Abdominal Aortic Occlusion Following Large Left Atrial Mass Embolization

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INTRODUCTION

Intracardiac masses are rare and manifest with a diverse clinical presentation. This report highlights the importance of considering intracardiac masses in the differential diagnoses of embolic presentation and encourages prompt, appropriate, and definitive management to avoid potentially devastating sequelae.

CASE PRESENTATION

We report the case of a 60-year-old woman with type 2 diabetes of South Asian ethnicity who presented with a 1-month history of worsening chest tightness, shortness of breath, and reduced mobility secondary to swollen, ulcerated lower limbs. She remained in normal sinus rhythm throughout, with no acute changes. Serum troponin was elevated, and, on further investigation, multivessel coronary artery disease was confirmed on angiography. Transthoracic echocardiography (TTE) identified a very large and long 4-cm left atrial mass, with a narrow stalk attached to the left atrial appendage, protruding into the left ventricle during diastole (Figure 1). There was moderate left ventricular systolic dysfunction (left ventricular ejection fraction 37% by the Simpson biplane method), a morphologically normal mitral valve with trace regurgitation, and moderate pulmonary hypertension. Transesophageal echocardiographic imaging confirmed the findings of TTE (Video 1). The differential diagnosis of this mass was left atrial thrombus or myxoma. The patient was accepted for coronary artery bypass grafting and surgical excision of left atrial mass on symptomatic and prognostic grounds.

Before surgery, the patient clinically deteriorated with signs of arterial insufficiency with poorly palpable lower limb pulses and reduced sensory function. Bilateral deep veins were patent on venous duplex, and contrast-enhanced computed tomographic angiography confirmed a near total occlusive saddle embolus of the aortic bifurcation (Figure 1), resulting in critical limb ischemia. Repeat echocardiography revealed a left atrium void of any mass (Figures 3A and 3B). Urgent revascularization and cardiac surgical intervention were deferred in favor of therapeutic antiocoagulation to manage the suspected thrombus. Investigations for possible coagulation disorders proved negative. Anticoagulation was successful in reducing the size of the mass, confirmed on serial contrast-enhanced computed tomographic angiography (Figures 3C and 3D), and clinically the right leg developed normal flow. However, chronic thrombus of the left popliteal artery was successfully managed with angioplasty.

DISCUSSION

This case report, focusing on imaging, highlights the perils of large masses with the potential to embolize and cause devastating sequelae. The risks involved in this case were compounded by the atypical presentation of the patient. The cause of thrombus formation was elusive, as there was no evidence of atrial fibrillation and investigations for possible coagulation disorders proved negative. There was no evidence of a circulating antiphospholipid antibody (no evidence of a lupus anticoagulant, anticardiolipin antibody, or anti-β2-glycoprotein antibody) to explain the thromboembolic event. A multidisciplinary approach with appreciation of the wide presentation of embolic phenomenon and prompt management of these cases is required.

The differential diagnosis of intracardiac mass includes vegetation, calcification, tumor, and thrombus. Imaging may provide clues to the etiology, but definitive diagnosis requires pathologic examination. Primary cardiac tumors are rare, with myxomas representing approximately half of all primary benign cardiac tumors. TTE remains the primary modality in the diagnosis of intracardiac masses. Qualitative assessment of the appearance, tissue characteristics, location, and attachment of the mass combined with quantitative assessment of cardiac and valvular function aims to establish the diagnosis. The use of contrast agents has been shown to enhance the sensitivity and specificity of TTE.

In this case, the transthoracic echocardiographic images were not suggestive of vegetation, which typically are highly mobile and attached to cardiac valves or structures in the path of the regurgitant jet. The lack of risk factors and symptoms such as fever, sweats, and positive blood cultures, which are pathognomonic of endocarditis, did not support this diagnosis. Equally unlikely was calcification, which presents with a bright echocardiographic signature with the mass attached in the main to the aortic valve or mitral valve and subvalvular structures. Partial contrast enhancement would have been more suggestive of myxoma, while complete contrast enhancement is associated with malignant tumors.

In this case, the lack of features of other differential diagnoses and a lack of contrast enhancement made the mass highly suggestive of thrombus. As peripheral pulses were reduced, but not absent, the limb was not immediately threatened, so catheter or surgical intervention was felt to be inappropriate and antiocoagulation was instituted in a high-risk patient with heart failure. The use of antiocoagulation alone
Figure 1 Left atrial mass echocardiograms: (A) transthoracic apical four-chamber view, (B) transthoracic apical two-chamber view, (C) transesophageal two-chamber view, and (D) three-dimensional transesophageal two-chamber view. LA, Left atrium; LAA, left atrial appendage; LV, left ventricle.

Figure 2 Contrast-enhanced computed tomography of saddle embolus distal abdominal aorta: (A) coronal view, (B) sagittal view, (C) transverse view, and (D) three-dimensional reconstruction (arrows denote embolic mass).
has been shown to be effective against thrombi up to 6 cm in size. Serial contrast-enhanced computed tomographic angiography demonstrated reduction in size of the embolus, confirming both diagnosis and management strategy while improving the patient’s clinical condition.

CONCLUSION

This report highlights the importance of maintaining a high index of suspicion for intracardiac masses in a range of atypical and wide clinical presentations. As the mass has potential to embolize, a prompt, appropriate, and definitive management approach is required.

SUPPLEMENTARY DATA

Supplementary data related to this article can be found at https://doi.org/10.1016/j.case.2018.07.006.

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