

IMAGES IN INTERVENTION

When Collateral Damage Does Matter

Iatrogenic Ventricular Septal Rupture After Percutaneous Coronary Intervention of the Left Anterior Descending Artery

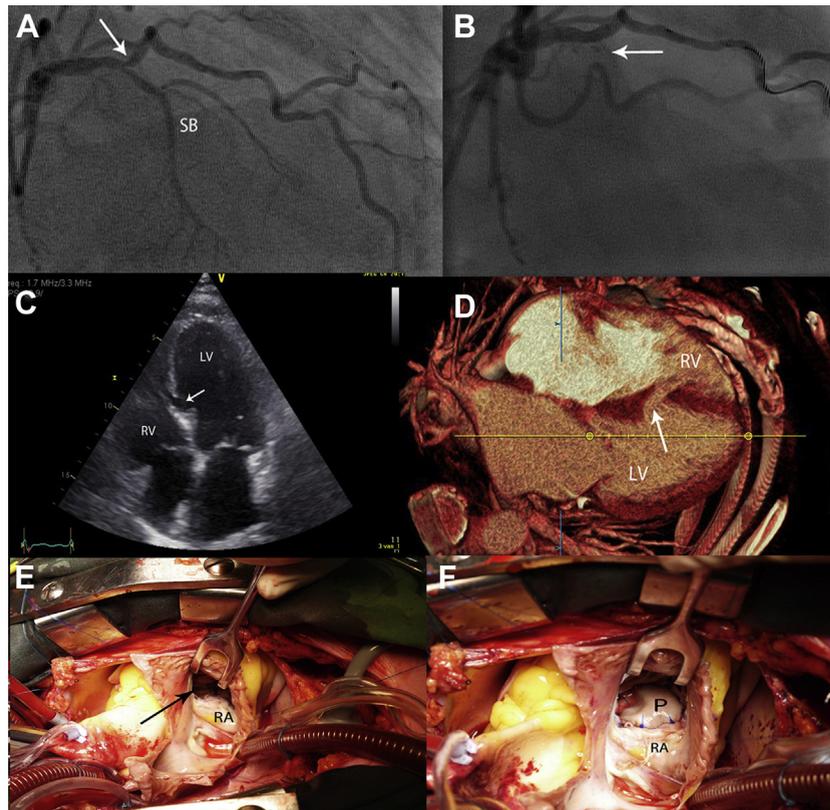


Vincent Michiels, MD,* Martin J. Swaans, MD,* Bastiaan J. Sorgdrager, MD,† Rolf F. Veldkamp, MD, PhD,‡
Robin H. Heijmen, MD, PhD,‡ Jurrien M. ten Berg, MD, PhD*

An 83-year old woman with no cardiac history was admitted because of a non-ST-segment elevation myocardial infarction for which she underwent a diagnostic coronary angiography. The culprit lesion was considered to be a 70% stenosis in the mid left anterior descending coronary artery (LAD) just after the origin of a large septal branch (Figure 1A). Percutaneous coronary intervention (PCI) was carried out with implantation of a drug-eluting stent (3.0 × 12-mm Promus Element, Boston Scientific, Natick, Massachusetts). After stent implantation, there was an occlusion of the septal branch, presumably caused by plaque shift. Despite several attempts, the branch could not be rewired, so the occlusion was accepted (Figure 1B). The patient was discharged in good clinical condition 2 days after the procedure (maximum creatine kinase, 1,760 U/l).

However, 8 days later, she was readmitted because of acute pulmonary edema. Transthoracic echocardiography showed a ventricular septal rupture with a large interventricular septal defect, as confirmed on cardiac computed tomography (Figures 1C and 1D). Initially, she was stabilized and recompensated with the use of intravenous diuretics and an intra-aortic balloon pump. The defect was closed surgically with a bovine pericardial patch (Figures 1E and 1F). The patient had an uneventful postoperative recovery.

This case shows the post-PCI complication of an iatrogenic occlusion of a septal branch that caused extensive infarction of the interventricular septum leading to ischemic rupture. It reminds us that leaving a septal branch occluded after PCI of the LAD is not without risk, and every attempt should be made to restore flow.

FIGURE 1 Different Stages and Imaging Modalities of the VSR After PCI

(A) Angiography before PCI. **Arrow** indicates stenosis. **(B)** Angiography after PCI. **Arrow** indicates the occluded septal branch. **(C)** Transthoracic echocardiogram, 4-chamber view. **Arrow** indicates the septal defect. **(D)** Volume-rendered cardiac computed tomography image, 4-chamber view. **Arrow** indicates the septal defect. **(E)** Perioperative photograph before closure of the VSR. **Arrow** indicates the septal defect. **(F)** Perioperative photograph after closure of the VSR. LV = left ventricle; P = patch; PCI = percutaneous coronary intervention; RA = right atrium; RV = right ventricle; SB = septal branch; VSR = ventricular septal rupture.

REPRINT REQUESTS AND CORRESPONDENCE: Dr. Vincent Michiels, St. Antonius Hospital, Koekoekslaan 1, 3435 CM Nieuwegein, the Netherlands. E-mail: vincentmichiels@telenet.be.

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