

How Much Should We Care About Septal Branches?

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[Target Lesion]

A man in his 60s presented with acute anterior ST-segment elevation myocardial infarction and underwent emergency coronary angiography. Coronary angiography revealed severe stenosis in the proximal left anterior descending artery (LAD) and total occlusion of the mid LAD. Primary PCI was successfully performed for the culprit lesion in the mid LAD. One month later, elective PCI was performed for the residual severe stenosis in the proximal LAD.

[Strategy]

The patient had a short left main trunk, with plaque extending continuously to the LAD ostium. A large first major septal branch supplying a wide myocardial territory arose from the LAD in a configuration requiring a reverse wire technique. To preserve the septal branch, directional coronary atherectomy (DCA) was first performed at the LAD ostium. A guidewire was then placed in the first major septal branch for protection, followed by stent implantation from the LAD ostium to the mid LAD. After stent deployment, the septal branch became occluded, accompanied by chest pain and ST-segment elevation on electrocardiography. Wire recrossing and balloon dilatation restored antegrade flow. Although residual stenosis and flow delay remained in the septal branch, flow in the LAD was satisfactory, and the procedure was completed.

[Final Result]

On postoperative day 1, electrocardiography showed a new right bundle branch block. Coronary computed tomography demonstrated good patency of the LAD but occlusion of the septal branch with poor myocardial enhancement in the septal territory. Echocardiography revealed corresponding septal wall motion abnormalities, and the patient was diagnosed with procedural myocardial infarction. As he was free of chest pain and remained hemodynamically stable, conservative medical management was selected. He was discharged on postoperative day 7.