicated by infection and fistulae, but rarely by carcinoma. When a cyst is infected, it can enlarge rapidly and become painful.

As mentioned, 90% of thyroglossal duct cysts lie at or very close to the midline. Of the remainder that lie on one side of the midline, 95% occur on the left. According to O’Hanlon et al, most cysts that are not located in the midline are either too large to occupy a particular midline location or they represent a postoperative recurrence. The former explanation supports the unusual location in our patient, as her cyst was quite large.

Most thyroglossal duct cysts move during swallowing and during protrusion of the tongue. The degree of mobility depends on the size of the cyst; the mobility of larger cysts is restricted. Again, the large size of the cyst in our patient probably explains why the swelling did not move during protrusion of the tongue. Moreover, we found intraoperatively that the cyst was adherent to the thyroid cartilage; to some extent, such adhesions can also contribute to the restricted mobility of the swelling.

Radiologic features. On all radiologic images, a thyroglossal duct cyst appears as a cyst-like mass either at the level of the hyoid bone or inside the strap muscles. On ultrasonography, these cysts commonly manifest as hypoechoic areas. On CT, a thyroglossal cyst usually appears as a smooth, well-circumscribed mass at any point along the course of the thyroglossal duct. Peripheral rim enhancement is usually observed on contrast-enhanced CT. CT has been recommended in the preoperative assessment of these large cysts to rule out laryngeal invasion.

Management. Thyroglossal duct cysts are usually removed because they are cosmetically undesirable or because they are associated with a previous infection. The treatment of choice for removing thyroglossal duct cysts is Sistrunk’s operation. Sistrunk described two basic guidelines for successful excision of a thyroglossal duct cyst. The first is to remove a central portion of the hyoid bone. The second is to not attempt to locate and remove the duct proximal to the hyoid bone; instead, remove a 5- to 10-mm core of tissue at a 45° angle to lines drawn perpendicular and horizontal to the center of the hyoid bone.

According to Hawkins et al, Sistrunk’s procedure is associated with recurrence rates of only 2 to 8%; when the hyoid bone is not removed, the recurrence rate is 85%. Hawkins et al further reported that other factors associated with an increased risk of recurrence are (1) young age, (2) involvement of the skin by the cyst, (3) lobulation of the cyst, (4) rupture of the cyst, and (5) failure to adhere to Sistrunk’s second recommendation. Recurrence is also believed to be more likely in patients with draining sinus tracts or a history of surgical excision of a previous thyroglossal duct cyst.

Pathologic characteristics. Thyroglossal duct cysts usually contain a colorless, viscous fluid. Mucous glands may also be present. The epithelial lining of the cyst wall is variable; in most cases, pseudostratified ciliated columnar...
lining and a squamous epithelium are present. In more than 60% of cases, ectopic thyroid tissue is present in the cyst wall. This tissue can give rise to carcinoma. It is estimated that carcinoma—usually the papillary type—complicates thyroglossal cysts in 1% of cases. Detailed histologic examination is essential not only to establish the diagnosis of a thyroglossal cyst, but also to exclude carcinoma. No ectopic thyroid tissue was found in our patient.

In conclusion, this case illustrates that a lateral presentation of a swelling and restricted movement during tongue protrusion cannot exclude a diagnosis of thyroglossal duct cyst.

References


Figure 3. The cyst is seen intraoperatively (A) and following excision with the hyoid bone (B).