Thyroglossal duct cysts: Two cases

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KEYWORDS

Cysts;
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Abstract Thyroglossal duct cyst is the most common congenital neck mass in children and young adults. The authors present two cases affecting two patients aged 7 and 9 years, respectively, who had a palpable painless swelling in the submental region. In both patients ultrasound (US) examination showed an anechoic or hypoechoic rounded mass with well-defined margins thus confirming clinical suspicion of thyroglossal duct cyst. One patient also had a second, deep-lying, nonpalpable cyst which communicated with the superficial cyst. These cases are typical and confirm that US is essential in suspected thyroglossal duct cyst to confirm clinical diagnosis, detect lesions which are not clinically appreciable due to their small size or deep location, to assess communication between the lesions and to detect possible complications.

Sommario Le cisti del dotto tireoglosso sono le malformazioni congenite della linea mediana del collo più frequenti nei bambini e nei giovani adulti. Presentiamo due casi di pazienti di 7 e 9 anni, con tumefazioni palpabili in sede sottomentoniera, non dolenti. In entrambi l'ecografia ha evidenziato formazioni anecogene o ipoecogene, rotondeggianti, con margini ben definiti ed è stato confermato il sospetto clinico di cisti del dotto tireoglosso. In un caso il paziente presentava una seconda formazione cistica, non palpabile, profonda, in comunicazione con quella superficiale. I casi presentati sono tipici e confermano come, nel sospetto di cisti del dotto tireoglosso, l'ecografia sia importante, oltre che per la conferma diagnostica, anche per il riconoscimento di lesioni non apprezzabili clinicamente per le dimensioni ridotte o per la sede profonda, per la valutazione dei rapporti delle lesioni e per evidenziare eventuali complicanze.

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Introduction

Thyroglossal duct cyst (TDC) is the most common congenital neck mass and it may appear anywhere between the base of the tongue and the suprasternal region (Fig. 1). TDC is usually diagnosed clinically, and the role of imaging is to confirm clinical diagnosis, identify the thyroid and provide pre-operative information about the presence or absence of intracystic solid tissue.

US appearance may vary from an anechoic mass to a homogeneously hypoechoic mass with pseudo-solid or heterogeneous intracystic septa. Most lesions are located in the midline or infrahyoid neck.

Clinical cases

A 9-year-old girl was referred to the authors' department with clinical suspicion of TDC. Physical examination revealed a painless, mobile midline neck mass which was hardly visible. US showed two small anechoic masses located in the left submental median-paramedian region. Maximum diameter of the superficial mass was 4×8 mm and maximum diameter of the deep-lying mass was about 5 mm; the two lesions communicated with each other via a thin passage (Fig. 2). Color Doppler US showed absence of vascularization. As the parents refused surgery, only biopsy

Figure 2 Gray-scale US shows two small anechoic masses in the left median-paramedian submental region, which communicate with each other via a thin passage.

was carried out. Follow-up examination after one year did not reveal a significant increase in the size of the lesion.

A 7-year-old girl was referred to the authors' department because of a swelling in the submental region. US showed an oval mass with well-defined margins and a hypoechoic echotexture. Color Doppler US showed absence of vascularization, and maximum diameter was 17×26 mm (Fig. 3).

Figure 1 The thyroglossal duct passes from the foramen cecum located at the base of the tongue down to the hyoid bone (H), the thyrohyoid membrane (M), the thyroid cartilage (TC) and reaches the thyroid gland (T).

Figure 3 Gray-scale US shows an oval mass with well-defined margins and a hypoechoic echotexture (A); color Doppler US shows absence of vascularization (B).

Also in this case the parents refused surgery, so only biopsy was carried out. Later on, after two US follow-up examinations spaced six months apart, which showed a slight increase in volume, the parents consented to surgery. In the postoperative course, clinical and US examinations revealed no complications.

Informed consent was obtained from the patients' parents for the publication of this case report and accompanying images.

Discussion

TDC is the most common congenital neck mass (about 70%) and it may appear anywhere along the path of the thyroglossal duct. No gender predilection has been reported. The most common clinical presentation of TDC in children or young adults is a median neck mass, which is painless and tends to grow slowly over time [1].

Clinical history and presentation as well as location permit clinical diagnosis. US is considered the method of choice for confirming clinical diagnosis of TDC and has an important role before surgery to rule out complications such as the presence of fistulas or solid components (ectopic thyroid tissue or thyroglossal duct carcinoma).

US image of TDC varies and the lesion may be anechoic, homogeneously hypoechoic with intralesional septa, appear pseudo-solid due to possible protein contents or heterogeneous.

US examination involves evaluation of the location of the mass relative to the hyoid bone and the midline, cyst size and walls (barely visible, thin or thick), margins, posterior wall reinforcement, the presence of internal septa, solid components, ectopic thyroid tissue or possible fistulas. Differential diagnosis includes dermoid cyst, branchial cyst, hemangioma and lymph node swelling. Dermoid cysts are usually localized around the hyoid bone and may be of variable echogenicity depending on the presence of adipose tissue and bone tissue, but they rarely occur in the neck. Branchial cysts most commonly occur in a latero-cervical location. Hemangiomas are most often hypoechoic, and color Doppler US reveals intense vascularization. Enlarged lymph nodes are multiple and the hilum is clearly visible indicating the benign nature of the lesion [2–4].

Computed tomography (CT) and magnetic resonance imaging (MRI) are considered second-line examinations and are not routinely carried out in TDC.

TDC may present complications, such as inflammation, bleeding and sometimes fistulas as a possible consequence of an inflammatory process; only 1% of cases may present malignant transformation (particularly papillary carcinoma).

Treatment is surgical excision using the Sistrunk procedure. The operation includes excision of the cyst, the thyroglossal duct remnant and the midportion of the body of the hyoid bone [5,6].

Conclusions

TDCs are the most frequent congenital malformations of the midline of the neck in children and young adults. In the presence of suspected TDC, the investigation method of choice is US which can confirm clinical suspicion and provide important anatomical information to facilitate surgical planning. US appearance may vary: the "classic" appearance is a rounded and well-defined anechoic mass, but TDC may also appear as a pseudo-solid or heterogeneous hypoechoic mass.

Conflicts of interests

The authors have no conflict of interest to disclose.

Appendix A. Supplementary material

Supplementary material related to this article can be found online at [doi:10.1016/j.jus.2012.04.003](https://doi.org/10.1016/j.jus.2012.04.003).

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