Laser Channels After Percutaneous Transmyocardial Revascularization

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A 62-year-old Brazilian white woman with a history of diabetes mellitus had undergone coronary artery bypass grafting to the left anterior descending coronary artery and right coronary artery in 1991. Four years later, she developed recurrent symptoms of angina; angiography revealed occlusion of both saphenous vein grafts. Her native circumflex system remained patent, but her native left anterior descending and right coronary artery vascular beds were diffusely diseased. The left ventricle was hypertrophic, with preserved function. The patient was not considered to be a suitable candidate for either redo bypass graft surgery or catheter-based therapies. Despite maximum medical therapy, her angina pectoris (Canadian Cardiovascular Society class III) persisted.

On April 26, 1998, she became the first patient in Brazil to undergo a percutaneous transmyocardial revascularization (PTMR) procedure, which was performed with the Eclipse PTMR system (Eclipse Surgical Technologies). The patient was treated successfully, with multiple channels made in the inferior and anterior walls. Her preprocedure and postprocedure left ventricular angiograms are shown in Figures 1 and 2, respectively. The postprocedure angiogram demonstrates the presence of patent channels in the anterior-apical region. The proximal portions of the channels adjacent to the endocardium show defined borders. As the channels come nearer to the subepicardium, the borders become wider and less defined. Although the long-term patency of the channels is questionable, the immediate anatomic results of PTMR are clearly demonstrated.
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