Composite Follicular Variant of Papillary Carcinoma and Mucoepidermoid Carcinoma of Thyroid Gland: A Case Report

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INTRODUCTION

Mucoepidermoid carcinoma (MEC) most commonly occurs in salivary glands but can also be seen at other organs, including lung, esophagus, breast, pancreas, and thyroid gland (1-10). Primary MEC of the thyroid is very rare and its origin has not been fully understood with debate regarding whether it arises from solid cell nests of ultimobranchial apparatus or from follicular epithelium (5, 7, 10-13). Here, we present a case of unusual tumor of thyroid MEC more suggesting solid cell nest origin than follicular epithelium.

CASE REPORT

A 50-yr-old male presented with a thyroid mass with dysphasia and hoarseness. He underwent total thyroidectomy and neck node dissection. Pathologically, the tumor had two distinct tumor components with intermingled areas: follicular variant of papillary carcinoma and mucoepidermoid carcinoma. Mucoepidermoid carcinoma composed of columnar cells, mucocytes, and squamoid cells showing solid and cystic lesion. Several small cysts lined by benign ciliated columnar epithelia suggesting that this tumor had originated from solid cell nest were seen around the tumor. By immunohistochemistry, columnar cells and squamoid cells in mucoepidermoid carcinoma were positive for cytokeratin but negative for thyroglobulin, TTF-1 and calcitonin. Positivity of p63 was seen in squamoid cells and basal cells of cysts. Some mucocytes are CEA positive. Tumor cells of papillary carcinoma are positive for TTF-1, thyroglobulin but negative for CEA, calcitonin and p63.

Key Words: Thyroid Gland; Carcinoma, Mucoepidermoid; Carcinoma, Papillary; Solid Cell Nests

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were positive for p63. Benign ciliated respiratory epithelial cells were CEA positive and thyroglobulin negative. The diagnosis of thyroid mucoepidermoid carcinoma combined with follicular variant of papillary carcinoma was made. Dissected neck lymph nodes revealed metastatic mucoepidermoid carcinoma. Four months after the operation, he received radiation therapy and presented dyspnea and wheezing.

Fig. 1. Histopathological findings of the tumor. (A) There are foci of transition from follicular variant of papillary carcinoma to mucoepidermoid carcinoma, H&E stained, x40. (B) Papillary carcinoma cells show nuclear groove, ground glass nuclei and intranuclear pseudoinclusions, H&E stained, x400. (C) Mucoepidermoid carcinoma is solid and cystic lesion composed of columnar cells and squamous cells, H&E stained, x40. (D) Columnar tumor cells have cilia, H&E stained, x400. (E) Mucinous material in cystic space, mucocytes and cytoplasmic border of columnar cells are positive by PAS staining, x200. (F) Small cysts lined with ciliated columnar cells (solid cell nests) are seen around the main tumor, H&E stained, x200.
DISCUSSION

MEC of the thyroid gland is a rare tumor and is characterized by unique histologic appearance and indolent biologic behavior. It was first described in 1977 by Rhatigan et al. (14) and they considered it to originate from ectopic salivary gland tissue but they couldn’t find any remnants of salivary gland tissue. Its pathogenesis has remained unclear. Many authors have suggested
that these tumors develop from solid cell nests (SCN), known to be remnants of ultimobranchial body (diverticulum from the fourth pharyngeal pouch), whereas some authors have reported a follicular origin (5, 7, 10-13). SCN is irregular structures of about 1 mm in maximal diameter and usually found in the thyroid lateral lobes. It is basically composed of non-keratinizing squamous cells and ductal structures lined by ciliated columnar epithelium (15). Ando et al. (10) reported MEC showing ductal structures lined by markedly ciliated columnar cells, resembling respiratory epithelial cells. The ductal structures in SCN of the ultimobranchial body also lined with ciliated epithelium and this suggests that SCN might be origin of MEC. And that is the reason tumor cells are p63 positive and TTF-1 and thyroglobulin negative. P63 is a marker of stem cell phenotype and TTF-1 and thyroglobulin are markers of thyroid follicular epithelium. These immunohistochemical results may be helpful in distinguishing ultimobranchial-derived SCN from their mimics such as squamous metaplasia of follicular cell origin tumor and metastatic squamous cell carcinoma. Although ciliated epithelium can be seen on the inner surface of thyroglossal cyst remnant but it is located on the midline. Only one another case reported by Wenig et al. (7) had focal ciliated epithelium lining cysts but that was seen in an integral parts of the neoplastic proliferation associated with squamous foci.

There are several literatures supporting a follicular epithelial origin of MEC. MEC occasionally has concurrent papillary carcinoma and mucoepidermoid carcinoma of thyroid gland. These histologic and immunohistochemical findings suggest that MCE is originated from SCN rather than follicular epithelium.

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