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Poster Presentation

Anterior Mediastinal Mystery: From Epithelioid Suspicion to a Diagnosis of Metaplastic Revelation

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ABSTRACT

Introduction. Metaplastic thymoma is an exceptionally rare thymic epithelial neoplasm, with fewer than 40 cases reported in the literature. It is defined by a distinctive biphasic proliferation of epithelioid epithelial nests and bland spindle cell fascicles, accompanied by a characteristic immunohistochemical profile. In limited cytology specimens, the lack of architectural context and potentially incomplete sampling can obscure the biphasic nature, leading to diagnostic difficulty. We describe a case initially interpreted as an epithelioid neoplasm on fine needle aspiration (FNA), with subsequent resection confirming metaplastic thymoma.

Case Description. A 66-year-old male presented with an anterior mediastinal mass. FNA revealed a highly cellular specimen composed predominantly of polygonal tumor cells arranged in cohesive sheets. The cells displayed round to ovoid, hyperchromatic nuclei with moderate to marked pleomorphism, irregular nuclear membranes, conspicuous nucleoli, and abundant eosinophilic cytoplasm. Dystrophic calcifications were noted within a hemorrhagic background. An epithelioid tumor was favored on cytologic evaluation.

The patient subsequently underwent video-assisted thoracoscopic surgery with excision of the mass. The specimen was well-encapsulated, lobulated, and traversed by fibrous septations. Microscopically, the tumor demonstrated a biphasic architecture: cohesive nests of epithelioid cells closely admixed with intersecting fascicles of bland spindle cells. Immature T-lymphocytes were not identified.

Immunohistochemical staining showed diffuse cytokeratin and p40 positivity in the epithelioid component. In contrast, the spindle cell component lacked cytokeratin expression but exhibited strong vimentin positivity and patchy EMA reactivity. Both components were negative for CD5 and CD117. The Ki-67 proliferation index was low (1–2%).

Discussion. Diagnosing metaplastic thymoma on cytology is challenging due to the tumor's inherently biphasic architecture, which may not be adequately represented in limited FNA samples. In this case, the cytologic material disproportionately sampled the epithelioid component, masking the spindle cell element critical for diagnosis. Additionally, the lymphocyte-poor background mimicked type A or AB thymoma, further contributing to potential misclassification.

Accurate diagnosis relies on careful integration of cytologic features with histologic, immunohistochemical, radiologic, and clinical data. Recognition of this rare entity is important, as its behavior differs substantially from other anterior mediastinal tumors, including thymic carcinoma and more aggressive thymoma subtypes.

Conclusion. Metaplastic thymoma can present as a purely epithelioid lesion on limited biopsy material, obscuring its hallmark biphasic nature. Awareness of this rare thymic neoplasm and correlation with resection findings are essential to avoid misdiagnosis. When accurately identified and completely excised, metaplastic thymoma carries an excellent prognosis.

Key words. *metaplastic thymoma, thymoma, thymoma type A, thymoma type AB, fine needle aspiration biopsy*