

# Thirty-year patency of a coronary sequential venous bypass graft

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**Summary.** *Background:* The optimal conduit of second choice in surgical coronary revascularization remains a matter of debate. Radial artery grafts are believed to have a better patency rate than the saphenous vein grafts, although no conclusive results have been reported. This report describes the late result of a coronary revascularization with sequential venous bypass performed 30 years earlier. *Methods:* An 80-year-old woman was admitted for dyspnoea on exertion and recent-onset angina due to severe aortic valve stenosis. Thirty years earlier, the patient had undergone revascularization with coronary bypass grafting performed using a sequential saphenous vein graft anastomosed on first diagonal branch and on left anterior descending coronary artery. Coronary angiography showed the occlusion of the native left anterior descending artery and the good patency of the previous described sequential vein graft. *Results:* Surgical inspection confirmed the patency and the soft pliability of the venous graft and the surgeon decided to do not replace the previous graft with a pedicled LIMA (Left Internal Mammary Artery) graft. The patient underwent 21-mm biological Edwards Perimount Magna Ease prosthesis implantation. Postoperative course was uneventful and the patient was discharged on the seventh day after surgery. *Conclusions:* This case report demonstrated the potential extreme long-term patency of a sequential saphenous vein graft in coronary bypass surgery, raising the question if vein grafts should be really considered the conduits of last resort for coronary artery bypass surgery. Long-term follow-up of randomized trials comparing radial artery versus saphenous vein grafts are warranted in order to give conclusive answers to this ongoing debate.

**Key words:** Coronary artery disease; coronary artery bypass grafting, surgery.

## Introduction

The goal of coronary artery bypass grafting is to provide long-term patent grafts in the native coronary arterial system. There is overwhelming evidence that internal mammary artery grafts improve survival and clinical outcome after coronary artery bypass grafting (CABG) surgery. In spite of the well recognized saphenous vein graft failure, this conduit continues to be widely used in CABG (1). Radial artery grafts are believed to have a better patency rate than the saphenous vein grafts (2), although no conclusive

results have been reported (3, 4). Thus the optimal conduit of second choice remains a matter of debate.

The following report describes the late result of coronary revascularization with a sequential venous bypass performed 30 years earlier.

## Clinical summary

An 80-year-old woman was admitted to our hospital for dyspnoea on exertion and recent-onset angina. Thirty years earlier, the patient had undergone

myocardial revascularization with coronary bypass grafting performed using a sequential saphenous vein graft anastomosed on first diagonal branch and on left anterior descending coronary artery after anterior myocardial infarction. The patient had recovered uneventfully.

On admission echocardiography showed severe calcified aortic valve stenosis with left ventricle concentric hypertrophy. LVEF resulted preserved. Epi-aortic vessels echography revealed subcritical stenosis on both carotid arteries bifurcations and on the origin of left subclavian artery. Myocardial perfusion scintigraphy did not detect any inducible myocardial ischemia. Coronary angiography showed the occlusion of the native left anterior descending artery and the good patency of the previous described sequential vein graft (Fig. 1) No significant stenosis on right and circumflex coronary arteries were detected.

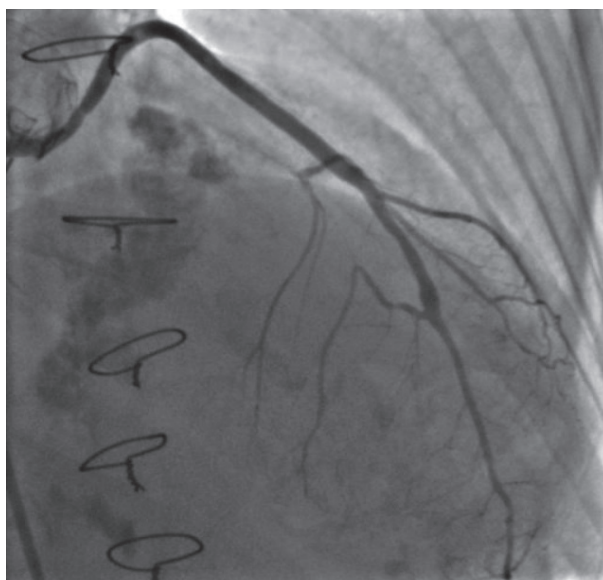
Surgical inspection confirmed the patency and the soft pliability of the venous graft (Fig. 2). In consideration of the age of the patient, the good quality of the venous graft and the atherosclerotic disease of the origin of the left subclavian artery, the surgeon decided to do not replace the previous graft with a pedicled LIMA graft. The patient underwent 21-mm biological Edwards Perimount Magna Ease prosthesis implantation. Postoperative echocardiogram showed normal function of the implanted prosthesis and normal heart contractility. Postoperative course was uneventful and the patient was discharged on the seventh day after surgery.

## Discussion

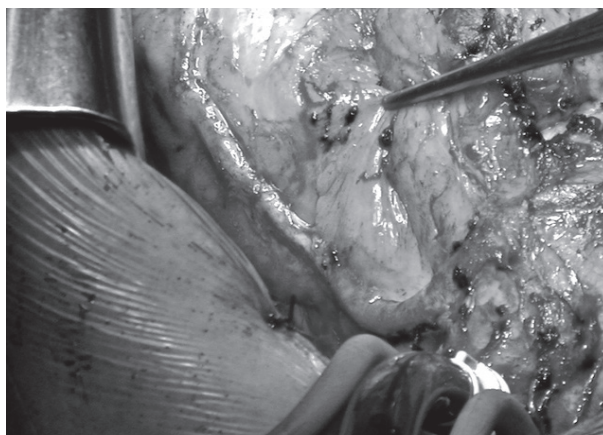
The choice of the graft conduit is crucial to the success of CABG because the long-term patency of a coronary conduit is related with better long-term survival and quality of life. Scientific literature supports the use of internal thoracic arteries in surgical coronary revascularization but ongoing debate remains about the optimal coronary conduit of second choice. A recent meta-analysis of randomized controlled trials of radial artery versus saphenous vein graft patency (4) concluded that no definitive evidence supports the superiority of radial artery over saphenous vein graft in

terms of follow-up failure rate, in spite of contrasting results reported by other authors (2).

Saphenous vein graft failure remains a well known clinical burden although various methods have been tried to improve long-term preservation of saphenous coronary grafts, such as the choice of good quality graft itself, its careful surgical handling, long-term medical therapy with anti-platelet and lipid lowering agents (1). Emerging strategies based on nitric oxide donors, compounds reducing neointimal hyperplasia and vascular gene therapy have shown to be promising in



**Figure 1.** Preoperative coronary angiogram showing the occlusion of the native LAD and the patency of the sequential vein graft on I diagonal branch and LAD.



**Figure 2.** Surgical view showing the patent sequential venous graft.

clinical practice (1). This case report demonstrated the potential extreme long-term patency of a sequential saphenous vein graft in coronary bypass surgery, raising the question if vein grafts should be really considered the conduits of last resort for coronary artery bypass surgery. Further evaluation of long-term angiographic follow-up of randomized trials comparing radial artery versus saphenous vein grafts probably needs to be addressed in order to give conclusive answers to this ongoing debate.

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