Photo Clinic

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 multidetector 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