BRIEF COMMUNICATIONS

SAPHENOUS VEIN GRAFTS FOR MINIMALLY INVASIVE DIRECT CORONARY ARTERY BYPASS

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Minimally invasive direct coronary artery bypass (MID-CAB) without sternotomy or cardiopulmonary bypass is becoming widely used. In most reported series of MIDCAB, the internal thoracic artery (ITA) has been the conduit.

The ITA may not be available because it has been used, is diseased, has been injured during dissection, or has been irradiated. Sometimes it may not be long enough to reach the coronary anastomotic site. Very elderly and infirm patients may benefit most from the quickest, least traumatic operation possible.

Cooley¹ and Knight, Bairden, and Reiter² described the use of a saphenous vein graft (SVG) for MIDCAB.

Patients and methods. Thirteen patients had MIDCAB with SVGs during a period when 150 had MIDCAB. Their ages ranged from 40 to 89 years (mean 72 years). Five were older than 80 years of age. Five had had coronary bypass surgery. Nine were male and 4 female.

Distal anastomotic sites were the right coronary artery in 5, the anterior descending in 5, a diagonal branch in 1, and pre-existing SVGs in 2. Proximal anastomotic sites were the common carotid artery in 6, axillary artery in 5, subclavian artery in 1, and ITA in 1.

The SVG was used in 4 patients in whom the ITA had been used, in 2 in whom the ITA was damaged during dissection, in 1 with atherosclerosis of the ITA, in 3 who were very elderly, and in 3 in whom the target was the right coronary artery beyond the acute margin of the heart.

Technique. The common carotid artery was exposed by a transverse supraclavicular incision, crossclamped, a linear incision made, and the SVG attached with a running 6-0 microfilament polypropylene suture and passed through the thoracic inlet and mediastinal pleura under thoroscopic visualization.

The axillary artery was exposed by an infraclavicular incision, crossclamped, an oblique incision made in its inferior

aspect, and the SVG attached and passed obliquely through a generous incision in the first intercostal space toward the mediastinum guided by thoroscopic visualization. In 1 patient the SVG was anastomosed to the intrathoracic subclavian artery and in another to the ITA.

The anterior descending coronary artery was exposed by a short incision in the fourth intercostal space centered at the midclavicular line. The right coronary artery was exposed by a short incision in the fourth or fifth intercostal space beginning at the sternal edge or by an incision from the xiphoid process across the sternum to the fifth interchondral space. The coronary artery was occluded by encircling sutures and immobilized with a foot stabilizer.

Results. One patient died of extension of a major cerebral infarction occurring 7 days before the operation. The remaining 12 had no significant complications. All grafts had intraoperative Doppler assessment that indicated patency. Ten patients had postoperative Doppler assessment before hospital discharge, and graft patency was found in all. Five patients have had Doppler assessment 6 or more months after the operation, and patency was indicated in all.

Discussion. Some patients considered candidates for MIDCAB have no ITA available for a graft because of prior use, atherosclerotic disease, or damage during dissection. Some are so aged or have such serious comorbid conditions that the most expeditious and least traumatic operation possible is attractive for them. In 13 such patients, we have used an SVG from 1 of the brachiocephalic arteries or their branches to a coronary artery.

The outlook for coronary-SVGs is widely known. They are likely to last as long as needed in very elderly patients. In younger patients without a suitable ITA graft, the radial artery might be used by the technique described here, although we have not used it in this way.

Conclusion. The SVG was used in 13 patients having MIDCAB who had no ITA suitable for a graft or who were very elderly. All grafts were satisfactory.

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