

Thyroglossal Duct Cyst With Endolaryngeal Extension

Case Report

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Abstract

Thyroglossal duct cyst (TDC) arises from the remnant thyroglossal duct tract as a cystic expansion. Patients most commonly present with a palpable cystic midline neck mass or discharge from a cervical sinus opening. TDC is the most common congenital head and neck lesion in children and adults, but endolaryngeal extension is a rare entity. The treatment of TDC is excision of the cyst and the whole sinus tract with the central part of the hyoid bone, as described by Sistrunk. It is necessary

to preserve the thyrohyoid membrane and thyrohyoid perichondrium of the thyroid cartilage in cases with endolaryngeal extension. In this report, a case of TDC with endolaryngeal extension is presented, with diagnosis and management modalities.

Key Words: Thyroglossal duct cyst, Sistrunk, larynx, surgery

Introduction

Thyroglossal duct cyst (TDC) is the most common congenital neck mass, and approximately 7% of the population has a TDC. It results from incomplete resorption of the thyroglossal duct during embryogenesis and dilatation of this tract in the following period (1, 2). It develops as a midline neck mass that can be accompanied by local inflammation findings, and while the rates of female and male patients are similar, it demonstrates a bimodal distribution in children and adult age groups (2). TDC can rarely present as an endolaryngeal extension, and these patients can have laryngeal complaints, such as hoarseness, dyspnea, dysphagia, and foreign body sensation in the throat (3-5). Sistrunk's operation, performed by preserving the thyrohyoid ligament and the thyroid cartilage, decreases the risk of recurrence and the need for laryngeal reconstruction (6). In this study, a case of thyroglossal duct cyst with endolaryngeal extension that was located on the right side of the neck was discussed, with the diagnosis and treatment approach.

Case Report

A 22-year-old male patient presented with a mass that had developed within last year and was located on the right of the midline neck. In his medical history, symptoms of hyperemia or increased temperature suggesting infection attack and symptoms of hoarseness, dyspnea, dysphagia, and foreign body sensation in the throat that suggested laryngeal pathology were not found.

His physical examination revealed a 2x2-sized palpable soft mass that was located on the right

side of the prominentia thyroidea and moving with swallowing. In flexible fiberoptic laryngoscopy, the endolaryngeal structures were normal. Contrast-enhanced computed tomography (CT) of the neck revealed a bilobular cystic mass on the right of the prominentia thyroidea, which was superior to the hyoid bone and extending deeply into the preepiglottic region, turning medially from the upper border of the thyroid cartilage lamina (Figure 1, 2). In the surgical treatment, the cyst was dissected from the inferior region to the upper margin of the thyroid cartilage, and it was observed in this region that the cyst extended into the medial of the cartilage without any damage to the integrity of the thyrohyoid membrane. In the last step of the surgery, as described in the Sistrunk procedure, the central portion of the hyoid bone was included in the specimen. The tract was followed to the tongue base and then cut after ligation. During the 6-month postoperative follow-up of the patient, no finding consistent with recurrence was detected in the surgical site. Written informed consent was obtained from the patient before preparing this case report.

Discussion

During embryogenesis, thyroid epithelial cells are differentiated in the tongue base and take their normal position through migration to the inferior, passing in front of the thyroid cartilage in the midline neck. The thyroglossal duct closes in time and is resorbed. If resorption is not completed, TDC develops due to the mucus that is released into the lumen and infection (7). Its incidence in the population is approximately 7% (1, 8). It is the most

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Figure 1. In axial contrast-enhanced neck CT, a cystic lesion expanding from the right lamina upper margin of the thyroid cartilage into the preepiglottic fat plane is observed (white arrow)

CT: computed tomography

common congenital neck mass and is mostly located in the mid-line neck (3). It can occur rarely with lateral localization, and the cysts that are localized laterally are often seen on the left side. TDC is most frequently observed in infrahyoid localization. In our case, neck examination and radiological evaluation revealed a 2-cm-diameter bilobular mass on the right of the prominentia thyroidea.

Recurrent infection attacks, cosmetic causes, and possible malignant transformation in the cyst constitute the surgical indications. Sistrunk procedure, which was described in 1920, is administered for its treatment. The basis of the surgery relies on excision of the whole tract until the tongue base, including the central-third portion of the hyoid bone. The rate of recurrence after Sistrunk's operation is lower than 5% (9, 10).

