Stenting of a Septal Perforator for Post-Myocardial Infarction Angina

Vijay Trehan, Saibal Mukhopadhyay, Umamahesh C Rangasetty, Jamal Yusuf, Mohit D Gupta, UA Kaul
Department of Cardiology, GB Pant Hospital, New Delhi

Occlusion of a septal perforator branch alone, without the involvement of the left anterior descending coronary artery, leading to acute myocardial infarction is unusual. We report a case in which an isolated severely stenotic thrombus-containing first septal artery causing intractable post-myocardial infarction angina was successfully dilated and stented. (Indian Heart J 2003; 55: 368–369)

Key Words: Septal artery, Stents, Myocardial infarction

Case Report

A 52-year-old male, a known hypertensive on irregular treatment, presented to us with refractory post-MI angina. He had had an anteroseptal MI 48 hours earlier for which he was thrombolized with streptokinase (1.5 million U over 1 hour) within 3 hours of the onset of chest pain. The patient was taken up for coronary angiography and possible revascularization. Coronary angiogram revealed a thrombus-containing 90% discrete stenosis of the first septal perforator artery just after its origin (Figs 1a and 1b). The left anterior descending coronary artery (LAD) along with the other epicardial vessels were normal. The patient was taken up for angioplasty. He was given a bolus of abciximab (0.25 mg/kg body weight) followed by an infusion of 10 µg/min for 12 hours. The lesion in the septal perforator artery was crossed with a Luge Wire (Boston Scientific Scimed, Inc., USA), and serially dilated with a 2.5×12 mm and 3×13 mm balloon. Following balloon dilatation, a check angiogram revealed TIMI 2 flow with 50% residual stenosis. A mounted stent of 3×13 mm (Bx Velocity, Cordis, USA) was deployed at 14 bars, and persistent TIMI 3 flow was achieved (Fig. 2). There were no complications during or after the procedure. The patient became asymptomatic and was discharged after 72 hours. On follow-up of nearly a year, the patient is asymptomatic.

Discussion

The interventricular septum (IVS) forms the vital wall for both the ventricles, and constitutes about one-third of the total left ventricular (LV) mass. The septal perforator...
Trehan et al. Stenting of a Septal Perforator Post-MI

case reports of isolated septal artery obstruction. There have also been reports of angioplasty of the septal perforators, usually done in patients with critical stenosis or total occlusion of the LAD. Recently, there have been a couple of reports of stenting of a septal perforator artery. One was in a post-coronary bypass surgery patient with an occluded LAD, while the other was in a patient with multivessel disease. However, to the best of our knowledge, there have been no reports of angioplasty or stenting of an isolated culprit septal artery. The first septal perforator, apart from supplying the IVS, also supplies the bundle of His, and in 50% hearts, the atrioventricular node. Our patient, with refractory post-MI angina due to occlusion of the first septal perforator, was at increased risk of reinfarction that could have disrupted either the conduction system or the IVS, causing its rupture. Unlike the epicardial arteries, septal arteries are subjected to a higher extraneous pressure. Although long-term results of angioplasty of the septal perforator have not shown increased rates of restenosis, the behavior of stents in response to a high extrinsic pressure needs to be observed. This situation is similar to the stenting of myocardial bridges.

References


branches of the LAD contribute blood supply to the anterior two-thirds of the IVS. Obstruction of the septal perforators in patients with diffuse coronary artery disease is common. However, isolated obstruction of a septal perforator artery is very rare. Till date, there have been 2