Fatal Freely Mobile Left Atrial Thrombus: Fallout of Anticoagulation?

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Rheumatic heart disease with moderate mitral stenosis and a large left atrial (LA) thrombus was diagnosed in a 45-year-old woman at a peripheral hospital. Oral anticoagulation was administered, and the patient was referred for further management. During the intervening period, sudden worsening of dyspnea developed in the patient and a repeat echocardiogram revealed a large thrombus freely vacillating within the left atrium. Urgent open mitral valvotomy and LA thrombus removal were planned. However, as the patient was being prepared for surgery, she had a fatal cardiorespiratory arrest and could not be revived. Warfarin is known to influence thrombus lysis, and it is possible that it may have severed the LA thrombus from the posterior LA wall by partially lysing it, leading to the formation of a ball-valve thrombus, which is a well-known risk factor for sudden death. (J Am Soc Echocardiogr 2009;22:863.e5-863.e6.)

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CASE REPORT

Rheumatic heart disease with moderate mitral stenosis and atrial fibrillation was diagnosed in a 45-year-old woman at a peripheral hospital. The echocardiogram performed there revealed mitral stenosis with a mitral valve area of 1.2 cm². In addition, a large LA thrombus was attached to the posterior wall of the left atrium. Because of the lack of surgical facilities at the peripheral center, she was referred to the All India Institute of Medical Sciences for surgery, and anticoagulation was started in view of the large LA thrombus. However, 8 days after the initiation of anticoagulation, a sudden worsening of dyspnea developed in the patient, and a repeat echocardiogram at our center revealed a large 30 × 30 mm thrombus freely mobile between the walls of the LA and mitral valve (Figures 1–3, Video 1). The thrombus was intermittently obstructing the mitral valve like a ball-valve (Figure 1). The variegated echogenicity of thrombus suggested lysis within the thrombus (Figure 2). Urgent open mitral valvotomy and LA thrombus removal were therefore planned. The patient’s international normalized ratio was 2.5. Oral anticoagulation was stopped, and as the patient was being prepared for surgery, a fatal cardiorespiratory arrest occurred and she could not be revived despite best efforts.

DISCUSSION

LA thrombus can occur in several clinical conditions, such as mitral valve disease, nonvalvular atrial fibrillation, severe left ventricular systolic/diastolic dysfunction, and other causes of atrial contractile failure.1 This case highlights an uncommon case of a freely mobile LA thrombus, which is a potentially serious condition because it can occlude the mitral valve by a ball-valve mechanism.2,3 LA thrombus can be easily and accurately detected by echocardiography. LA thrombus formation in mitral stenosis is multifactorial, with one of the important causes being the presence of atrial fibrillation. Other commonly cited predispositions are mitral valve area and score, LA size, and advanced age of the patient.4 The thrombus represents a significant risk factor for systemic thromboembolism and sudden death. Patients with LA thrombus should undergo surgery for its removal, especially in cases of a large thrombus. Surprisingly, a large thrombus is
not one of the indications for surgery in the 2006 American College of Cardiology/American Heart Association guidelines for management of valvular heart diseases.\(^5\) According to the guidelines, such patients should be anticoagulated. Our patient was administered anticoagulation by the referring center while awaiting surgery. However, she had worsening of symptoms while receiving anticoagulation.

Whether oral anticoagulation can result in lysis of a thrombus is not clear. Studies done for cardioversion in atrial fibrillation have shown that 3 to 4 weeks of warfarin therapy leads to complete resolution of atrial thrombi in 80% to 90% of cases without evidence of clinical thromboembolism or residual organized adherent thrombus.\(^6\) Similar results also have been demonstrated for left ventricular and coronary thrombus.\(^7,8\) Warfarin exerts its anticoagulant activity through the inhibition of vitamin K-dependent clotting factors, thus preventing extension of existing thrombi in vivo and new thrombus formation. Whether warfarin has a direct influence on thrombus lysis is unknown, although it is a possibility based on the above findings.\(^6,8\)

Thus, in this case it is possible that anticoagulation may have severed the LA thrombus from the posterior LA wall by partially lysing the thrombus, leading to formation of a ball-valve thrombus.

REFERENCES


