

# Massive Thrombus-in-Transit and Patent Foramen Ovale

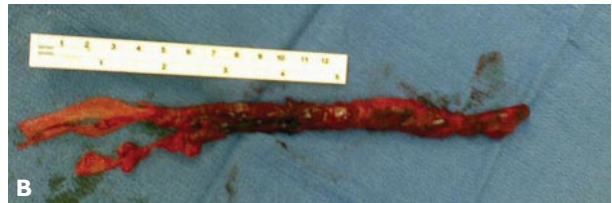
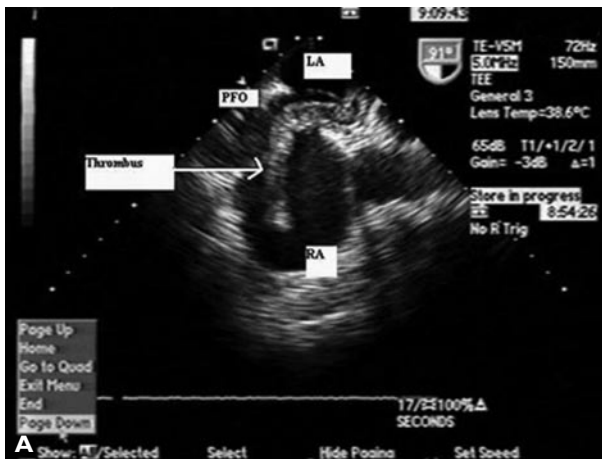
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**A** morbidly obese 44-year-old man presented to the emergency department due to severe shortness of breath and lower extremity pain that had been present for the previous 3 days. The patient reported that he had driven a long distance over the past 7 days. On physical examination, his blood pressure was 114/70 mm Hg, and his heart rate was 120 bpm. Transthoracic echocardiography revealed a shaggy mass in the left and right atrium. Ventilation/perfusion scan was consistent with pulmonary embolism, and venous Doppler ultrasound showed deep venous thromboses in the lower extremities bilaterally. The patient was anticoagulated with heparin. Transesophageal echocardiography (TEE) showed a serpentine thrombus in transit from the right atrium (RA) into the left atrium (LA) through a patent foramen ovale (PFO) (**Image A**). The patient underwent an emergency open heart surgical procedure for thrombus extraction and closure of the PFO with polypropylene suture. The thrombus was found in 2 pieces of tissue measuring  $20 \times 0.4 \times 0.3$  cm and  $14 \times 0.5 \times 0.4$  cm, respectively (**Image B**). Two days later, an inferior vena cava filter was placed prophylactically.

Thrombus-in-transit is a relatively rare but clinically important condition that is seen in patients with deep venous thrombosis and PFO. Both transthoracic and transesophageal modalities may be used in conjunction, but the diagnosis is best made by TEE. Success of surgical thrombus extraction and closure of the defect can be assessed with TEE.<sup>1</sup> Immediate treatment is warranted for entrapped thrombus, but the optimal management is controversial. Fragmentation of the right or left atrial components of the thrombus followed by pulmonary or systemic embolization is a theoretical risk of thrombolytic therapy. Medical therapy with anticoagulation alone has also been associated with recurrent complications. Therefore, intracardiac thrombectomy and closure of the PFO has been recommended for the treatment of thrombus-in-transit.<sup>2</sup> After diagnosing a crossing embolus in a patent foramen ovale, initial systemic heparinization should be initiated to reduce the risk of further embolic events, followed by emergent surgical removal. **HP**

## REFERENCES

- Plotkin IM, Fox JA, Aranki S, Collard CD. Usefulness of transesophageal echocardiography in the diagnosis and surgical management of a paradoxical embolus extending through a patent foramen ovale. *Anesth Analg* 1997;84:1166-7.
- Meacham RR 3rd, Headley AS, Bronze MS, et al. Impending paradoxical embolism. *Arch Intern Med* 1998;158:438-48.

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