Iatrogenic ventricular septal defect after dual-chamber pacemaker implantation

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A 70-year-old obese man with pulmonary arterial hypertension, diabetes mellitus, dyslipidaemia and a history of coronary artery disease treated with four bypass grafts was referred to our centre for chest pain associated with lightheadedness and dyspnoea after usual activity. Two-dimensional echocardiography revealed left ventricular hypertrophy and severe aortic stenosis (mean gradient: 58 mmHg) with calcified leaflets and aortic root. Transcatheter aortic valve replacement (TAVR) was recommended. A temporary pacemaker was placed prior to the intervention, which was completed without complications. However, 5 days after TAVR, a third-degree atrioventricular block persisted (Panel A). Therefore, a dual-chamber permanent pacemaker was implanted. After 2 days, follow-up transthoracic echocardiography revealed the presence of a small ventricular defect in the apical portion of the septum (Panel B, arrows), likely secondary to the traumatic effect of the pacemaker’s ventricular lead. Flow through the defect was directed towards the left ventricle in diastole (Panel C) and towards the right ventricle in systole (Panel D). This finding is unexpected; probably, a little pouch was formed in the apical portion of the right ventricle (Panel B) partially isolated from the main chamber and during diastole the pressure in the pouch was higher than in the left ventricle, causing the bidirectional flow. The shunt rate was not significant; pulmonary pressure was 28 mmHg, while left ventricle function was normal and the aortic mean gradient decreased to 11 mmHg. Pacemaker function was not compromised so the patient was discharged.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.

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