Intrathoracic Arteritis: A Paraneoplastic Presentation of Malignant Melanoma

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A 56-year-old man presented with a 6 month history of cough, malaise, and new-onset chest pain. An electrocardiogram showed evidence of recent infarction. His history was notable for a suspicious pigmented skin lesion, resected in 1988, with no known recurrence to date. Coronary angiography revealed triple-vessel disease with complete occlusion of the proximal right coronary artery, 70% stenosis of left coronary artery, and 95% stenosis of left anterior descending artery. At bypass surgery, because the coronaries appeared unusually thickened and nodular, pathologic examination of the left internal mammary artery was undertaken (Figures 1 and 2). Immunohistochemistry study of the artery section was not performed. Serology investigations, including hepatitis B and C, cytomegalovirus, antinuclear antibodies, and antineutrophil cytoplasmic antibodies, were negative. Mono-spot and human immunodeficiency virus (HIV) tests were also negative. There was no evidence of pulmonary, renal, neurologic, or cutaneous involvement.

Treatment with pulse intravenous methylprednisolone, followed by oral cyclophosphamide and prednisone on a tapering regimen, resulted in clinical improvement. Six

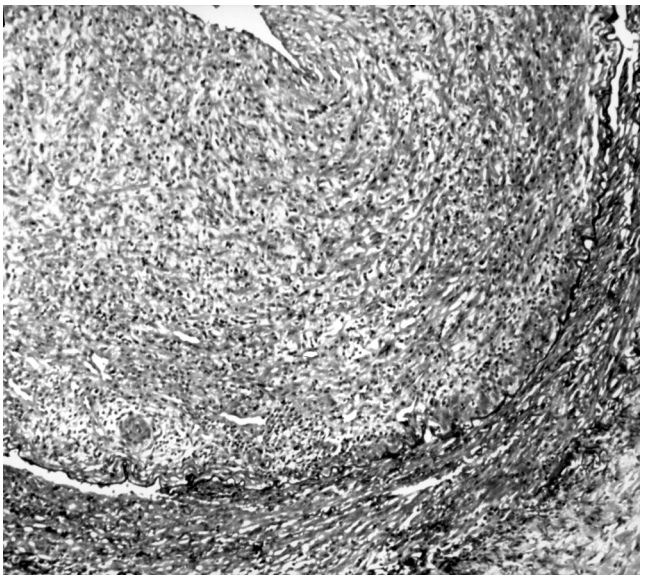

Figure 1. Hematoxylin and eosin staining of the left mammary artery reveals chronic panarteritis with mixed inflammatory cell infiltrate including plasma cells, lymphocytes, and neutrophils.

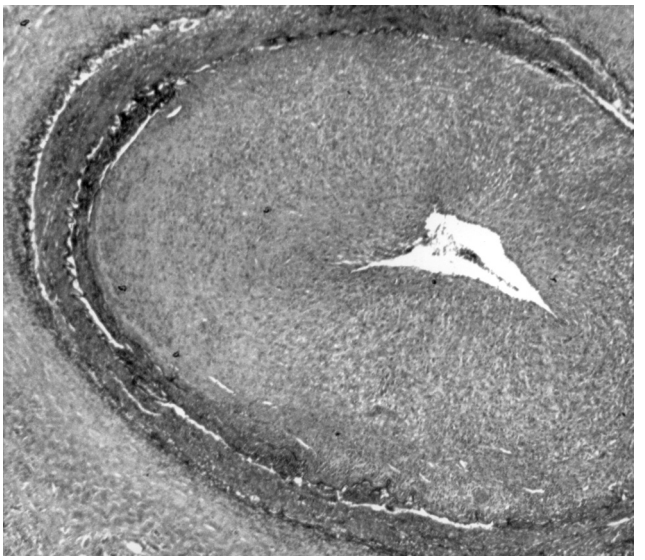

Figure 2. Hematoxylin and eosin staining of the left mammary artery. There is marked myointimal hyperplasia and luminal obliteration. Eosinophils, giant cells, and granulomas are not a feature of this vasculitis, nor are fibrinoid necrosis, aneurysm formation, or acute thrombosis. The biopsy is consistent with arteritis.

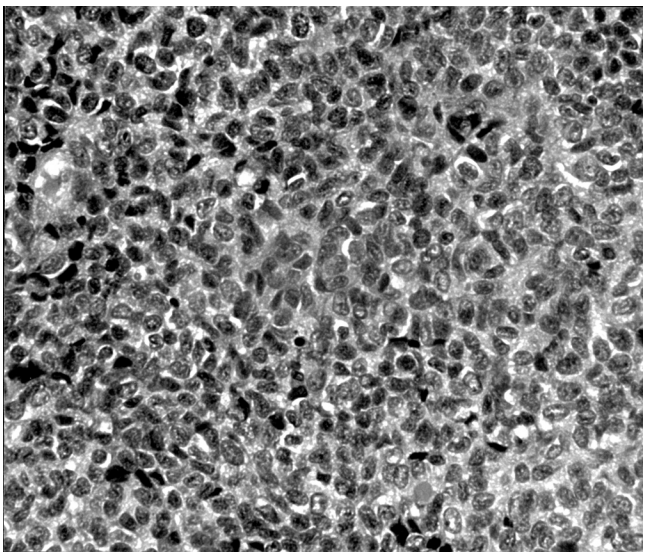

Figure 3. Hematoxylin and eosin stain (40× original magnification); a poorly differentiated large-cell tumor that stained positive with S-100 and HMB-45 consistent with malignant melanoma is present.

months later, he presented with cough and dyspnea. Bilateral pleural effusions were noted on chest radiograph, and pleuroscopy with biopsy revealed metastatic malignant melanoma (Figure 3). Despite aggressive chemotherapy, his status rapidly declined and he died without autopsy.

Melanoma has been associated with retinal[1], temporal[2], and systemic[3] vasculitis. Coronary arteritis has been described in Churg-Strauss syndrome[4], Kawasaki disease[4], systemic lupus erythematosus[5], HIV infection[6], Takayasu's arteritis[7], Wegener's granulomatosis[8], and polyarteritis nodosa[9]. The pathogenesis of this association is unknown. Several antigens have been identified on melanoma cells, including the S-100 antigen (a calcium-binding protein)[10] and melan-A[11]. These antigens may be nonspecific and may be expressed by other tissues. Melan-A is both a target for cytotoxic lymphocytes and the stimulus for antibodies that crossreact with perivascular smooth muscle cells of lymphangiomyomatosis[11]. We propose that antigens expressed in malignant melanomas may result in humoral and/or cell-mediated immune activation leading to intrathoracic arteritis.

Based on the surgical observation of "abnormally thickened and nodular" coronary vessels and concomitant arteritis of the left internal mammary artery, this patient was considered to have coronary artery involvement. This is the first case report to our knowledge of an apparent association of intrathoracic arteritis and malignant melanoma.

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