Unravelling Platypnea-Orthodeoxia Syndrome: A Case of Patent Foramen Ovale Induced Positional Hypoxemia and Stroke

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Introduction

- Platypnea-orthodeoxia (POD) syndrome is a rare condition characterized by positional dyspnea and hypoxemia that worsen when sitting or standing and improve when lying down.
- It is often associated with anatomical abnormalities that allow blood to bypass the normal route through the lungs, like atrial septal defect, patent foramen ovale (PFO), pulmonary arteriovenous malformations etc.
- Here we report a case of POD syndrome due to a PFO.

Case Presentation

- 75-year-old female presented to clinic with worsening dyspnea on exertion of 2 months duration limiting her from performing activities of daily living. Workup including transthoracic echocardiogram (TTE), positron emission tomography myocardial perfusion imaging, computed tomography (CT) chest and pulmonary function test were unremarkable.
- 2 weeks later, patient was brought to the emergency department for an unresponsive episode. CT angiogram of head and neck showed left middle cerebral artery M1 occlusion and patient underwent emergent thrombectomy.
- During the course of hospitalization, she was found to have several episodes of dyspnea and severe symptomatic oxygen desaturation with positional changes (oxygen saturation dropping to 80% while sitting and as low as 70% on standing), which resolved with recumbency, and which was also confirmed with blood gas analysis. This was consistent with POD syndrome and in the setting of the stroke, further workup was done.

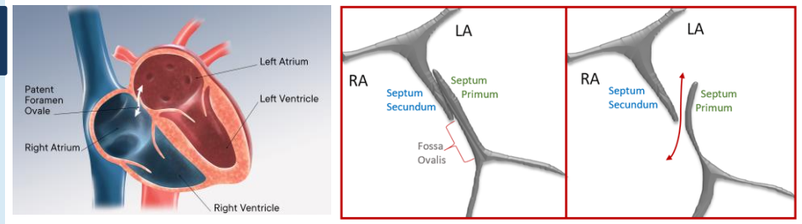

Figure 1 - Illustration showing a patent foramen ovale

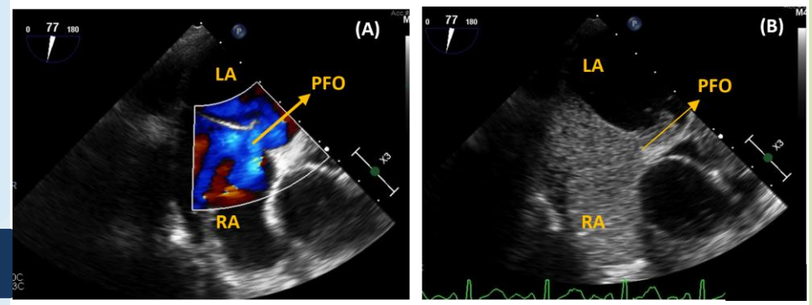

Figure 2 - (A) Transesophageal Echocardiogram- colorflow doppler showing right to left shunting via PFO, (B) Transthoracic Echocardiogram with Positive bubble study significant for increased shunting on performing Valsalva maneuver.

Investigations

- Transcranial duplex imaging with agitated saline injection with and without Valsalva revealed embolic signals within the first few cardiac cycles consistent with a right- to- left shunt, probably cardiac in nature.
- TTE with bubble study revealed atrial septal aneurysm with evidence of right- to- left shunting on agitated saline imaging, consistent with PFO. This was then confirmed with a transesophageal echocardiogram which redemonstrated the PFO with increased shunting while patient was placed in a sitting position.
- Venous duplex scan of bilateral lower extremities was negative for thrombosis.
- It was determined that the PFO would be the cause of her symptoms and the stroke.

Management

- Patient underwent successful PFO closure with a 30mm Amplatzer PFO occluder under intracardiac echocardiography guidance. She had immediate resolution of platypnea-orthodeoxia post the procedure.
- Limited TTE following procedure showed a well seated Amplatzer device and no evidence of shunt by colorflow doppler interrogation.

Discussion

- ✓ This case highlights the importance of recognizing platypnea-orthodeoxia syndrome in patients with unexplained positional dyspnea and hypoxia, particularly in the presence of a patent foramen ovale (PFO), which can lead to paradoxical embolism and subsequent stroke.
- ✓ The clinical diagnosis of POD can be established with clinical findings and relevant imaging including echocardiography.
- ✓ While the age cut off for PFO closure is usually 60 years, in patients with POD, PFO closure is needed to prevent multiple hospitalizations and to improve the quality of life.

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