Percutaneous closure of a post-infarction ventricular septal defect that recurred after surgical repair

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A 77-year-old woman presented with chest pain, electrocardiograph, and enzyme changes consistent with a subendocardial myocardial infarct, and was managed medically. Two days later, she was treated percutaneously with a stent for a high-grade stenosis of the left anterior descending coronary artery (Panel A). Day 3 post-procedure, the patient acutely became haemodynamically unstable, and an apical ventricular septal defect was diagnosed. The defect was repaired surgically with a bovine pericardial patch. On post-operative day 9, the patient became hypotensive and dyspnoeic and required ventilatory and inotropic support. Percutaneous transcatheter closure of a recurrent septal defect was performed. Left ventriculography confirmed the presence of a defect in the distal inferior septum (Panel B). A 12 mm amplatzer septal occlusion device was deployed across the lesion (Panel C). Right ventriculography demonstrated successful septal occlusion (Panel D), later confirmed by colourflow Doppler. The patient remained haemodynamically stable and made a steady recovery.

Ventricular septal defects complicate 1–2% of myocardial infarcts and are associated with excessive mortality. Patients respond poorly to medical therapy and are often poor candidates for surgery. Those who undergo surgical repair have significant defect recurrence rates. Percutaneous closure is an alternative for primary intervention, but may be even more effective as an alternative to re-operation when patch closure fails. The surgical patch provides more support for the amplatzer device than infarcted myocardial tissue and results in more effective shunt occlusion.

Panel A. Left coronary angiogram in right anterior oblique cranial projection demonstrating lesion in the left anterior descending coronary artery.
Panel B. Left ventriculogram in left anterior oblique cranial projection demonstrating septal defect.
Panel C. Cinematographic image of the amplatzer septal occluder deployed across the ventricular septal defect.
Panel D. Left ventriculogram in left anterior oblique cranial projection after deployment of septal occlusion device.

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