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Letter to Editor

Cytodiagnosis of mucin-producing medullary carcinoma of the thyroid gland

Dear Editor,

Mucin production in thyroid gland is an unusual event but can occur in a wide variety of thyroid lesions (follicular neoplasm, papillary carcinoma, anaplastic and medullary carcinoma).[1-5] Generally, these tumors are characterized by pools of extracellular mucin, admixed with areas of typical thyroid carcinoma. This causes differential diagnostic problems, especially with respect to the interpretation of mucinous deposits that occur in metastatic carcinomas. We report a case of mucin-producing medullary carcinoma of the thyroid in a 60-year-old female and discuss the pitfalls in its cytologic diagnosis.

A 60-year-old female presented with swelling of the left lobe of the thyroid since four months. On examination, there was a 3 × 3 cm firm, nontender swelling of the left lobe of the thyroid. Ultrasonography-guided Fine needle aspiration of thyroid nodule was done. The smears were cellular with tumor cells arranged in tightly cohesive clusters and papillary fragments. The tumor cells showed eccentrically placed round nucleus with finely stippled chromatin, prominent single nucleolus and abundant light basophilic cytoplasm [Figure 1]. Background showed mucin and scanty colloid. Background mucin showed positivity for Per iodic Acid Schiff and mucicarmine stains. Possibilities of primary adenocarcinoma of the thyroid as well as adenocarcinoma metastatic to the thyroid were suggested. However, further investigations did not reveal any primary tumor. The patient underwent partial thyroidectomy [Figure 2] and histopathological examination revealed extensive mucin secretion in a medullary carcinoma, which also revealed focal areas of Congo red-positive amyloid. Immediate postsurgical serum level of calcitonin was also elevated (55 ng/l).

Thus, mucin-producing medullary carcinoma may create a problem in cytologic diagnosis. In the presence of neoplastic epithelial clusters or glands accompanied by a large mucus pool involving thyroid parenchyma, a metastasis from a mucinous adenocarcinoma arising in other sites should be considered in the differential diagnosis. Generally, in this case, a correct diagnosis is easy because the metastatic cells are often associated with obvious widespread metastatic disease elsewhere. Uncommonly, metastatic carcinoma in the thyroid gland can represent the first manifestation of the systemic disease.

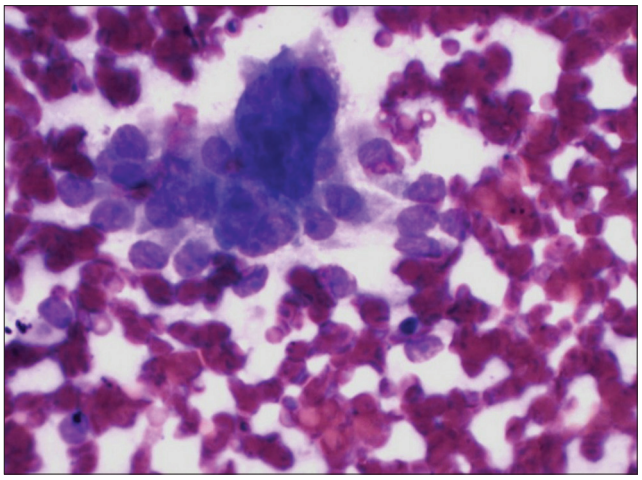

Figure 1: Cluster of tumor cells showing eccentrically placed round nucleus and abundant basophilic cytoplasm (Giemsa, ×40)

Figure 2: Gross specimen of thyroidectomy specimen revealing glistening cut surface of the tumor

Mucin was more frequently identified in medullary carcinomas (42%) than in other carcinomas (9.1%) of the thyroid gland.[2] As mucin can be identified in approximately half of the medullary carcinomas, this primary thyroid lesion should be considered a possibility in thyroid tumors with extensive mucin production.

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