Case Report

Occult papillary carcinoma of thyroid gland with mucoepidermoid features in a lymphnode metastasis—a report of a case

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Summary

Primary mucoepidermoid carcinoma of thyroid gland is an extremely rare tumour with only 21 cases reported to date. Only single case report has described primary papillary carcinoma of thyroid and mucoepidermoid component in a lymphnode metastasis. We report a case in which thyroid showed occult papillary carcinoma arising in background of fibrous type Hashimoto’s thyroiditis, focus of solid cell nests and at the same time mucoepidermoid component in lymphnode metastasis.

KEYWORDS

Mucoepidermoid carcinoma; Papillary carcinoma; Thyroid gland

Introduction

Papillary carcinoma is the most common malignancy in thyroid (about 65–80% of thyroid malignancies); whereas primary mucoepidermoid carcinoma of thyroid gland is an extremely rare tumor with only 21 cases reported. To date only a single case report has described the combination of papillary carcinoma and mucoepidermoid carcinoma of thyroid gland, in which primary tumor of the thyroid was a papillary carcinoma while mucoepidermoid component was found in a lymph node metastasis, 12 years after the initial operation. We report a case in which thyroid showed occult papillary carcinoma arising in background of fibrous type Hashimoto’s thyroiditis and focus of solid cell nests and at the same time mucoepidermoid carcinoma component in a lymph node metastasis.

Material and method

The surgical specimen of total thyroidectomy and lymph node dissection was fixed in 10%
buffered formalin and processed routinely for light microscopy. Paraffin embedded blocks were sectioned and slides were stained with Haemotoxyl and Eosin, Periodic acid Schiff (PAS) with and without diastase digestion and mucicarmine. IHC were performed using an Avidin-Biotin peroxidase method. The antibodies used were rabbit polyclonal anti-thyroglobulin (BioGenexlab). Rabbit polyclonal anti-carcinoembryonic antigen (CEA, Dako) and Rabbit monoclonal anti-calcitonin (Dako), Monoclonal anti-cytokeratin (CK, Dako).

Case report

A 56 years old female came to our hospital with diffuse thyroid swelling which was gradually increasing in size for some months. On examination thyroid swelling moved on deglutination and was not fixed to the soft tissue. There was also an enlarged, hard, mobile right sided cervical node at level II. Oral cavity and flexible laryngoscopic examination were normal. There was no past history of irradiation in head and neck region. Thyroid hormones levels were normal limit.

FNA from thyroid and from the right sided cervical node was carried out, which was diagnosed as Hashimoto's thyroiditis in thyroid and metastatic carcinoma further typing not possible in lymphnode. Total thyroidectomy with right sided level II, III, IV and V and left sided level II, III and IV node dissection was done. Grossly, the right lobe was almost entirely replaced by nonencapsulated solid, grey white, firm mass measuring 2 cm in diameter, surrounded by a rim of normal thyroid tissue. The isthmus and left lobe were unremarkable. A separate right level II, III, IV and V lymphnodes and left level II, III and IV lymphnodes were also submitted.

Histologically, thyroid showed typical features of Hashimoto’s thyroiditis with varying degree of fibrosis. Broad bands of dense fibrous tissue partitioned the parenchyma into irregular nodules. The stroma was heavily infiltrated by lymphocytes and plasma cells. Lymphoid follicles with predominant germinal centres were also present. Thyroid follicles were varying in size and lined by flattened to cuboidal cells with hurthle cell change. Single focus of a solid cell nest was identified in the interstitium of thyroid. There was a small focus of papillary carcinoma showing typical nuclear features and focal squamoid type cells (Fig. 1). One out of 10 lymphnodes from right sided level II, III, IV and V showed metastatic mucoepidermoid carcinoma low to intermediate grade, that deviated from ordinary patterns of differentiated thyroid cancer. It showed sheets of tumor cells having two different type of cell population, clear cells and squamoid cells, clear cells had distinct cytoplasmic border, clear Cytoplasm, small uniform nuclei with inconspicuous nucleoli, many clear cells showed intracellular mucin production. Extracellular mucin was also evident. Mucicarmine stain highlighted...
the mucinous material. Squamoid cells were round to polyhedral with eosinophilic cytoplasm, prominent intercellular bridges, small uniform nucleus and nucleoli. Keratin formation was absent. There was no papillary carcinomatous area (Figs. 2 and 3).

IHC was done in metastatic lymph node. It showed CEA and CK positivity, while thyroglobulin and calcitonin were negative. Finally we had diagnosed this case as occult papillary carcinoma in thyroid with mucoepidermoid differentiation in metastatic lymphnode.

Discussion

We report an unusual case in which right lobe of thyroid gland showed occult papillary carcinoma arising in the background of fibrous type Hashimoto’s thyroiditis and a focus of solid cell nest and right sided level II necknode showed metastatic mucoepidermoid carcinoma without papillary carcinomatous area. Only one similar case has been reported previously by Bondeson et al.5 described a papillary carcinoma of thyroid with squamous differentiation in a 35 years old man. A subsequent cervical nodal metastasis developed many years after primary disease treatment and it was the only site showed mucoepidermoid carcinoma. To date, 21 cases of mucoepidermoid carcinoma of thyroid have been reported.1–4,6,7 Microscopically, all were pure mucoepidermoid carcinomas classified as intermediate or high grade tumors. Hashimoto’s thyroiditis was common associated pathology. A case reported by Miranda et al.8 showed composite follicular variant of papillary carcinoma and mucoepidermoid carcinoma in primary thyroid tumor as well as in lymph node metastasis.

The differential diagnosis of mucoepidermoid carcinoma of thyroid gland consist of lesions that demonstrate squamous or squamoid features: developmental rests, inflammatory processes such as Hashimoto’s thyroiditis and various tumors.9–12 In a systematic study Mlyneck13 demonstrated that mucin is frequently found in occasional cells of thyroid carcinoma of different types. When present, differential diagnoses such as metastases from adenocarcinoma from GIT or the breast should be considered. However, presence of signet ring cells is not enough for diagnosis of malignancy because rare variant of benign signet ring cell adenomas do exist in the thyroid gland. The signet ring appearance in that kind of tumor has been shown to be depend on intracellular accumulation of thyroglobulin but such a mechanism does not apply to mucoepidermoid carcinoma of thyroid14,15 as histochemical reactions indicating mucin production14,15 and the tumor does not show any immunoreactivity for thyroglobulin.

Regarding the histogenesis of the mucoepidermoid carcinoma of thyroid gland, controversy still remains. The origin of the squamous epithelium in the thyroid gland which is most likely to give rise to mucopidermoid carcinoma has been extensively reviewed.7,11–13,16,17 It has been suggested that squamous epithelium arises from remnants of the ultimobronchial body (solid cell nests), the epithelium of thyroglossal duct, ectopic thymus, ectopic salivary gland and metaplastic changes in follicular epithelium.4,12,13,15,18,19 Of the preceding of the hypotheses metaplastic change of follicular epithelium is most widely accepted.19 However, because of the diverse sites in which a mucopidermoid carcinoma may arises, the possibility of metastasis from salivary gland, upper and lower aerodigestive tract should be ruled out.

The tumor reported here differs from these in the respect that its mucopidermoid component apparently developed from papillary carcinoma which verifies a connection previously suggested by Rosai.20

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References