Mitral Valve Aspergilloma in an Immunocompromised Patient with Recurrent Cerebrovascular Accidents

Robert P. Fitzpatrick, DO, Mina B. Botros, BS, Bryan Dolan, DO, Gerard P. Aurigemma, MD, Shi Bai, MD, PhD, and Colleen M. Harrington, MD, Worcester, Massachusetts

INTRODUCTION

Echocardiography is a useful tool when there is concern for a possible cardiac source of systemic embolization. Determining the etiology of a cardiac mass with transthoracic and transesophageal echocardiography can assist in this challenging task. A patient’s clinical presentation and medical history along with the features identified on transthoracic and transesophageal echocardiography can be useful in narrowing a differential diagnosis. Often histopathology of embolic material or the mass itself may ultimately be required to arrive at the diagnosis. We present the case of an immunocompromised patient who presented with recurrent multiterritory strokes and was subsequently found to have a cardiac mass, seen on transesophageal echocardiography, of unclear etiology concerning for the source of embolic disease.

CASE PRESENTATION

A 58-year-old woman with ulcerative colitis, previously treated with dexamethasone for immunosuppressive therapy, presented to the hospital with sudden onset of a frontal headache, expressive aphasia, and progressively worsening blurry vision of 1 hour in duration. Computed tomography of the head showed an occipital intraparenchymal hemorrhage; computed tomographic angiography revealed an occluded branch of the left middle cerebral artery. In view of the multiple neurologic findings, a cardiac source was sought. Transthoracic echocardiography revealed a large, complex, multi-lobulated mass on the atrial aspect (Figure 1A–D) and 1.7 cm on the ventricular aspect of the left ventricle, and intraventricular septum. This opportunistic infection accounts for 20% to 25% of fungal endocarditis, occurs more

Fungal endocarditis accounts for <2% of cases of endocarditis, but its prevalence is increasing with advancing medical and surgical therapies. Aspergillus is a ubiquitous fungal organism whose spores are easily inhaled and rarely can invade the heart. Cardiac aspergilloma has been reported to invade native and prosthetic valves, most commonly the aortic and mitral valves, as well as the right ventricle, left ventricle, and intraventricular septum.1 This opportunistic infection accounts for 20% to 25% of fungal endocarditis, occurs more

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Figure 1  Transesophageal echocardiography, midesophageal window, two-dimensional and three-dimensional systolic images. (A) Four-chamber display demonstrating the large mass attached to the atrial and ventricular surface of the mitral valve leaflets. (B) Slightly rotated rightward with a higher transesophageal angle to further illustrate the mass. (C) Five-chamber display to demonstrate the relationship of the mass to the left ventricular outflow tract. (D) Three-dimensional volume-rendered image (surgeon’s view) of the large mitral valve mass from the perspective of the left atrium.

Figure 2  Gross image of the mitral valve showing multiple irregular tan fleshy masses extending down into the base of the mitral leaflet involving one chordae tendineae, in total measuring $2.8 \times 1.8 \times 1.4$ cm.

Figure 3  Gomori methenamine silver stain showing numerous acute angle branching, septated, partially degenerated fungal hyphae.
commonly in immunocompromised patients, and carries a poor prognosis with mortality rates of approximately 80%.2

It can be difficult to distinguish cardiac aspergilloma from other types of cardiac masses such as a myxoma or NBTE (Libman-Sacks endocarditis, marantic endocarditis). All can present as large, bulky, and mobile pedunculated masses. Furthermore, each can present with systemic embolization.3,4 Surgical excision is critical to prevent embolization while allowing histologic examination and accurate diagnosis and treatment. Cardiac aspergilloma initially requires treatment with antifungal agents such as voriconazole or liposomal amphotericin, followed by lifelong antifungal treatment postsurgical valve replacement.5

CONCLUSION

This case highlights an immunocompromised patient with recurrent multiterritory embolic disease found to have atypical-appearing cardiac mass on transthoracic echocardiography. The initial differential diagnosis included myxoma, NBTE, and infectious endocarditis. Its appearance seemed atypical for myxoma given its presence on both the atrial and ventricular portions of the mitral valve as well as the absence of attachment to the interatrial septum. NBTE was considered given its appearance and the lack of valvular destruction although the patient did not have an underlying malignancy, systemic lupus erythematosus, or coagulation abnormalities, which are commonly seen in NBTE (Libman-Sacks endocarditis, marantic endocarditis).3,5 Infectious endocarditis was also included in the differential diagnosis given her immunocompromised status, though it was considered less likely, as the mitral valve was intact and the culture was persistently negative for bacterial organisms. Evaluation of the clot obtained during thromboendarterectomy and histopathology following removal of the mass with subsequent valve replacement led to identification of the etiology of endocarditis as attributable to Aspergillus.

SUPPLEMENTARY DATA

Supplementary data to this article can be found online at https://doi.org/10.1016/j.case.2021.09.009.

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