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Thyroglossal duct cyst in hyoid bone: unusual location

Abdullah Tas, Ahmet Rifat Karasalihoglu, Recep Yagiz, Latife Doğanay*, Selis Guven

Abstract
An atypically sited thyroglossal cyst in a 69-year-old woman is described in this report. The cysts may be located in the intralingual, suprahyoid, thyrohyoid or suprasternal region. The intrahyoid location is rare. The diagnosis was confirmed by computed tomography (CT). Surgical procedure should be indicated in intrahyoid thyroglossal duct cyst cases.

Key words: Thyroglossal Duct Cyst; Hyoid Bone

Introduction

The thyroglossal duct cyst occurs as a dilated portion of the thyroglossal duct. In 90 per cent of patients it is present in the midline. It is most frequently found below the level of the hyoid bone (85 per cent).[1] A thyroglossal duct cyst occurs when there is failure of obliteration of the thyroglossal duct in the fetus during descent of the thyroid from the tongue to its position in the neck. They may be situated anywhere from the region of the foramen caecum at the base of the tongue to the level suprasternal notch.[2] Thyroglossal duct cysts occur mostly in children less than 10 years, but its appearance can be seen late through the life.[3] In the present case, the thyroglossal duct cyst was located within the hyoid bone. A literature search revealed that this intrahyoid location of a thyroglossal duct cyst is rare. A case and a review of the literature regarding this unusual entity are presented.

Case report

Clinical data

A 69-year-old woman presented with a midline neck mass in the hyoid region. The mass, which had been present for one year, had started to increase in size over the last three months. She did not complain of any pain or other symptoms. On examination, a 3×5 cm swelling was located in the anterior neck, at the level of the hyoid bone. This mass was mobile with protrusion of the tongue and not infiltrated to the skin. There was no associated cervical lymphadenopathy. Laboratory tests and a thyroid scan were normal. A CT scan of the neck showed a cystic structure within the hyoid bone (Figure 1).

Treatment

Under general anaesthesia the cystic lesion was excised from the hyoid bone. The thyroglossal duct was explored and was found to extend from the hyoid bone to the thyroid isthmus. This duct was excised. Post-operative recovery was uneventful. No recurrence of the disease has been seen for the past three months.

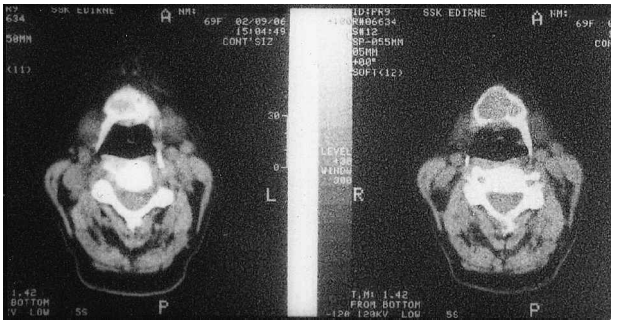

Fig. 1
CT scans of the neck showing a cystic structure within the hyoid bone.

Pathologic findings

Histological examination of the cyst revealed three layers; an inner cyst wall, osseous plate in the middle, and fibromuscular elements on the outside (Figure 2). The epithelial lining of the cyst wall was predominantly ciliated respiratory epithelium. Also, there was multilayered squamous epithelium. Well-vascularized connective tissue was seen under the epithelial lining of the cyst wall. There were also inactive thyroid tissue and cholesterol granules in the cyst wall.

Discussion

A thyroglossal duct cyst is the most common congenital neck mass, resulting from the persistence and dilatation of remnants of an epithelial tract formed during migration of the thyroid during embryogenesis. Approximately seven per cent of the population have thyroglossal duct remnants. Although thyroglossal duct cysts generally present clinically in children, it is important to understand that the lesion can present in adults as well, sometimes much later in life.[4]

There are four general locations of the thyroglossal duct: intralingual (2.1 per cent); suprahyoid (24.1 per cent); thyrohyoid (60.9 per cent); and suprasternal (12.9 per

