

Mucoepidermoid carcinoma of the thyroid gland

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ABSTRACT

Mucoepidermoid carcinoma (MEC) of the thyroid gland either primary or metastatic is extremely rare. However, MEC is the most common malignant tumour of the salivary glands with the majority originating from the parotid gland. We report the case of a 54-year-old Malay lady who presented with recurrent MEC affecting the thyroid gland two years after being treated for primary parotid MEC.

Keywords: Carcinoma, mucoepidermoid, thyroid, parotid

INTRODUCTION

The most common neoplasm of the parotid gland is benign pleomorphic adenoma which constitute between 45% and 75% of all salivary gland neoplasms. ^{1, 2} Mucoepidermoid carcinoma (MEC) is less common and the parotid gland is the most commonly affected site. MEC of the thyroid gland, either primary or secondary is extremely rare compared to the other tumours of the thyroid. We report the case of a 54-year-old Malay lady who presented with recurrent MEC affecting the thyroid gland approximately two years after being treated for primary parotid MEC.

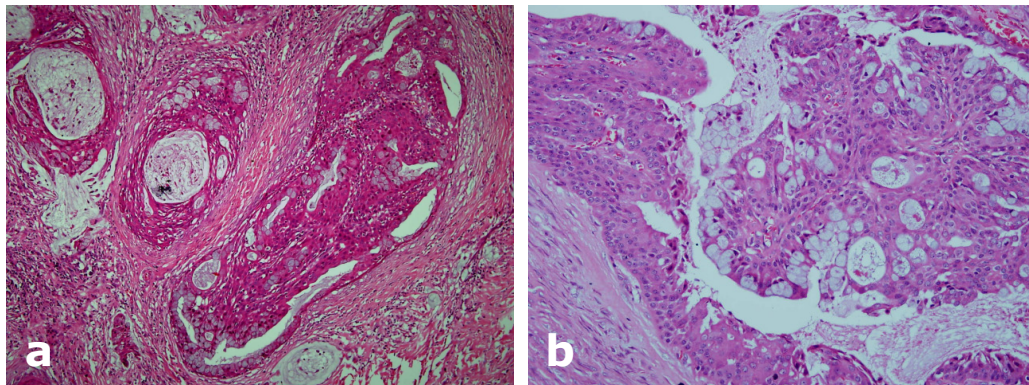
CASE REPORT

A 54-year-old Malay lady previously presented with a left parotid swelling of three

three duration. A computed tomography (CT) scan showed a tumour of the left parotid gland with deep lobe involvement, as well as multiple small and well defined non-enhancing hypodense lesions in the right thyroid lobe, possibly multinodular goitre. There were no calcification, septation or solid components noted. A fine needle aspiration for cytology (FNAC) of the parotid swelling revealed a diagnosis of MEC of the left parotid gland.

The patient proceeded with a planned total parotidectomy but intra-operatively, the tumour was noted to arise from the deep parotid lobe and involved the zygomatic and buccal branches of the facial nerve (VII cranial nerve). These branches of the facial nerve had to be sacrificed. Post-operatively, she was left with a grade III left facial nerve palsy.

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Figs. 1) a: Section from the parotid tumour shows a mucoepidermoid carcinoma composed of squamous, mucus producing cells and intermediate cells (H&E 10x), and **b)** Section from the parotid tumour shows tumour cells having squamous component admixed with mucous secreting cells and intermediate cells (H&E 20x).

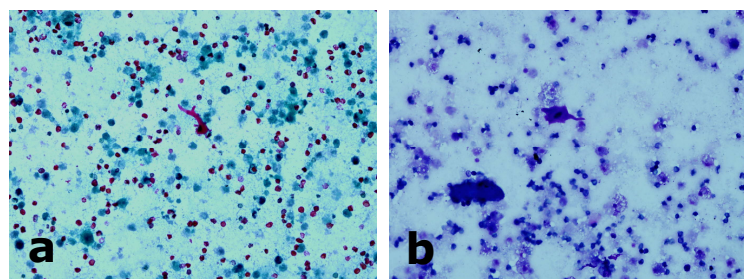
Histopathological examination confirmed the diagnosis of MEC (Figures 1a and 1b) that was high grade with the nearest resection margin less than 1mm from the tumour. Therefore, the patient proceeded to adjuvant radiotherapy. A repeat CT scan done three months after completion of radiotherapy showed no evidence of recurrence.