During the preoperative preparation, it is important to identify whether the functional thyroid tissue is in its normal anatomic position or not. It should be kept in mind that the thyroglossal duct cyst can be confused with ectopic thyroid tissue, which may be the single thyroid tissue that functions. Radiological examination should be definitely performed during the preoperative period. Scintigraphy, neck ultrasonography, CT, and magnetic resonance imaging are the methods that can be used. The first choice should be neck ultrasonography because of its easy use, absence of exposure to radiation, and lower cost (8). In our case, because the mass was bilobular on palpation and located on the right side, contrast-enhanced neck CT was preferred for the differential diagnosis of other neck masses. Radiological examination revealed normal thyroid tissue, and

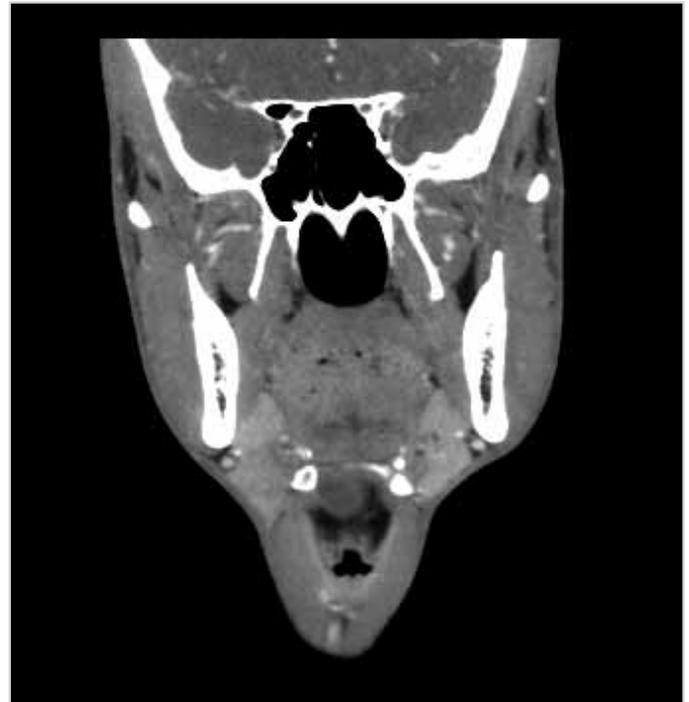


Figure 2. In coronal contrast-enhanced neck CT, a cystic lesion extending to the preepiglottic fat plane is observed

CT: computed tomography

also, the results of thyroid function tests were found to be normal.

Thyroglossal duct cysts with endolaryngeal extension are quite rare and can be confused with laryngeal pathologies. In the literature, we reached 13 cases (11 males and 2 females) having TDC with endolaryngeal growth or extension. Tracheotomy was performed for 4 patients due to stridor. Some patients do not have a palpable neck mass (3, 5). These cases can be confused with saccular cyst or laryngocele clinically and radiologically. In our case, the patient did not have complaints, such as hoarseness, dysphagia, or foreign body sensation in the throat, and in the radiological examination, the endolaryngeal structures were found to be normal except for the cystic lesion, with extension into the preepiglottic region. Considering the peroperative features of the operation, it was observed that this extension into the preepiglottic region did not damage the integrity of the thyrohyoid membrane. The integrity of the thyrohyoid membrane was maintained with dissection performed in this region carefully.

Conclusion

Thyroglossal duct cyst can extend from the upper margin of the thyroid cartilage into the medial. It can push or destroy the thyrohyoid membrane in this region and then progress to the laryngeal ventricle, which causes it to be confused with saccular cyst or laryngocele. The complaints of hoarseness, foreign body sensation in the throat, and respiratory distress can develop. Airway obstruction due to thyroglossal duct cyst can cause the disease to show a fatal course. Evaluation of laryngeal structures

with preoperative endoscopic and radiological techniques is an important step that can help the diagnosis. Sistrunk procedure should be administered for such cases, and the integrity of the thyrohyoid membrane should be preserved.

Informed Consent: Written informed consent was obtained from patient who participated in this case.

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