From the Departments of Otorhinolaryngology and Pathology*, Trakya University, Faculty of Medicine, Edirne, Turkey.
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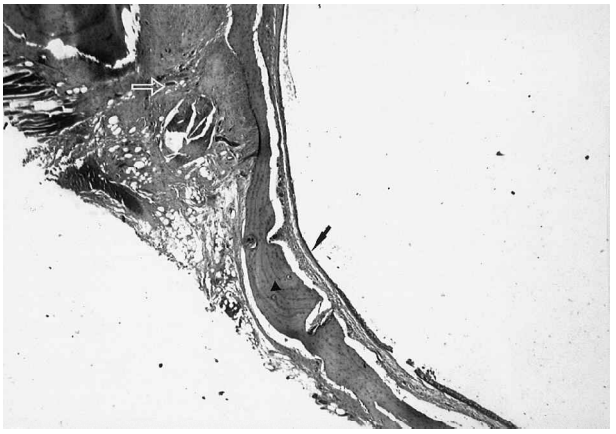

FIG. 2

Cyst wall at the inner (black arrow) bony plate (arrow head) and fibromuscular tissue at the outer (white arrow) (H & E; ×12.5).

cent).[5] The forward growth of the hyoid bone explains the siphon-like winding of the thyroglossal tract around the lower and posterior surfaces of the body of the hyoid bone. According to other theories, however, the embryonic thyroid can develop along a pre-, trans-, or retro-hyoid pathway. The intrahyoid location is explained by one of the theories of the migration of the rudimentary thyroid during embryogenesis. A retrohyoid and especially intrahyoid localization is rare, and is usually considered as a simple cyst attached to the periosteum.[3] In the present case, the thyroglossal duct cyst was located within the hyoid bone.

This evidence was reported by two cases in the literature.[3,6] These cases were 65- and 67-year-old women similar to our patient. Horisawa *et al.*[7] reported one case in a 59-year-old man, in which the thyroglossal duct penetrated the hyoid bone. Sistrunk[8] described the thyroglossal ducts as usually passing through the hyoid bone, although they are sometimes found to pass anteriorly or posteriorly to the hyoid bone. Ellis and Van Nostrand[9] in 1977 re-introduced the theory that the thyroglossal duct passes anteriorly to the hyoid bone. Horisawa *et al.*[7] found a thyroglossal duct passing anteriorly to the hyoid bone in 30 children with thyroglossal duct cysts. But they saw no instance of the thyroglossal ducts passing through or posterior to the hyoid bone. Thyroid tissue is present in the thyroglossal duct cyst wall in more than 60 per cent of cases.[5] In our case, inactive thyroid tissue was observed.

In conclusion, during migration of the thyroidal remnant from the pharyngeal floor, the duct descends to the level of the final location of the thyroid gland. The duct varies in its relationship to the hyoid bone so that it may not only be anterior or posterior but may be present rarely within the substance of the bone. This intrahyoid localization supports the surgical approach of systematic resection of the body of the hyoid bone in thyroglossal duct cyst cases.

- **This is a case report of an atypical thyroglossal cyst arising within the hyoid bone**
- **Two such cases have been previously reported**
- **The embryology of this finding is briefly discussed**

References

1 Montgomery WW. *Surgery of the Upper Respiratory System*. Philadelphia: Lea and Febiger, 1973

2 Montgomery WW. Block dissection of the neck. In: English GM, ed. *Otolaryngology*. Philadelphia: 1985,**5**:1–35

3 Bourjat P, Cartier J, Woerther JP. Thyroglossal duct cyst in hyoid bone: CT Confirmation. *J Comput Assist Tomogr* 1988;**12**:871–3

4 Ewing CA, Kornblut A, Greeley C, Manz H. Presentations of thyroglossal duct cysts in adults. *Eur Arch Otorhinolaryngol* 1999;**256**:136–8

5 Maran AGD. Benign disease of the neck. In: Kerr AG ed, *Scott-Brown's Otolaryngology*, 6th edn. Oxford: Butterworth-Heinemann, 1997;**5**:1–19

6 Podoshin L, Fradis M, Goldstein J, Misselevitch I, Boss JH. Intrahyoid thyroglossal cyst. *J Laryngol Otol* 1989;**103**:539–42

7 Horisawa M, Sasaki J, Niinomi N, Yamamoto T, Ito T. Thyroglossal duct remnant penetrating the hyoid bone – A case report. *J Pediatr Surg* 1998;**33**:725–6

8 Sistrunk WE. The surgical treatment of the thyroglossal tract. *Ann Surg* 1920;**71**:121–4

9 Ellis PDM, Van Nostrand AWP. The applied anatomy of thyroglossal tract remnants. *Laryngoscope* 1977;**87**:765–70

Address for correspondence:
Dr Abdullah Tas,
Department of Otorhinolaryngology,
Faculty of Medicine, Trakya University,
Edirne, 22030,
Turkey.

Fax: +90 284 235 27 30
E-mail: abdultas@yahoo.com

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