

Melanocytic Variant of Medullary Thyroid Carcinoma in a Previously Treated Papillary Carcinoma Patient

Dear Editor,

Medullary carcinoma of thyroid is a malignant tumour which arises from parafollicular or C cells that produce calcitonin. It comprises 5% to 10% of all thyroid malignancies and occurs sporadically or is hereditary as a manifestation of the type 2 multiple endocrine neoplasia syndromes.¹ Melanin producing medullary carcinoma of thyroid is one of its rare microscopic variant.

Case Report

A 51-year-old female presented with a painless left sided neck swelling. It was increasing in size in the past 1 month duration. The mass was located below the left angle of mandible, which caused no other problems. She had history of papillary carcinoma of thyroid and had undergone total thyroidectomy 10 years ago. Radioiodine ablation treatment was completed and she was disease free throughout the follow-up.

On examination, a 5cm x 5cm lump was palpable in the upper part at level II on the left side of the neck. The swelling had a smooth surface, well defined border, firm in consistency and not tender. Fine needle aspiration and cytology showed atypical cells. Computed tomography scan of the neck showed multiple necrotic nodes in the left carotid space.

Patient had undergone left neck dissection. Intraoperatively, a cystic mass measuring 5cm x 5cm was removed, together with lymph nodes. Grossly, the mass was a brownish ovoid with smooth outer layer. Serial cut sections showed solid area predominantly dark brown in colour with a gray-white area at 1 pole.

Multiple sections showed the lymph node infiltrated by a tumour. The tumour cells were arranged in sheets and interlacing fascicles. The tumour was composed of elongated to oval cells having pleomorphic nuclei, prominent nucleoli and moderate amount of cytoplasm. In some areas, the cells appeared spindly, containing hyperchromatic nuclei. Most of the cells contained melanin pigment in the cytoplasm. Extracellular melanin was also present (Fig. 1). Immunohistochemical staining showed positivity for calcitonin, HMB-45, S-100 and was negative for thyroglobulin. The final diagnosis of melanocytic variant medullary carcinoma of thyroid was made. The patient was referred to the oncological unit for further management.

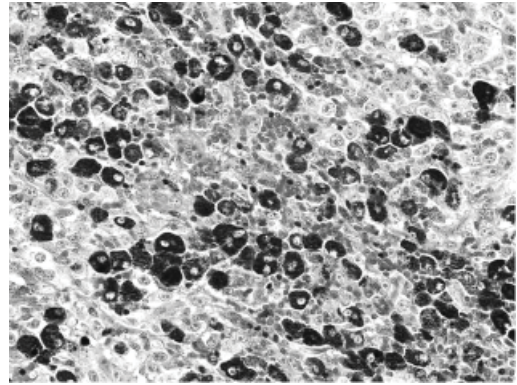


Fig. 1. Intracellular and extracellular melanin pigment H&Ex40

Discussion

Medullary carcinoma cells have the ability for multidirectional differentiation. Classically, tumour cells are round to polygonal with amphophilic granular cytoplasm and have medium sized nucleus. Tumour cells spread in solid sheets separated by highly vascular stroma, hyalinised collagen and amyloid.² Microscopic variants of medullary carcinoma include melanin producing, true papillary form, mucinous or amphicrine form, giant cell type, small cell variant and clear cell variant.

The other important differential diagnosis for the presence of melanin on histological review is melanoma. Head and neck melanoma account for 20% of all cutaneous melanoma, with melanoma of scalp and neck carrying a high mortality, with 10 year survival being only 60%.³

Since routine hematoxylin and eosin stain does not help much in differentiating both, immunohistochemistry ultrastructural examinations might help to diagnose medullary carcinoma.² Positive immunohistochemistry staining for calcitonin support the diagnosis of medullary carcinoma since calcitonin is a specific marker for parafollicular cells.⁴ Thyroglobulin is generally negative in medullary carcinoma as has been seen in this case. Positive immunohistochemistry for S-100 and HMB-45 further support melanocytic differentiation.

The prognosis of melanocytic variant medullary carcinoma of thyroid is not known due to scarcity of the case; however melanocytic variant appears to be more aggressive.⁵ Metastatic melanoma has to be excluded before considering melanocytic variant medullary carcinoma as the main diagnosis. It is because solitary level II metastasis from

thyroid cancer skipping lower level nodes, as presented in this case, is not typical of thyroid metastasis but clinically possible. However, whenever possible, the use of PET may give more information regarding the other possibility of primary tumour, especially those associated with neural crest origin.

The interesting thing about this case which needs to be highlighted is that this patient had a previous diagnosis of papillary carcinoma of thyroid which was reconfirmed again by review of the past total thyroidectomy histology slides. It is difficult to explain the relation between these two entities, and the more likely theory which will explain this is occult medullary carcinoma associated with the overt primary papillary carcinoma.

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