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Left Atrial Myxoma and Mitral Valve Endocarditis—A Cause and Effect: A Case Report

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ABSTRACT

We report the case of a 55-year-old man who presented with an infected left atrial myxoma that seeded a normal native mitral valve. Despite the absence of mitral regurgitation or heart failure, prior to the patient completing a course of IV antibiotic therapy we removed the tumor, replaced the mitral valve, and added 3 coronary artery bypass grafts, following a single embolic event. Although a completed course of antibiotic therapy may have allowed preservation of the native mitral valve, we believed that the risk of recurrent embolization from either the mass or the mitral valve vegetations was greater that the long-term risks of valve replacement.

INTRODUCTION

Atrial myxoma, the most common primary cardiac tumor, may be clinically manifested with systemic symptoms consistent with collagen vascular disease, malignancy, or infective endocarditis (IE) [Shapiro 2001]. The vast majority are solitary, originating from the region of the fossa ovalis on the atrial septum as a mass in the left atrium (LA), but they can, although rarely, develop on the mitral valve [Selkane 2003]. Traditionally, they are surgically managed in an emergent fashion, particularly if there is a threatening echocardiographic image and the lesion is greater than 2 cm in size, which is associated with a risk of embolization (>25%) or sudden death, as outlined in a recent review by Keeling et al [Keeling 2002].

Infective endocarditis, on the other hand, in the absence of complications that adversely affect prognosis, such as recurrent embolism, refractory heart failure, perivalvular extension, or refractory infection, is preferably treated medically [Vikram 2003]. However, early surgery must be entertained when mitral valve vegetations are present, particularly on the anterior leaflet (AMVL), when the risk of embolization may also exceed 25% [Bayer 1998]. Although such early surgical intervention may prevent a primary or recurrent major embolic event, it does expose the patient to both the immediate and long-term risks of mitral valve (MV) replacement. Whenever feasible, MV repair, even under these circumstances, is preferable to replacement [Mihaljevic 2004].

CASE REPORT

A 55-year-old executive presented to his primary care physician with a 2-month history of fevers and malaise. His past medical history was remarkable for a coronary catheterization and angioplasty 2 years earlier, at which time, or in hindsight, there was no evidence of an atrial mass (an echocardiogram was not performed). Reconstructive dental work had occurred 10 weeks prior to presentation. He had no history of trauma or heart valvular disease. He was noted to be anemic (hemoglobin 11.0 g/dL) and was admitted for an extensive workup of pyrexia of unknown origin.

On examination, no murmurs were detected, and other than a low-grade fever of 99.8°F his exam was unremarkable. Serial blood cultures grew a Streptococcal species (S. mutans). A peripheral intravenous central catheter (PICC) was placed and he was begun on gentamicin (Baxter Healthcare, Round Lake, IL, USA), which was rapidly switched to cefotaxime (American Pharmaceutical Partners, Los Angeles, CA, USA) 2 gm, intravenously, daily.

The cardiology service was consulted and a transesophageal echocardiogram was performed (Figure). Because of his history of coronary artery disease (CAD), a left-sided heart catheterization was done, which revealed severe 3-vessel disease. His left ventricular function, by echocardiography, was preserved. A CT scan of the abdomen, with contrast, revealed a lesion consistent with splenic infarction. The management strategy was determined after an extensive discussion between the patient and the consulting services: cardiology, infectious disease, and surgery.

Ten days following his admission to hospital, 7 days after initiation of antibiotic therapy, and with sterile blood cultures, he was taken to the operating room after giving informed consent. Because of the risk of dislodgment of tumor fragments during surgery, aortic and bi-caval cannula-

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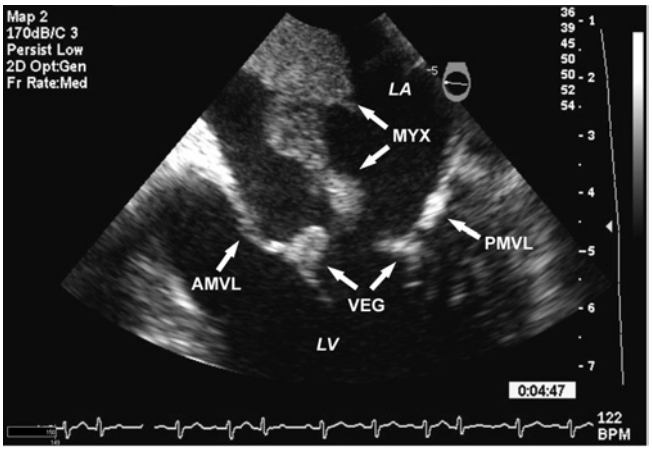

Two-chamber transesophageal echocardiographic image indicating proximity of myxoma with the mitral valve apparatus and its associated bi-leaflet vegetations. AMVL indicates anterior mitral valve leaflet; LA, left atrium; LV, left ventricle; MYX, myxoma; PMVL, posterior mitral valve leaflet; VEG, vegetations.

tion were performed with minimal cardiac manipulation. After application of the aortic cross-clamp and a prompt cardiac arrest with antegrade cardioplegia, a bi-atrial approach was used to extract the friable tumor under direct vision. A 1 cm^2 island of atrial septum was removed with the specimen. After trans-septal excision of the bileaflet mitral vegetations, including the associated leaflet segments (A1, A3, P2, and P3), it was apparent that reconstruction was precluded due to limited remaining tissue. Using continuous retrograde cardioplegia, a 27 mm bileaflet mechanical mitral valve prosthesis (St. Jude Medical, St. Paul, MN, USA) was seated with preservation of the remaining mitral valve apparatus (A2/P1 and the associated chordae tendonae) after completion of 2 of the coronary artery bypass grafts with a sequential vein. The atrial septum was repaired with autologous pericardium and the final coronary artery bypass, using the left internal mammary artery, was completed. The patient had an uneventful postoperative course and was discharged home on the 5th postoperative day, in sinus rhythm, with instructions to continue 5 more weeks of intravenous antibiotic therapy. Histology of the left atrial mass was consistent with myxoma and was highlighted with multiple collections of white blood cells (WBCs). Histology of the vegetations revealed extensive WBCs in a bed of fibrin without any evidence of myxomatous tissue. Bacteria were not isolated from either specimen and all cultures were negative for growth.

Although valvular myxoma has been previously reported to be associated with infective endocarditis, we believe this report to be the first to associate IE with an extravalvular myxoma [Toda 1999]. We postulate that this patient had a LA myxoma which became infected (as indicated by the multiple collections of WBCs in the specimen), likely as a result of oral surgery. This infected tumor then traumatized the atrial surface of the normal native mitral valve leaflets, allowing them to be seeded with the infecting organism.

Although a 6-week course of antibiotic therapy may very well have reduced, or possibly eliminated, the leaflet vegetations in his situation and thus spared the mitral valve, we believe the risk of recurrent embolization, from either the myxoma or the mitral valve vegetations, justified early surgical intervention. A mechanical valve was chosen over a biologic valve because of the patient's relative youth and the absence of any comorbidities that would have had a significant impact on his lifespan. The benefit of preserving the remaining subvalvular apparatus on ventricular geometry, in our opinion, outweighed the risk of residual infection with this organism of low virulence (*Streptococcus*).

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