Case Study on a Lymphoepithelioma-Like Carcinoma of the Thymus

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Abstract

Introduction: The thymus is a lobulated gland located beneath the sternum in the mediastinum that serves an important role in cell mediated immunity during development. The thymus gland is involved with several different pathological processes including carcinoma. Thymic carcinomas are rare malignant tumors with a low prevalence however thymic carcinoma is the most commonly occurring malignant tumor of the anterior mediastinum. Risk factors associated with the occurrence of thymic carcinoma currently are limited to age and race. Among ethnic groups in the United States, thymic carcinoma is more prevalent among Asians and Pacific Islanders. Causes associated with the developmental risks of acquiring thymic carcinoma are not well known, though current research has implicated DNA changes as a possibility. Patient History/Hospital Course: A 72 year old male incidentally presented with a 4.5 cm in greatest dimension mediastinal mass during coronary artery bypass graft revision surgery. Diagnosis: An intraoperative consultation was requested. Grossly the mass was tan-pink, firm and lobulated. Low power microscopy demonstrated a hypercellular neoplasm arranged in lobules separated by fibrous bands of connective tissue with paracapsular connective tissue invasion. High power microscopy demonstrated an admixture of epithelioid cells and lymphocytes with increased mitotic activity and prominent apoptosis. Immunohistochemical staining was positive for Pan cytokeratin, CD3, CD5, Ki-67 and TdT while EBER staining was negative. CD5 stained several T lymphocytes and neoplastic epithelial cells consistent with tumors of thymic origin. Ki-67 demonstrated a high proliferative index. TdT positivity in the neoplastic epithelial cells suggests they arose from a pre-existing thymoma. Discussion: The final diagnosis was a high grade lymphoepithelioma-like thymic carcinoma exhibiting invasion into the thymic capsule, Stage IIA. Lymphoepithelioma-like carcinoma (LELC) is a rare primary thymic carcinoma arising from epithelial cells in the anterior mediastinum with a male predominance. Patients may present with respiratory problems or be asymptomatic with incidental findings during imaging examinations. Invasion into neighboring structures, metastasis to the lungs, bone and lymph nodes may occur. Conclusion: Histologically, LELC is the most common subtype of thymic cancer in the United States. Medical research surrounding the pathogenesis of LELC is limited. Genetic predisposition and developmental risks associated with LELC are currently not known. Patient prognosis for lesions of this type is poor with an estimated mean survival of 18.7 months.