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Case Report

Minimally Invasive Bypass Grafting in Third Redo Operation: A Case Report

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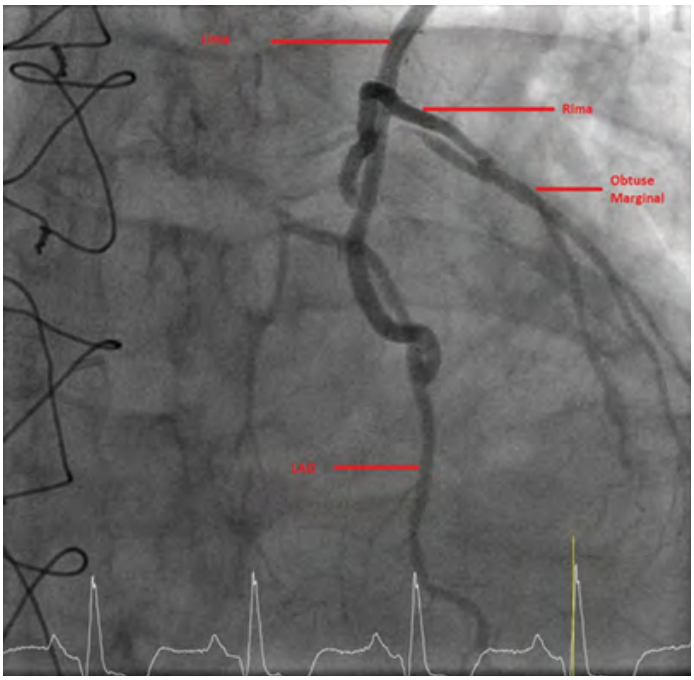
Abbreviations: LIMA: Left Internal Mammary Artery; RIMA: Right Internal Mammary Artery; LAD: Left Anterior Descending

Central Picture:



Central Picture:

1. Central Message

Careful examination of previous grafts' relationships and patency allowed to perform a revascularization through a modified MIDCAB in a 3rd time redo CABG: Coronary angiogram result.

Minimally invasive direct coronary bypass (MIDCAB) represents a less traumatic surgical technique for myocardial revascularization. Because it is less invasive and traumatic than conventional Coronary Artery Bypass Grafting (CABG), the MIDCAB procedure has been recommended for high-risk patients. Favourable results of the MIDCAB procedure for redo CABG have been reported [1].

We report the case of a 74-year-old man who underwent seven years before to a CABG*3 for a three-vessel disease associated to a left main stenosis. Past medical history included hypertension, dislipidemia and a peripheral vascular disease. At that time, he was operated on using the Left Internal Mammary Artery (Lima) to Left Anterior Descending Artery (LAD), a saphenous vein graft on the Right Coronary Artery and a Right Internal Mammary Artery (RIMA) on an Obtuse Marginal Artery. Vein graft was anastomosed proximally on the aorta by means of a PAS-Port® system (ProximalAnastomosisSystem–Cardica) and the free Rima on the vein as a T-graft. Six years from the first operation he complained of stress angina. A coronary angiography demonstrated a stenosis of the proximal portion of the vein graft with the involvement of T bifurcation. The patient was re-operated on by means of two segments of a left radial artery from the aorta to the vein graft and to the Rima using the off-pump technique. After his second redo CABG the patient had an uneventful postoperative period.

After six months he re-presented again with stress angina (CCS 3) and underwent a new coronary angiography, which showed complete occlusion of the radial graft on the vein graft and a severe stenosis of the proximal portion of the radial graft to the Rima. The right coronary artery was perfused by the left coronary system. Many attempts using percutaneous angioplasty in order to cross the stenosis have been performed with no success.

A trans-thoracic ultrasound showed a good left ventricular ejection fraction (55%). The patient was then evaluated by a thoracic CT-scan and after careful examination and analysis of the anatomical

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relationships of Lima and Rima as shown in Figure 1, we decided to perform a 3rd time redo CABG. EuroscoreII was 3.1.

The patient underwent a left anterior minithoracotomy in 3rd intercostal space with single lung ventilation. After careful isolation of Lima and Rima vessels, the latter was closed proximally and anastomosed on Lima by a T-graft. The operation was performed on beating heart and the patient was weaned from mechanical ventilation in the theatre. A coronary angiography one day postoperatively showed an excellent result. (Central Picture). After an uneventful postoperative period he was discharged home on 5th postoperative day with dual antiplatelet therapy.

2. Keywords: Coronary angiogram result; MIDCAB; CABG

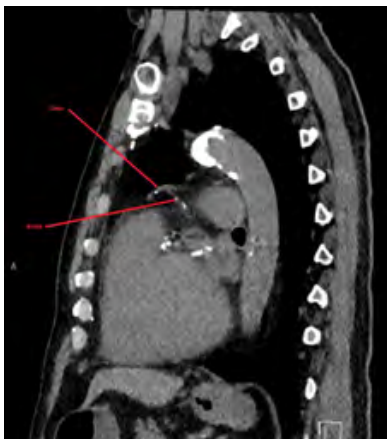

Figure 1: CT scan showing the anatomical relationships of the Lima and Rima grafts.

3. Conclusions

MIDCAB is a standardized technique for myocardial revascularization and it is usually performed for a single Lima to LAD bypass grafting [2]. It has been recently demonstrated that it offers superior freedom from target vessel revascularization compared to percutaneous intervention with drug eluting stent [3]. The recent development of novel retractors and the availability of mechanical anastomosis devices have allowed multi-vessel treatment using bilateral internal thoracic arteries through the same mini-thoracotomy approach on a beating heart [4,5]. The excellent mid- and long-term results in terms of survival and freedom from major adverse events suggest a wider use of this technique especially for its reduced surgical invasiveness [6,7]. In this particular case of 3rd time redo CABG, the favourable anatomical conditions allowed to perform a modified minithoracotomy in 3rd intercostal space to release the adherences between the structures and to perform a beating heart arterial grafting. The excellent cosmetic result (Figure 2) in association to the rapid recovery due to the less invasiveness of the procedure justified this unusual therapeutic approach.

Figure 2: Two months' result of 5cm wound at the 3rd intercostal space.

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