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Differential diagnosis of a lateral cervical cyst and solitary cystic lymph node metastasis of occult thyroid papillary carcinoma

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Abstract
We present a case of solitary cystic lymph node metastasis from an occult thyroid papillary carcinoma mimicking a lateral cervical cyst, and a case of thyroid papillary carcinoma with a true lateral cervical cyst. Based on a comparison of the radiographical findings of the two cases, differential diagnosis between cystic lymph node metastasis of papillary carcinoma and branchial cyst is discussed.

Key words: Neck; Cysts; Thyroid Neoplasms

Introduction

Lateral cervical cysts are usually benign lesion occurring predominantly in young people. Malignant lateral cervical cysts are less frequent and can be caused by metastatic tumours arising mainly from carcinomas in the oro-nasopharyngeal area and the thyroid and salivary glands.[1] In the latter cases, the primary tumour can be detected by differential diagnostic procedures, such as computed tomography (CT), except for tumours arising from the thyroid gland, in particular occult papillary carcinomas.[2,3] Occult thyroid papillary carcinomas sometimes manifest initially and solely as lateral cervical tumours.[4] Therefore, differential diagnosis between a branchial cyst and a solitary cystic lymph node metastasis from occult thyroid papillary carcinoma is difficult. We recently experienced a case of solitary cystic lymph node metastasis from an occult thyroid papillary carcinoma, and a case of thyroid papillary carcinoma with a true branchial cyst. We present these two cases and discuss their radiographical differentiation.

Case report

Case 1

A 38-year-old woman presented with a four-year history of a large lateral cervical mass. Four years previously she had been seen in our out-patient clinic for this cervical mass. CT had revealed a solitary cystic mass 5×3 cm in size just underneath the left sternocleidomastoid muscle and the carotid sheath. The mass had been radiologically diagnosed as a benign lateral cervical cyst. She had refused operation. At present admission, apart from a slowly growing cervical mass no other clinical symptoms were detected. CT demonstrated a solitary cystic mass lesion 5×10 cm in size and enhanced elements attached to the cyst wall (Figure 1(a)). No other significant lymph node swelling was detected. No mass was found in the thyroid gland. Results of fine needle aspiration indicated a benign lesion. Based on these results, we performed a simple extirpation of the tumour. Histological examination revealed a cavitated lymphoid structure lined with papillary elements suggesting a metastatic papillary carcinoma (Figure 2(a)). Ultrasound scan performed after the initial operation demonstrated a small nodule 5 mm in diameter in the left thyroid gland. After obtaining the patient's consent, sub-total thyroidectomy and functional neck dissection were performed. Histologically, the nodule proved to be a papillary carcinoma. Thyroid hormone replacement therapy was initiated. One year after the second operation, the patient is free of disease.

Case 2

A 69-year-old woman was referred by her family physician because of a large, disfiguring right cervical mass. A soft round mass 6 cm in diameter was present in the submandibular triangle. Nodules in the thyroid glands bilaterally and multiple enlarged cervical lymph nodes were also palpable. The cystic nature of the cervical mass was confirmed by ultrasound. Results of fine-needle aspiration were interpreted as no malignancy. No thyroglobulin was detected from the aspirates of the cyst. CT revealed a cystic mass 6×4 cm is size on the right carotid sheath with no enhanced elements in the cyst (Figure 1(b)). Multiple cystic masses in both thyroid glands and multiple enlarged lymph nodes were also demonstrated. Total thyroidectomy and bilateral neck dissection was performed. Histological examination revealed that the cyst in the submandibular triangle was a true branchial cyst (Figure 2(b)). The nodules in the thyroid glands were found to be papillary carcinoma, and seven out of 23 lymph node metastases were identified.

Discussion

Occult thyroid papillary carcinomas manifest initially and solely as lateral cervical tumours in 30 per cent of cases.[4] The metastatic lymph node usually appears as a solid mass in the lateral aspect of the neck.[5] Cystic lymph node

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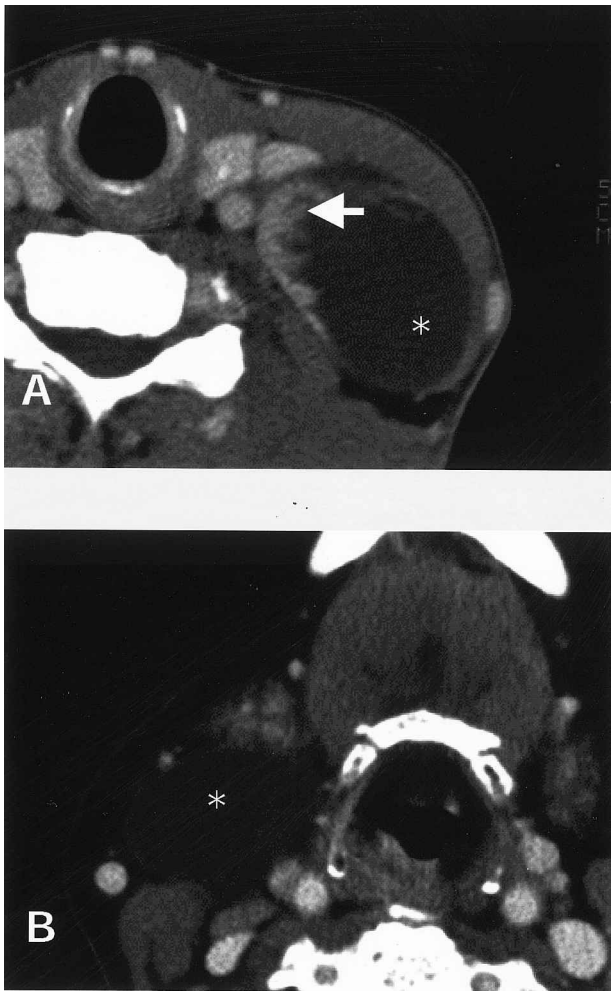

FIG. 1

CT images of a cystic lymph node metastasis of thyroid papillary carcinoma (a) and a true branchial cyst (b). (a) Enhanced elements attached to the cyst wall (arrow) present in the cyst (*). (b) No enhanced elements are found in the cyst (*).

