'Boxing glove' clot in a smoking left atrium

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DESCRIPTION

A 28-year-old woman presented with complaints of breathlessness on exertion NYHA class II and palpitations for the past 2 years. On examination she had irregularly irregular pulse and mid-diastolic murmur at the apex. An ECG revealed atrial fibrillation with controlled ventricular rate. Her echocardiogram revealed thickened and doming anterior mitral leaflet, fixed posterior mitral leaflet and subvalvular disease with a mitral valve area of 0.8 cm². There was a teardrop-shaped thrombus in the left atrial (LA) appendage extending into the left atrium in the parasternal short-axis view. Also, there was a mobile pedunculated extension to the LA appendage thrombus into the LA cavity, giving the appearance of a boxing glove (figure 1A,B). The flow of blood from the left atrium to the left ventricle could be seen nicely because of the spontaneous echo contrast (figure 1C). The echocardiographic picture was akin to a 'chain-smoking left atrium, with a punching boxing glove' (video 1). The patient did not have any signs or symptoms of peripheral embolism. A diagnosis of rheumatic mitral stenosis with LA thrombus was made. The patient was started on warfarin and referred for mitral valve replacement with LA clot removal.

Figure 1 (A) Echocardiography in the parasternal long-axis view showing pedunculated tumour in the left atrium. (B) Parasternal short-axis view showing teardrop-shaped thrombus in the left atrial appendage. (C) Echocardiography in the parasternal long-axis view showing blood flow (spontaneous echo contrast) from the left atrium to the left ventricle (arrow).

Video 1 Echocardiography in the parasternal long-axis view showing the mobile pedunculated clot.

LA thrombus is one of the major complications of mitral stenosis. The incidence of LA thrombus in severe rheumatic mitral stenosis is around 30% in those with atrial fibrillation and 6% in those in normal sinus rhythm.^{1,2} Manjunath *et al* classified LA thrombus into five groups.³ Type I clot is the most prevalent, while types IV and V are very rare. In various operative series, only around 6% of cases had clot both in the appendage and in the body of left atrium.⁴ The predictors of LA thrombus include older age, dilated left atrium (>45 mm), atrial fibrillation and LA appendage velocity <20 cm/s.¹ Patients with types I and IIa LA clot can undergo balloon mitral valvotomy, with manoeuvres to avoid entering the atrial appendage. Rest of the patients need to be put on anticoagulation for 3–6 months and reassessed for resolution of thrombus. Almost all LA appendage clots resolve in this period, but clots in the LA body are less likely to resolve.⁵ Type IV thrombus (mobile thrombus), as seen in our patient, carries a higher risk of thromboembolism. Anticoagulation should be done with vitamin K antagonist, as direct oral anticoagulants (DOACs) are not effective in this setting. Since the patient had a large organised LA clot which was unlikely to resolve on anticoagulation and there was extensive subvalvular disease, which would mean lesser chance of successful balloon mitral valvuloplasty, the patient was referred for mitral valve replacement and clot

Learning points

- ▶ Left atrial thrombus is one of the major complications of rheumatic mitral stenosis.
- ▶ Anticoagulation with direct oral anticoagulants is contraindicated.
- ▶ Clot seen both in the appendage and in the body of the left atrium is relatively less common.

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removal, with the intention to prevent systemic embolisation and correct underlying pathology.

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REFERENCES

- 1 Manjunath CN, Srinivasa KHS, Panneerselvam A, *et al*. Incidence and predictors of left atrial thrombus in patients with rheumatic mitral stenosis and sinus rhythm: a transesophageal echocardiographic study. *Echocardiography* 2011;28:457–60.
- 2 Goswami KC, Yadav R, Rao MB, *et al*. Clinical and echocardiographic predictors of left atrial clot and spontaneous echo contrast in patients with severe rheumatic mitral stenosis: a prospective study in 200 patients by transesophageal echocardiography. *Int J Cardiol* 2000;73:273–9.
- 3 Manjunath CN, Srinivasa KH, Ravindranath KS, *et al*. Balloon mitral valvotomy in patients with mitral stenosis and left atrial thrombus. *Catheter Cardiovasc Interv* 2009;74:653–61.
- 4 Waller BF, Grider L, Rohr TM, *et al*. Intracardiac thrombi: frequency, location, etiology, and complications: a morphologic review—Part IV. *Clin Cardiol* 1995;18:669–74.
- 5 Srimannarayana J, Varma RS, Satheesh S, *et al*. Prevalence of left atrial thrombus in rheumatic mitral stenosis with atrial fibrillation and its response to anticoagulation: a transesophageal echocardiographic study. *Indian Heart J* 2003;55:358–61.

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