

## Total Arterial Revascularisation in a Patient with Previous History of Burns

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### Abstract

### Case Report

Arterial grafts have higher patency rates when compared to venous grafts. Total arterial revascularisation is commonly being done nowadays and more commonly in young patients and also in patients with poor quality veins, amputated patients, patients with DVT, post burns patients in whom veins are thrombosed and in patients with non healing ulcers and infection over the legs. A variety of configurations can be made using total arterial revascularisation, using bilateral internal mammary arteries or LIMA-RIMA-Y graft or using internal mammary arteries along with radial artery.

**Keywords:** Total arterial revascularisation, Left internal mammary artery, Right internal mammary artery, arterial grafts, venous conduits, Burns.

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## INTRODUCTION

Total arterial revascularisation is commonly being done nowadays and more commonly in young patients and also in patients who have poor quality veins, fibrosed veins (in CKD patients), veins with big blow outs (patients with varicose veins) in patients with amputated lower limbs, in patients with history of DVT, leg ulcers, skin infection over the legs and burns patients. The other indications are patients with calcification in the aorta for whom clamping the aorta for proximals poses risk of stroke [1]. We are hereby presenting a case report of a patient with previous history of burns, who underwent total arterial revascularisation using bilateral internal mammary artery (LIMA→ LAD and RIMA→Distal RCA).

## CASE REPORT

A 41 year old male patient was admitted for complaints of effort angina (NYHA CLASS II) since 1 month. Patient had past history of burns over the abdomen and right upper limb and both lower limbs during his younger age for which he was treated at local hospital. Multiple venous cut downs and venipunctures at various levels in the lower limb was done at that time.

Patient also gives past history of appendicectomy. Patient is a known hypertensive and not a diabetic.



Figure 1: Burns Marks over the Abdomen and Laparotomy Scar

ECG showed Normal sinus rhythm, RBBB. TMT was positive at 8 mets. Coronary angiogram showed coronary artery disease, triple vessel disease: Long segment 80% lesion in mid part of LAD, 80-90% proximal disease in the LCx, 50% proximal disease in

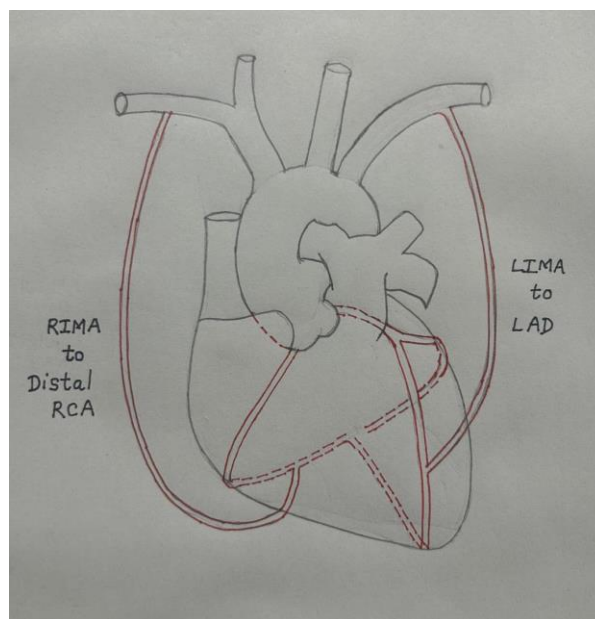
OM2 and subtotal occlusion from mid part of RCA. RCA was dominant and it was seen filling retrogradely from LCA. Echo showed No RWMA, Good LV contractility. OPCAB x 2 grafts was done (LIMA → LAD (1.75mm) and RIMA → Distal RCA (2.00mm)).



**Figure 2: Coronary Angiogram**

Intra-operative findings: Long saphenous veins were not of good caliber and were thrombosed and fibrosed upto upper thigh in both lower limbs. Also both upper thigh had healed SSG sites. RCA arteriotomy site was densely plaquey; Endarterectomy was done and a large long plaque was removed. During endarterectomy,

patient developed severe tachycardia and the same was controlled with amiodarone infusion and the haemodynamics were stable. Right internal mammary (RIMA) was of good length and it could easily reach the distal RCA.



**Figure 3: RIMA to distal RCA and LIMA to LAD**

Post-op period was uneventful and patient was shifted to ICU with stable haemodynamics and minimal inotropic supports. Chest tubes were removed on post operative day 2<sup>nd</sup> and Pacing wire was removed on post

operative day 5<sup>th</sup>. Post operative ECHO showed good LV contractility. Patient was discharged on post operative 9<sup>th</sup> with stable vitals.



**Figure 4: Chest Wound Healed Well**

## DISCUSSION

The commonest configuration used using right internal mammary is LIMA-RIMA-Y graft where LIMA is anastomosed to LAD and skeletonised RIMA is Y grafted to OM. Sometimes, the right internal mammary artery length may not be enough to reach the distal RCA and we may have to augment the length using radial artery or rarely vein. But this patient was fortunate to have a good length of right internal mammary artery reaching distal RCA. Also there are many controversies regarding bilateral internal mammary artery harvest as they are believed to cause sternal wound infection and delayed wound healing. But in this case, the chest wound healed well and the patient was discharged with stable vitals. Though arterial grafts weigh higher when compared to venous grafts, we routinely don't do total arterial revascularisation in our institution. But in this case, we did total arterial revascularisation as the situation warranted (poor quality veins) [2].

## CONCLUSION

Arterial conduits have higher patency rates when compared to the venous conduits. A variety of configurations can be made using arterial grafts, especially in patients with poor quality veins and in patients with calcified ascending aorta in whom clamping the ascending aorta for proximal anastomosis

poses risk of stroke. We are hereby presenting this case of TAR with direct RIMA → RCA and LIMA → LAD as it may be useful in these challenging situations [3, 4].

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