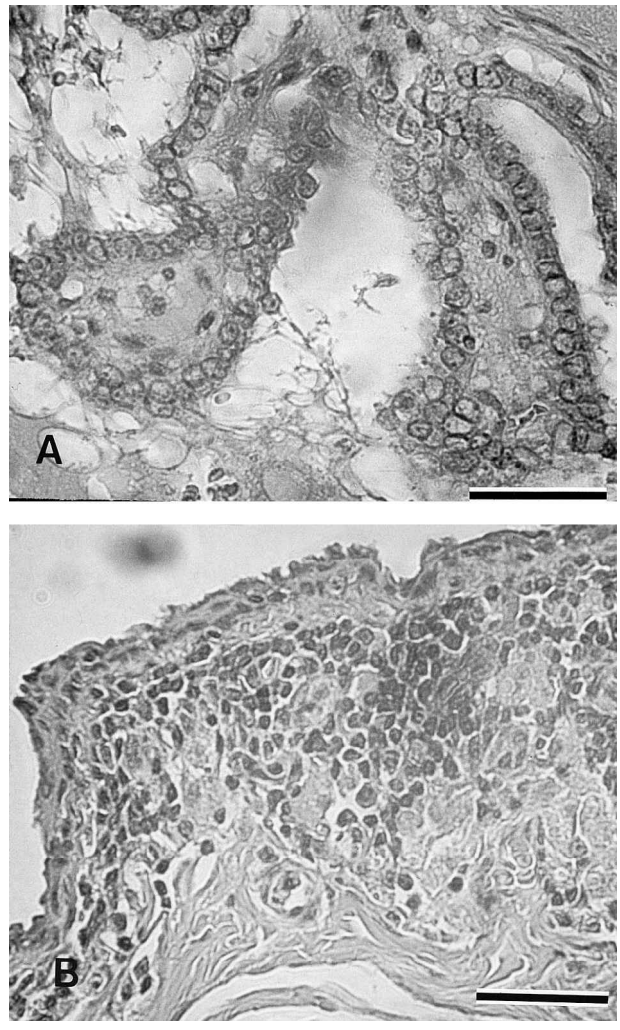

FIG. 2

Photomicrographs of cyst walls. (a) a cystic lymph node metasasis of thyroid papillary carcinoma. (b) a true branchial cyst. Bars represent 50 μm. (H & E; ×100)

metastasis is rare, and few cases of long-standing cystic metastatic over two years have been reported.[4] In addition, the giant metastatic cyst in *Case 1*, exhibited a pattern of growth different from that of the occult primary.[6] Therefore, differential diagnosis from a benign lateral cervical cyst was difficult in *Case 1*. On the other hand, the clinical course in *Case 2* suggested that the lateral cervical cyst was a metastatic thyroid cancer cyst. However, this cyst was histologically diagnosed as a branchial cyst.

Although CT is useful for differential diagnosis of cervical tumours, there has been no report describing differences in CT findings between cystic metastatic lymph nodes from thyroid papillary carcinoma and branchial cysts. A comparison of CT images of the cyst in *Case 1* with those in *Case 2* reveals the presence of intracystic enhanced elements in the metastatic cyst. This finding in CT images indicated a metastatic lesion from occult thyroid papillary carcinoma retrospectively. Therefore, the presence of intracystic enhanced elements in CT images could be specific for a metastatic cyst from a thyroid papillary carcinoma. Ultrasound findings of cystic metastasis of occult thyroid papillary carcinoma support this hypothesis. Previous reports suggested that the presence of intracystic hyperechoic elements in ultrasound images was specific for cystic metastasis of occult thyroid papillary carcinoma.[6,7] Therefore, cystic metastasis of occult thyroid papillary carcinoma must be considered when enhanced elements in CT images are demonstrated in a cervical cystic lesion. Fine-needle aspiration is usually adequate for classification of the histology of cervical lesions. Although contributing to the diagnosis of solid nodules, fine-needle biopsy has not always been rewarding for cystic lesions, as in *Case 1*.[4,8] Verg *et al.* emphasized the usefulness of ultrasound-guided needle biopsy, that can obtain material from the wall of a cystic mass.[8] High concentrations of thyroglobulin in cyst aspirates have been also described as specific for metastasis of papillary carcinoma.[9,10] In fact, the thyroglobulin level of cystic aspirates in *Case 2* was undetectable, which agreed with the histology of the lesion.

We conclude that in cases of long-standing solitary cervical cystic lesions, the diagnosis of lymph node metastasis from occult thyroid papillary carcinoma should be considered. CT is usually performed in diagnostic situation for cervical cystic lesions, and cystic metastasis of occult thyroid papillary carcinoma often appears to be benign in CT images. However, when intracystic enhanced elements are demonstrated in CT images, we must suspect cystic metastasis of occult thyroid papillary carcinoma.

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