on adverse valve morphology and severe left ventricular dysfunction. Eur Heart J 2010;31:1377–81.

Secundum atrial septal defect resulting in hypoxaemia

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A 49-year-old woman was admitted to our hospital with dyspnoea. She was diagnosed as pulmonary stenosis and concomitant right ventricular hypertrophy without other valvular heart diseases. She underwent surgical dilatation of a stenotic pulmonary valve at the age of 10. On admission, the patient’s vital signs were stable, but oxygen saturation was 88% on 10 L oxygen via non-rebreather mask. Transthoracic echocardiography showed normal left ventricular function and bi-atrial enlargement without pulmonary hypertension. Transoesophageal echocardiography identified a secundum atrial septal defect, and contrast echocardiography showed a right-to-left shunt (Panel A, see Supplementary data online, Video S1), which was thought to be the cause of hypoxaemia. Right and left atrial pressures were measured simultaneously via cardiac catheterization, and right atrial pressure was found to be several mmHg higher than left atrial pressure (Panel B). After evaluating haemodynamic tolerance using the balloon occlusion test, we successfully performed percutaneous closure using an Amplatzer septal occluder. The hypoxaemia resolved immediately after the procedure. Eight months later, two- and three-dimensional transoesophageal echocardiography revealed no shunting at the atrial level (Panel C, see Supplementary data online, Video S2) and no change in the position of the occluder (Panel D, see Supplementary data online, Video S3). Speckle-tracking echocardiography indicated that an impaired reservoir function of the right atrium with a slight increase in booster function than the left atrium (Panel E) occurred probably due to a pressure overloaded right ventricle, resulting in the paradoxical right-to-left atrial shunt. Supplementary data are available at European Heart Journal — Cardiovascular Imaging online.