LETTERS TO THE EDITOR

Platypnea-Orthodeoxia Syndrome Due to PFO and Aortic Dilation

A 75-year-old man had occasionally been referred to our hospital with sudden dyspnea due to unknown causes. He had a history of hypertension and polycystic kidneys and had undergone transcatheter pulmonary vein isolation for paroxysmal atrial fibrillation 2 years previously. Physical examination revealed normal heart sounds without murmurs and was otherwise unremarkable. Electrocardiography, chest radiography, and blood tests were also normal. Oxygen saturation was 98% on room air in the supine position, but once he sat up, oxygen saturation suddenly dropped, causing dyspnea. He was then admitted for further investigation. Continuous oxygen saturation monitoring showed that it decreased negligibly during standing or walking but decreased strikingly to 72% just after sitting or squatting. Chest computed tomography, spirometry, and lung perfusion scintigraphy showed no findings of lung disease or pulmonary embolism. Transthoracic echocardiography showed dilation of the sinus of Valsalva and ascending aorta without abnormal shunting, pulmonary hypertension, or ventricular diastolic dysfunction.

During the previous transcatheter pulmonary vein isolation procedure, some interatrial communication had been suspected. Therefore, we performed transesophageal echocardiography and found a patent foramen ovale (PFO). Tilt-table transesophageal echocardiography with a contrast agent showed negligible right-to-left (RL) shunting in the supine position (Fig. 1A, Online Video 1) and by a passive postural change, whereas sitting or abdominal compression caused prominent RL shunting with hypoxemia and dyspnea (Fig. 1B, Online Video 2). Right-heart catheterization revealed that the ratio of pulmonary blood flow to systemic blood flow was 1.0 and showed no evidence of abnormal intracardiac pressures, thereby negating the possibility of Eisenmenger syndrome. However, simultaneous transcatheter measurement of interatrial pressures via the PFO proved that the mean pressure gradient was only 1 mm Hg in the supine position (Fig. 1C), whereas it dramatically increased to 7 mm Hg after sitting, especially during inspiration (Fig. 1D). Chest computed tomography with a contrast agent revealed that the sinus of Valsalva and ascending aorta were dilated to 4.2 and 4.0 cm in diameter, respectively, and oriented in a horizontal direction, compressing the interatrial septum into the right atrium to lead venous return from the inferior vena cava to the PFO (Figs. 2A and 2B). These findings were confirmed by transesophageal echocardiography as well (Fig. 2C). We therefore diagnosed our patient with platypnea-orthodeoxia.

**Figure 1. Positional RL Shunting via a PFO**
(A,B) Tilt-table transesophageal echocardiography with a contrast agent, showing a wide-open patent foramen ovale (PFO) (A, arrow) and negligible shunting in the supine position (A, Online Video 1) and by a passive postural change, whereas sitting (B, Online Video 2) or abdominal compression caused prominent right-to-left (RL) shunting with hypoxemia and dyspnea. (C,D) Simultaneous transcatheter measurement of interatrial pressures via the PFO. The mean interatrial pressure gradient was 1 mm Hg in the supine position (C), while it strikingly increased to 7 mm Hg after sitting, especially during inspiration (D). The left atrial trace is marked by the asterisk. ECG = electrocardiogram; LA = left atrium; RA = right atrium; SpO₂ = oxygen saturation; SVC = superior vena cava.
syndrome due to the PFO and aortic dilation. After its surgical closure, the patient remained well with no further symptoms. Platypnea-orthodeoxia syndrome is recognized as a relatively uncommon condition and might be overlooked. However, patients with interatrial communication are not rare. Therefore, this syndrome should be kept in mind in patients presenting with dyspnea with postural hypoxemia.

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REFERENCES

APPENDIX
For supplementary videos and their legends, please see the online version of this article.

Superior Doctor at a Point-of-Care

A Call to Change HF Management

We read with great interest both the paper by Kalogeropoulos et al. (1) and the accompanying editorial by Abhayaratna (2) regarding the role of echocardiography and N-terminal pro–B-type natriuretic peptide (NT-proBNP) in screening for heart failure (HF).

There is no doubt that standard echocardiography plays a key role in the management of such individuals. However, the costs of a standard echocardiographic examination are not negligible and, in fact, could be prohibitive if it was used as a screening tool in a large number of asymptomatic patients, especially in the middle- and low-income countries. In addition, numerous surveys demonstrated limited access to standard echocardiography even in high-income countries. For example, in IMPROVEMENT (Improvement programme in evaluation and management of heart failure), only 45% of primary care physicians reported that they would routinely consider echocardiography in a patient with suspected HF (3). Nearly the same results were obtained by the recent SHAPE (Study Group on HF Awareness and Perception in Europe) survey, in which 75% of primary care physicians reported that they often or always diagnosed HF by signs and symptoms alone, and only 35% would arrange for further investigations. According to the SHAPE...