

Patent Foramen Ovale: A Fatal Trap

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A 39-year-old man referred to us with a complaint of dyspnea and palpitation of 3 days' duration. The patient was tachycardic but normotensive with a normal blood oxygen saturation level of about 91%. His electrocardiogram showed a sinus rhythm with an incomplete right bundle branch block. There was no known risk factor for vein thrombosis in his past medical history. Transthoracic and then transesophageal echocardiography revealed a large, hypermobile elongated mass (about 10×1 cm) in the right atrium. The mass was in transit through a large patent foramen ovale (Figure 1, Video 1). There was also severe right ventricular dilation with moderate systolic dysfunction on echocardiography, suggestive of pulmonary thromboembolism (PTE). Consequently, multiple-detector computed tomography angiography was performed to determine mortality risk and help the decision-making regarding the duration of anticoagulation therapy. The angiographic procedure revealed massive bilateral PTE (Figure 2).



Figure 1. Transesophageal echocardiography (mid-esophageal short-axis view), showing a large hypermobile mass (blue arrow) in transit in a patent foramen ovale (orange arrow)

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The patient was referred for atriotomy and pulmonary embolectomy on cardiopulmonary bypass (Figure 3).

A thrombus in transit is a life-threatening, albeit rare, type of right-heart thrombosis with mortality rates of 80-100% in untreated patients,¹ necessitating urgent assessment and treatment. A thrombus in transit can result in catastrophic systemic embolism in a patient with PTE; therefore, taking heed of this issue in the presence of a right atrial mass is of great therapeutic significance. Meticulous imaging modalities in such patients are mandatory to prove the existence of a patent foramen ovale with a view to deciding on an emergent individualized therapeutic management of the patient's condition.



Figure 2. Bilateral massive pulmonary thromboembolism (arrow) in multi-detector computed tomography angiography



Figure 3. Large embolus extracted via atriotomy

References

1. Otoupalova E, Dalal B, Renard B. Right heart thrombus in transit: a series of two cases. *Crit Ultrasound J* 2017;9:14.

To watch the following videos, please refer to the relevant URLs:

<http://jthc.tums.ac.ir/index.php/jthc/article/view/911/856>

Video 1. 2D transesophageal echocardiography (short-axis view) of the mid-esophageal aortic valve, showing a highly mobile mass trapped in a patent foramen ovale