Antemortem Diagnosis of an Endomyocardial Breast Cancer Metastasis by Transvenous Endomyocardial Biopsy*

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Endomyocardial breast cancer metastases are extremely rare and have previously been diagnosed antemortem only through median sternotomy and cardiomyotomy. We report a case of endomyocardial breast cancer metastasis which was diagnosed antemortem by transvenous endomyocardial biopsy.

_Tumors metastatic to the heart are rarely diagnosed prior to a patient’s death; however, the incidence of cardiac metastases in autopsy series ranges from 0.2 to 13.9 percent._10 The most common nonhematogenous neoplasms leading to cardiac metastases include lung and breast cancer and malignant melanoma._1,4_ The pericardium is the most frequent site of cardiac metastases; secondary endomyocardial malignancies are extremely rare._4,6_ Since thoracotomy and cardiac exploration may expose the patient to unacceptable morbidity and mortality risks, an antemortem pathologic diagnosis of cardiac metastases rarely is obtained. Yet, such a diagnosis may carry significant clinical implications. We report a case of endomyocardial breast cancer metastasis in which the diagnosis was obtained by transvenous endomyocardial biopsy.

CASE REPORT

A 52-year-old woman with adenocarcinoma of the breast was admitted to the hospital after presenting with dyspnea. Her condition had been diagnosed as stage IV breast cancer two months earlier after detection of a 10-cm mass of the left breast, multiple 3-cm masses of the right breast, bilateral axillary lymphadenopathy, bilateral pleural effusions and ascites. An open biopsy of the left breast revealed invasive ductal comedocarcinoma, characterized by large ducts filled with tumor cells with central necrosis.

She developed progressively worsening dyspnea over the ensuing six weeks and returned for evaluation. On physical examination she was in moderate respiratory distress. The blood pressure was 144/80 mm Hg; heart rate, 108 beats per minute and regular; and respiratory rate, 28 breaths per minute. Her jugular venous waveform was normal and the jugular venous pressure was estimated to be 8 cm H_2O_. The chest examination revealed dullness to percussion and diminished breath sounds to the scapulae bilaterally. Her heart sounds were normal and there were no murmurs or friction rubs. Bilateral breast and axillary masses were present, as was ascites and 3+ dependent edema. The chest radiograph revealed generalized enlargement of the cardiac silhouette, bilateral pleural effusions and multiple pulmonary nodules. The electrocardiogram revealed sinus tachycardia and nonspecific S-T segment changes.

A two-dimensional echocardiogram demonstrated large pleural effusions, no pericardial effusion and a mass occupying the right ventricular apex. The intracardiac mass was further defined by gated magnetic resonance imaging (Fig 1). A right heart catheterization and endomyocardial biopsy were subsequently performed via the right femoral vein using a nonthermodilution pulmonary wedge pressure catheter (C.R. Bard, Tewksbury, Mass), a 65-cm biopsy sheath (Cordis Corporation, Miami, Fl) and 100-cm endomyocardial biopsy forceps (Mansfield Corporation, Mansfield, Mass). Five specimens were retrieved from the right ventricle. The hematoxylin and eosin-stained, paraffin-embedded histologic sections revealed nests of tumor cells surrounded by desmoplastic stroma. The tumor cells had large pleomorphic nuclei and many had cytoplasmic vacuoles. The histologic appearance of the right ventricular tumor was indistinguishable from the primary breast carcinoma. No metastatic carcinoma was identified in any of the other endomyocardial biopsy specimens.

The patient’s treatment was altered because of the pathologic confirmation of the cardiac breast cancer metastasis. She received cyclophosphamide, doxorubicin and fluorouracil. However, she developed status epilepticus two months later, was found to have intracerebral metastases and subsequently expired. Permission for

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Figure 1. Gated magnetic resonance imaging clearly demonstrates the large intracardiac mass occupying the apical portion of the right ventricular cavity.
an autopsy was denied.

**DISCUSSION**

Endomyocardial breast cancer metastases are extremely rare and are usually discovered at autopsy. This is the second patient in the medical literature in whom an antemortem pathologic diagnosis of an intracardiac breast cancer metastasis has been obtained. The other patient had left atrial cystosarcoma phyllodes metastasis diagnosed via medical sternotomy, cardiopulmonary bypass and left atriotomy. Since most patients with endomyocardial metastases have a poor prognosis and may be systemically ill, a less invasive method of obtaining a diagnosis is desirable.

Transvenous endomyocardial biopsy frequently is utilized for the diagnosis of myocarditis, anthracoclycine cardiotoxicity, infiltrative myopathic diseases and cardiac allograft rejection, but only recently have reports of its utility in the diagnosis of intracardiac tumors. Early experience suggests that endomyocardial biopsy is a safe and highly sensitive method of obtaining a pathologic diagnosis of malignant cardiac disease.

We utilized noninvasive imaging modalities to evaluate the safety and efficacy of proceeding with this tumor biopsy. The right ventricular mass was detected by two-dimensional echocardiography, but its extent was better delineated by gated magnetic resonance imaging. Our experience parallels that of Freedberg and colleagues who demonstrated that magnetic resonance imaging contributes important additional anatomic information in patients with intracavitary cardiac tumors detected by echocardiography. Magnetic resonance imaging revealed that the mass was large and virtually filled the apical region of the right ventricle. The biopsy was subsequently performed safely and without difficulty.

This case demonstrates that transvenous endomyocardial biopsy is a feasible method of diagnosing intracardiac breast cancer metastases and that noninvasive imaging contributes to the safety and performance of the procedure.

**REFERENCES**


**Hemoptysis as a Presentation of Mild Hemophilia A in an Adult**

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It is not unusual for mild hemophilia A to escape detection into adolescent years and it is often detected following dental extractions or other mild trauma. The present report describes a patient shown to have only 8 to 9 percent factor VIII activity at age 30 years. The presentation of recurrent mild hemoptysis with upper respiratory tract infections is unusual and of interest in the differential diagnosis of hemoptysis. (Chest 1993; 103:1281-82)

Hemophilia A is a sex-linked recessive coagulation disorder almost exclusively occurring in male subjects and caused by a deficiency of factor VIII. The severity of the disease is correlated with factor VIII levels. Those patients with less than 1 percent activity suffer significant bleeding, including hemarthroses and are detected in infancy. Moderately severe deficiency with activity in the 1 to 5 percent range leads to occasional hemarthroses but has a better prognosis. Mild hemophilia A with factor activity in the 6 to 40 percent range often presents as late as the second decade with unexpected amounts of bleeding following minor trauma, typically dental extraction or other minor surgery or soft-tissue injury. Although more characteristic of platelet disorders or von Willebrand's disease, mucosal bleeding such as epistaxis does occur in hemophiliacs. Hemoptysis is apparently quite unusual in hemophiliacs, but its exact incidence as a manifestation or complication of the disease could not be found in the literature. It is noted that structural abnormalities of the airways should always be considered even when hemoptysis occurs in a known hemophiliac. The initial presentation of hemophilia A with hemoptysis alone thus must be exceptionally rare and a prior reference to this could not be found in the literature.

**CASE REPORT**

A 30-year-old black man presented for evaluation of recurrent hemoptysis. He had a history of PPD conversion four years previously and chest roentgenogram at that time showed only stable right azygos and hilar calcifications that had been previously attributed to histoplasmosis during his youth in rural Tennessee and Kentucky. Evaluation for active tuberculosis was negative but he was unable to tolerate isoniazid prophylaxis due to peripheral...

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