A thyroglossal duct cyst with calcification

Introduction

Thyroglossal duct cyst (TDC), developing from epithelial remnants of the thyroglossal tract, is the most common congenital anomaly in the neck. It may be found at any level, from the base of the tongue to the thyroid isthmus. It is usually midline or slightly to one side and below the hyoid bone. TDC may show various sonographic (US) and CT appearances. Ahuja et al. [1] reported that TDC have a complex pattern ranging from a simple cyst to a pseudosolid appearance. To our knowledge, there has been no report of a TDC with calcification except in Japanese. Monzen et al. [2] reported a TDC with calcification in its wall. We report a second case and highlight its importance in differential diagnosis.

Case report

A 20-year-old woman had a nontender swelling in her neck for 2 months. A slightly hard 2 cm mass was identified in the midline. US and CT revealed a 1 × 3 cm multilocular cyst with an irregular thick wall and internal septa anteriorly in the midline of the neck at the level of the hyoid bone. There were multiple foci of calcification both within the cyst and in its wall (Fig. 1a, b). US showed internal echoes and a hyperechoic nodular areas in the cyst with posterior enhancement. On CT the cyst was denser than water and had focal areas of soft-tissue density. It showed rim enhancement (Fig. 1c). Fibrotic changes, presumably secondary to chronic inflammation, were seen in the adjacent structures. The thyroid gland and laboratory results were normal. There was no cervical lymphadenopathy. Histological examination of the lesion confirmed a multilocular TDC with calcification. The cyst was lined by cuboidal and stratified epithelium. There were islands of thyroid follicles in its wall, reactive papillary structures within the cyst and chronic inflammatory changes around it (Fig. 1d). Although the papillary structures raised the possibility of papillary carcinoma, they were thought to represent reactive change, because no nuclear criteria, such as ground glass, intranuclear inclusions, nuclear grooves or overlapping were seen.

Discussion

As TDC are diagnosed clinically the role of imaging is to confirm the clinical diagnosis [1]. CT is usually unnecessary, unless there are complications such as infec-
Fig. 1 a Transverse sonogram of the cyst (white arrows) shows a mixed-echo pattern with calcification (thin arrows), septa (arrowheads), an echogenic area (thick black arrow) and an irregularly thickened wall. Note the relationship to the hyoid bone (H) and intense posterior enhancement. b At the level of the hyoid bone, the cyst, with calcification (black arrows), septa (arrowhead) and its irregular thickened wall are seen. c At the same level, contrast-enhanced CT demonstrates a complex mass with rim enhancement. Note cystic and solid components (thick black arrow), calcification (thin black arrows) and septa (white arrow). Inflammatory changes are seen in the adjacent structures (curved arrow). Histological examination of the solid component showed a reactive papillary structure. d Calcification (arrows), fibrous tissue, mononuclear inflammatory cells and thyroid follicles are seen in the wall of the cyst, which is lined by stratified cuboidal epithelium (haematoxylin and cosin, original magnification × 40).

tion [3]. Characteristically, the US appearance of a TDC has been described as an anechoic, well-circumscribed cyst with increased through-transmission [4]. On CT TDC are typically well-defined, low-density lesions with rim enhancement and occasionally internal septa [3]. However, they may show variable appearances [1, 3, 5]. In our case, microscopy showed calcification in the cyst and chronic inflammation in the adjacent fascial planes, muscle and subcutaneous fat. The findings in TDC may thus be secondary to chronic inflammation. As in previous papers [1, 5], we think that the internal echoes within a TDC and the high density of the cyst fluid are due to its proteinaceous content, internal cellular debris and septa.

Carcinoma arising in a TDC is rare, occurring in 1% of cases. The majority are papillary, and are discovered as incidental findings at surgery [3]. The presence of a solid component should alert the sonographer to the possibility of carcinoma. Sonographically guided fine-needle aspiration may not be necessary in patients undergoing surgery [1]. Although Reede et al. [3] reported a solid component in TDC diagnosed as papillary cancer, in our case the solid components were reactive papillary structures, calcification, inflammation and fibrosis in the cyst wall.

Calcifications demonstrated in TDC are important in differential diagnosis. The differential diagnosis includes dermoid cyst, branchial cleft cyst, lymphadenopathy, cystic hygroma, lipoma, neural tumours, an enlarged thyroid gland and a cystic nodule arising from the