A 66-year old male presented to our clinic with progressive dyspnea at rest. The patient reported that the dyspnoea was worst in upright position. The initial transthoracic echocardiographic examination showed normal left ventricular function and an enlarged ascending aorta (58 mm), which was confirmed using computed tomography (Figure 1A). The aortic valve was bicuspid with a rudimentary raphe and displayed mild aortic regurgitation and minimal stenosis (mean gradient 7 mmHg). The mitral valve was normal. The tricuspid valve annulus was slightly compressed by the aortic aneurysm (Figure 1B; see Supplementary material online, Video S1) with turbulent flow with colour Doppler denoting mild inflow obstruction. The inferior vena cava measured 14 mm in a supine position (Figure 1C) and 23 mm in upright position (Figure 1D) indicating an increase of right atrial pressure. With transesophageal echocardiography we detected a significant shunt lesion caused by a patent foramen ovale (PFO) using colour Doppler imaging (Figure 1E, see Supplementary material online, Video S2) and a contrast study (Figure 1F, see Supplementary material online, Video S3). Therefore, we were able to diagnose the patient with orthodeoxy-platypnoe syndrome. The patient underwent cardiothoracic surgery with a valved conduit replacement of the ascending aorta and surgical PFO closure. Postoperatively, the dyspnoea significantly decreased and there were no longer any position-dependent differences in arterial oxygenation.

Supplementary data
Supplementary data are available at European Journal of Echocardiography online.