Caught in the act: entrapped embolus through a patent foramen ovale

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A patent foramen ovale (PFO) is detected frequently by transesophageal echocardiography. The diagnosis of paradoxical embolism is usually presumptive when arterial emboli occur in the appropriate clinical setting. Presumably, paradoxical embolism of small thrombi arise in the venous system and pass through the PFO during a transient right-to-left shunt; however, cases demonstrating a thrombus traversing the PFO are relatively few.

KEYWORDS
thrombus; foramen ovale

Case report

A 46-year-old healthy woman was admitted with the first episode of transient ischemic attack. The first cranial computed tomography showed no abnormal finding. The patient had sinus rhythm and a normal transthoracic echocardiogram. A thrombus wedged across a patent foramen ovale (PFO) was revealed by transesophageal echocardiography (TEE) (Figure 1). A peripheral venous source for the clot could not be detected by ultrasound, however, a phlebography was not performed.

After systemic anticoagulation with heparin for 5 days, repeat TEE revealed a PFO with septal aneurysm with no residual thrombus (Figure 2). Dissolution of the thrombus had no sign of recurrent embolism. The PFO was finally occluded by transcatheter placement of an intracardiac occlusive device.

Discussion

With the use of contrast-enhanced TEE, a right-to-left intracardiac shunt via a PFO is detected frequently during evaluation of patients with an ischemic stroke. Paradoxical embolism occurs following the passage of embolic material from the venous to the arterial circulation through a right to left shunt—frequently a PFO. The diagnosis is usually presumptive when arterial emboli occur in the appropriate clinical setting. Presumably, most of the neurologic symptoms are secondary to paradoxical embolism of small thrombi that arise in the venous system and pass through the PFO during a transient right-to-left shunt; however, cases demonstrating a thrombus traversing the PFO are relatively few.1,2 In our patient, TEE showed criteria for the diagnosis of paradoxical embolism: first a large intracardiac thrombus was seen in both the right and left sides of the heart. Second, the potential communication, a PFO with septal aneurysm, was shown by the transit of contrast agent between the atria during valsalve manoeuvre.

This patient was unusual because of the marked size and extent of the thrombus seen by TEE in the atrium and because of the demonstration of the propagation of the thrombus across a PFO.

The diagnosis of impending paradoxical embolus by echocardiography is exceptional and its management remains unclear. Surgical removal of the thrombus and septal

Figure 1  Thrombus entrapped in patent foramen ovale by TEE.
closure has been postulated as an option. However, in our case, systemic anticoagulation with heparin for 5 days was safe to dissolve the thrombus without evidence of further peripheral embolism.

Conflict of interest: none declared

References


Figure 2 Thrombus dissolved after systemic anticoagulation. Passage of contrast bubbles through the foramen ovale.