

# Right mammary artery and saphenous vein non touch a combination for complete off pump revascularization in coronary surgery without touching the aorta

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## Abstract

The use of the right mammary as inflow with vein non touch or others conduits and the preservation of the LITA to LAD alone is another option for the patients that need coronary surgery in multivessels diseases without touching the aorta off pump.

**Surgical Technique:** After we finished the left internal mammary dissection we move the mammary retractor and dissected the right mammary artery with as much length as possible in complete sternotomy, and around 5 to 6 cm at the level of the 3 or 4 intercostal space in the Mini Sternotomy. The proximal part is prepared in beak flute and 3 sutures of 7-0 prolene are place in the the proximal and distal part. After we connected the vein depending of the number and situation of the potential anastomosis we add different piece of conduits either vein of right mammary or eventually a radial artery. After finished the proximal conduits we do first the LIMA to LAD anastomosis and complete the rest of the bypasses **Results:** Operative mortality 0% Average hospital stay 59 hours MACE at 2 years 0%.

**Conclusion:** More developed technique and the technology is needed to improve this operation and be able to reproduce in a big scale.

## Introduction

The majority of the worldwide Coronary surgery typically requires exposure of the heart and its vessels through median sternotomy and cardiopulmonary bypass, making it one of the most invasive and traumatic aspects of open-chest surgery. Trying to decrease the risks of the CABG and its costs, in 1978 we popularized the Off Pump Coronary Artery Bypass Graft (OPCABG) [1,2] and expand the technique, addressing lesions of the circumflex system (Cx) and applying it to diverse clinical scenarios. We tested several surgical approaches, such as full sternotomy, including left, anterolateral, posterolateral and right anterolateral thoracotomies, as well as partial sternotomy [3]. The video – assisted techniques in the nineties allowed, for the first time, to dissect the left internal thoracic artery (LITA) without opening the pleura cavity. The LITA was anastomosed to the left anterior descending (LAD) through a small left anterior thoracotomy. [4-6] and a new method for coronary bypass was created [7]. From 1996, a new series of technological developments allowed, widespread application of the OPCABG and MIDCAB techniques surgeons to perform high quality reproducible anastomoses and demonstrate in the great majority of reports, a decrease in postoperative morbidity. In 1997, we performed for the first time an ambulatory coronary bypass through a xiphoid lower sternotomy incision (MINI OPCABG) using 3D technology to assist in the operation [8], the low incidence of atherosclerosis of the IMA in contrast to frequent atherosclerosis of the LAD was proven histologically as well as biochemically [9]. As a number of North American teams have shown, this good patency rate of the LIMA to LAD seems to be maintained at long term, which is not the case with saphenous vein bypass grafts. We know that from more than 30 years [10]. In 1975 Tector describes the technique of end to side anastomosis and published results that suggested that the IMA is an excellent graft in most coronary bypass procedures [11,12]

Different variables of this original idea were described [13] and is some evidence that non touch the aorta off pump is the best option compared with conventional coronary surgery and stenting [14]. Harvesting the Saphenous Vein with the Non Touch technique conferred, at a mean time of 16 years, a significantly higher patency than the conventional technique that was still comparable to that of the LITA [15]. The used of the right mammary as inflow with vein non touch or others conduits and the preservation of the LITA to LAD alone is another option for the patients that need coronary surgery in multivessels diseases without touching the aorta off pump We know today that this option is the best alternative for patients with multivessels that need coronary surgery [16,17] In this article we described our actual technique for perform this operation [18].

## Surgical technique

After perform the sternotomy OPCAB or the Mini sternotomy MINI OPCAB we dissected the left internal mammary artery skeletonized, When is a complete sternotomy the dissection is with the more length as possible, if it is a Mini sternotomy only approximately 8 cm are necessary

After we finished the left internal mammary dissection we move the mammary retractor and dissected the right mammary artery with as

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much length as possible in complete sternotomy, and around 5 to 6 cm at the level of the 3 or 4 intercostal space in the Mini Sternotomy We heparinized the patient with 3mg /kg .After we cut the right mammary at the level of the 4 intercostal space ,the distal part is taking for the potential connection and ligated 2 cm approx. before the bifurcation in the sternotomy patients .The proximal part is prepared in beak flute and 3 sutures of 7-0 prolene are place in the the proximal and distal part and tied between the vein non touch and the right mammary and complete running is performing and tied in the middle of the lateral of the anastomosis. In the Mini sternotomy the procedure is the same Is important to leave between 5 to 6 cm of the proximal right mammary to perform a comfortable anastomosis After we connected the vein depending of the number and situation of the potential anastomosis we can add different piece of conduits either vein of right mammary or eventually a radial artery After finished the proximal conduits we do first the LIMA to LAD anastomosis and complete the rest of the bypasses.

## Results

From 2009 to 2016 8 patients 6 OPCABG and 2 MINI OPCABG were operate with this technique 30 % females age 62 -88 average 69 Logistic Euro score preop risk 3,7 % , Average bypass 2,7 per patient Operative mortality 0% Average hospital stay 59 hours MACE at 2 years 0%.

## Conclusion

This is another option for off pump coronary surgery without touching the aorta with saphenous with preservation of the fat, vein non touch. In this technique we preserve the LIMA to LAD anastomosis alone. The evidence of the patency of the vein non touch at 16 years open a new option to perform multiple bypasses with a potential equivalent results than the use of arterial conduits More developed of the technique and the technology is needed to improve this operation and be able to reproduce in a big scale.

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