Two years later on routine follow-up, she was found to have a painless right-sided thyroid swelling (3 x 3cm) of three months that had gradually increased in size. The patient was clinically and biochemically euthyroid. No neck nodes were palpable. A CT scan was revealed that the enlarged thyroid gland with multiple nodules. A thyroid scan

showed an enlarged right lobe with a cold nodule in the upper pole suggestive of a malignancy. An ultrasound guided FNAC was performed.

Histological examination revealed atypical spindle cells with keratinised epithelium and scattered foamy cells, colloid as well as blotches of pinkish material. There were also atypical squamous cells with irregular nuclei with scattered mucous cells on the background of necrotic debris (Figures 2a and b). All these were consistent with a diagnosis of MEC, and in this case most likely a recurrence with metastasis. Unfortunately, the patient refused any form of surgical interventions and chose to be kept under surveil-

Figs. 2) a: Smear showing atypical squamous cells having irregular nuclei with scattered mucous cells in the background of necrotic debris (PAP Stain 40x), and **b)** Smear showing atypical squamous cell on the background of necrotic debris and inflammatory cells (MGG Stain 40x).



lance, despite repeated counseling to consider a total thyroidectomy.

DISCUSSION

MEC is the most malignant form of tumour affecting the salivary glands and between 84% and 93% affect the parotid glands.^{3, 4} MEC is made up of three cell types; mucoid, epidermoid and intermediate. It is categorised as high grade in the presence of increased rate of mitosis, cellular atypia, extracapsular and neural invasion and as low-grade in the absence of these features. Our patient had high grade MEC when she was first diagnosed with a parotid MEC and this made the second diagnosis very likely to be a metastatic disease. Parotidectomy with a modified radical neck dissection and postoperative radiotherapy is advocated for a high-grade tumour to achieve a local and regional control.⁵⁻¹⁰ In our case, the patient declined to undergo a second stage surgery and was only treated with adjuvant radiotherapy.

Tumour grading is important in determining the prognosis and the choice of treatment. However MEC is difficult to diagnose, grade and type cytologically based FNAC specimens.⁶⁻⁹ The reported rate for the exact typing of MEC based on FNAC ranges from only 33 to 75%.⁷⁻¹⁰

MEC of the thyroid is exceedingly rare with a female-to-male ratio of 16:9.^{11, 12} The histology, if not identical, is rather similar to its salivary gland counterpart. The primary type arising within the thyroid gland is of two types; MEC and sclerosing MEC with eosinophilia (SMECE).¹³ A series of nine cases of mainly primary tumours described MEC as having both squamous and glandular differ-

entiation on a background of a non-inflamed gland, whereas SMECE is characterised by extensive sclerosis, squamous and glandular differentiation, a concomitant inflammatory infiltrate rich in eosinophils, and a background of lymphocytic thyroiditis.¹³ The presence of intracytoplasmic mucin is demonstrated by mucicarmine stain.

In our patient, there were two possibilities for the origin of the thyroid MEC. It could either be a primary tumour or possibly be a metastasis from the initial parotid MEC, the latter being a rare possibility. Given that our patient had radiotherapy and was disease free for two years made a second primary possible. A second malignancy occurring at a later time that could be months or years after radiotherapy has been described. The Rochester study showed that patients (n=2,650) who had radiation therapy for thymic gland enlargement, there was 60-fold increase risk for thyroid cancer on long-term follow-up (mean of 24 years).¹⁴ Radiation-induced thyroid tumours are often multifocal and can develop up to 40 years after the initial exposure with a peak incidence of approximately 15-25 years post exposure.¹⁵ Although a radiation-induced thyroid malignancy in our patient is less likely, it is a possibility. The possibility of transformation of pre-existing thyroid gland nodules into differentiated carcinoma warrants consideration. Through the examination of a thyroidectomy specimen would have been useful.

In conclusion, MEC of the thyroid gland, be it primary or secondary is a rare malignancy of the thyroid gland. The management ideally would be a total thyroidectomy.

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