

Combined Coronary and Lower Extremity Revascularization with Thoracotomy: A Case Report

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ABSTRACT

Patients with the combination of coronary artery disease and peripheral vascular disease have multiple risk factors and manifest widespread vascular disease. Although indications of combined coronary and femoral revascularization are rare, a combined procedure is useful in selected patients. We report a patient who underwent a successful combined coronary and lower extremity revascularization with anterolateral limited thoracotomy.

INTRODUCTION

Patients with the combination of coronary artery disease and peripheral vascular disease are frequently encountered in clinical practice. This combination is also demonstrated by angiographic studies [Hertzer 1984]. These patients have multiple risk factors and manifest widespread vascular disease. Management of this kind of patient is controversial in some circumstances. In staging the vascular and the cardiac procedures, unexpected situations may occur, such as an urgent vascular procedure or perioperative myocardial infarction [Rihal 1999]. In rare instances, simultaneous coronary and peripheral arterial revascularization may be required.

This report details the case of a patient presenting with severe limb ischemia and angina pectoris who underwent combined coronary and lower extremity revascularization with anterolateral limited thoracotomy. We used the descending aorta as the inflow for a prosthetic graft.

CASE REPORT

A 47-year-old man was admitted to our hospital with lower extremity rest pain and unstable angina pectoris. The symptoms in his feet had worsened in the last 2 months. The distress on the chest was hardly visible. He was a smoker.

He had hypertension and dislipidemia. In the physical examination, femoral and distal pulses were not palpable. Lower extremities were painful, cold, and numb. The skin was dry and scaly with poor hair growth. The ankle-brachial index was lower than 0.7. Lower extremity arterial doppler ultrasonography examination showed a monophasic flow pattern. Coronary and peripheral angiography was performed immediately. There was a severe stenotic lesion on about 90% of the proximal circumflex artery. The lesion's length was more than 2 cm and showed an irregular contour. Other coronary vessels contained noncritical plaques. The abdominal aorta was highly diseased and occluded at the infrarenal section. From the common femoral arteries, both distal segments were visualized.

The operation was performed with left antero-lateral limited thoracotomy and single-lung ventilation. The patient was positioned in a right lateral supine position and the incision was made on the 5th intercostal space from the left parasternal line to the mid axillary line. While the thoracotomy was being carried out, the femoral arteries were exposed and dissected. The patient was heparinized (1-1.5 mg/kg). The target activated clotting time was greater than 300

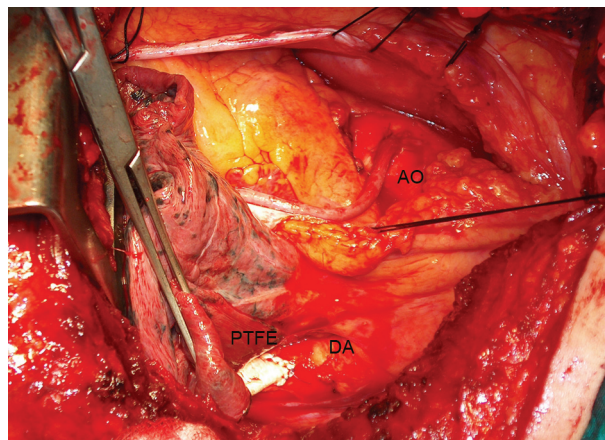


Figure 1. Operative photograph showing the anastomoses of the saphenous vein and polytetrafluoroethylene (PTFE) graft. AO indicates ascending aorta; DA, descending aorta.

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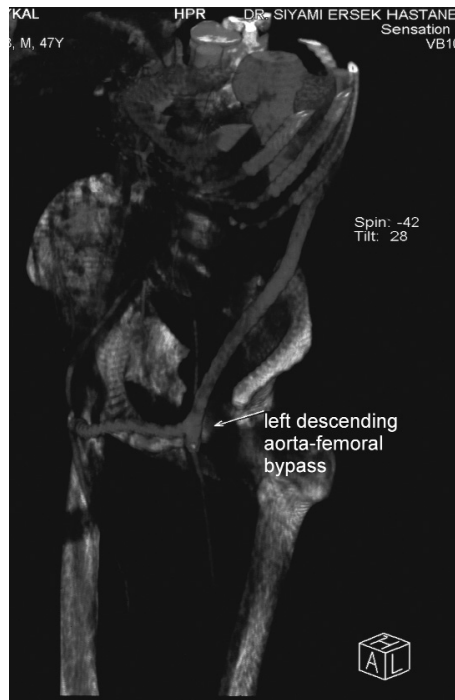


Figure 2. Postoperative multislice computed tomography angiography showing the patent descending aorta-femoral bypass and femoro-femoral bypass grafts.

seconds. The pericardium was opened, and pericardial retraction sutures were positioned before stabilization. The saphenous vein graft was anastomosed to the obtuse margin artery using an Octopus 2 tissue stabilizer (Medtronic, Minneapolis, MN, USA). We have usually performed a proximal anastomosis to the descending aorta in previous coronary bypass operations performed with a thoracotomy. However in this operation, the ascending aorta was suitable for a proximal anastomosis of the saphenous vein graft. After coronary bypass grafting, a side-biting clamp was positioned on the descending aorta to perform anastomosis of the polytetrafluoroethylene (PTFE) graft (Figure 1). Before the side clamp removal, the PTFE graft was positioned. It was descended through to the costa-diaphragmatic recessus. A separate small incision was made at the intersection of the arcus costarum to the anterior axillary line. From this point, the graft followed a retromuscular, preperitoneal course. The graft was anastomosed end-to-side to the left common femoral artery. Then a left-to-right 8-mm PTFE femorofemoral bypass graft was constructed. After chest drainage tube insertion and closing all layers anatomically, the operation was ended.

The postoperative clinical course was uneventful. The patient was discharged on the sixth postoperative day.

A multislice computerized tomography scan was performed in the sixth month (Figure 2). The grafts were patent. After 12 months, the patient is well and he has no ischemic symptoms.

DISCUSSION

Patients who have had previous abdominal surgery and adhesions, extensive calcifications of the abdominal aorta, malignancy, and renal insufficiency are high-risk patients for direct anatomic aortic reconstruction. Extra-anatomic bypass for aortoiliac occlusive disease has been introduced as an alternative procedure for high-risk patients. Ascending aorta bifemoral bypass has been performed for more than 30 years [Frantz 1974]. The combination of this technique with coronary artery bypass is an alternative procedure in selected cases with limb ischemia and coronary artery disease [Jebara 1994; Selimoglu 2006].

Using the descending aorta as an inflow source is another alternative for lower extremity revascularization. With this technique, the artificial graft used is shorter and provides a more anatomic reconstruction. Shortening the graft length improves patency. The course of the graft does not allow compression, which directly affects outcome [Passman 1999]. Although indications of this technique are rare, it is useful in selected patients who require combined coronary and femoral revascularization. This technique is simple and easy. It doesn't need an intraperitoneal procedure. It allows for good postoperative rehabilitation and a short hospital stay.

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