

## Bi-atrial thrombus across a patent foramen ovale with pulmonary and paradoxical embolism

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**Background:** Paradoxical embolism is phenomenon of thrombus originating in venous vasculature and traversing to systemic circulation through right to left shunt, related with patent foramen ovale (PFO). Here, we report patient who had bi-atrial thrombus across PFO with pulmonary embolism (PE) and deep vein thrombosis (DVT), which is complicated with systemic embolism. **Case:** An 80-year-old woman was transferred to emergency room for syncope and admitted with diagnosis of acute PE by chest computed tomography and started on anticoagulation with intravenous heparin. Day after admission, she was found to have right upper motor weakness. Her brain magnetic resonance revealed acute cerebral infarction of multi-territories. Further studies were then ordered to evaluate source of embolism. Vascular duplex scan of lower extremities revealed DVT at left popliteal vein. Transthoracic echocardiogram (TTE) with contrast (Definity®) showed long, hypermobile bi-atrial echogenic material attached to interatrial septum without contrast enhancement, suggesting thrombus. Right ventricular systolic pressure was moderately elevated at 54mmHg and right ventricle was dilated. Transesophageal echocardiogram with contrast showed long, strand like thrombus traversing through PFO from right to the left atrium without enhancement. Agitated saline test was used to confirm PFO by demonstrating right to left interatrial shunt. Cine images of cardiac magnetic resonance also showed long, mobile thrombus connected to PFO. Surgical thrombectomy with repair of PFO was planned but pre-operative TTE showed decreased size of bi-atrial thrombus across PFO; it was assumed that part of thrombus was fragmented and embolized during anticoagulation. Fortunately, she had no more neurologic abnormalities other than previously observed. She discharged home on oral anticoagulant without surgery and has been followed up without any event. **Conclusion:** Our patient represents rare case of bi-atrial thrombus across PFO reported alive. Clinical suspicion of paradoxical embolism and multi-modality imaging studies including echocardiogram are important to help accurate diagnosis and make right decision.

