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Two-vessel off-pump coronary artery bypass grafting by left thoracotomy in a complex reoperative case

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From Thomas Jefferson University Hospital, Philadelphia, PA, USA.

Introduction

The left thoracotomy approach is an alternative technique for coronary revascularization to avoid complications associated with re-sternotomy, such as injury to patent grafts, right ventricle, aorta, during re-sternotomy.

Situations such as calcification of the ascending aorta and previous mediastinitis favor the use of the left thoracotomy approach.

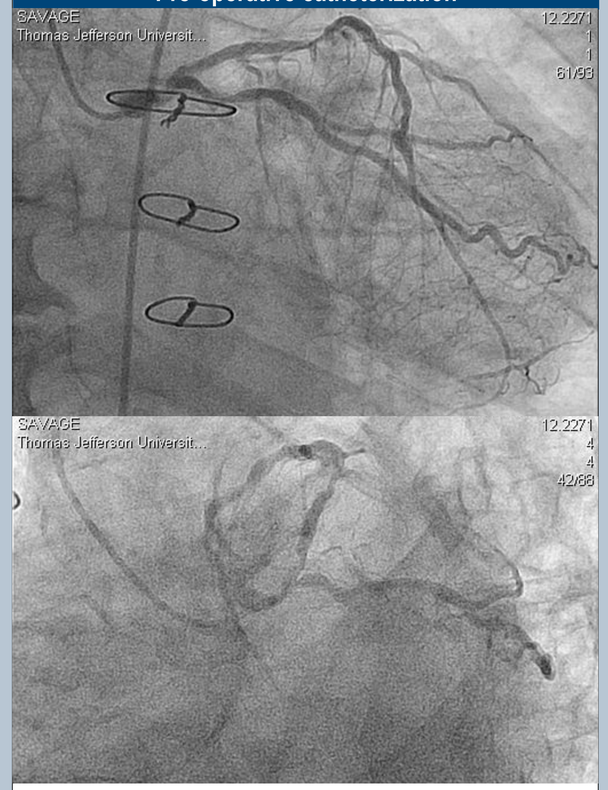
Revascularization of the circumflex territory via a lateral thoracotomy has been reported previously. However, reports of revascularization of the LAD combined with circumflex artery territory via left thoracotomy approach are rare.

We successfully performed an off-pump CABG by left thoracotomy in a complex redo case to revascularize the LAD and obtuse marginal branch (OM) in an 83 year-old-man who had CABG and AVR in the past with a heavily calcified ascending aorta.

Case Report

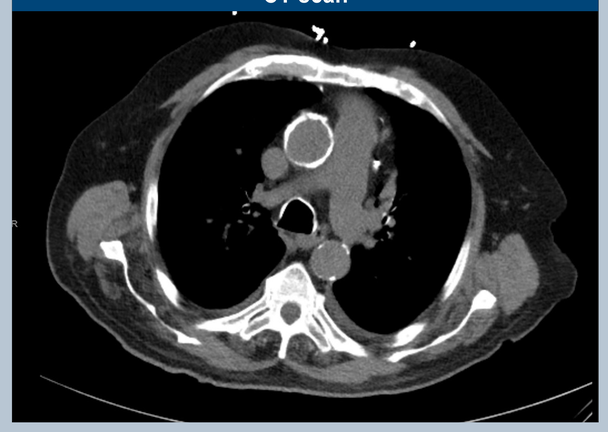
- 83-year-old caucasian male
- History of CABG 20 years ago, redo CABG in the following year due to graft failure, and an AVR with a mechanical valve 12 years ago, and multiple coronary interventions.
- Presented with unstable angina
- Echo showed normal LV function
- Due to his history of early stent re-stenosis and location of the disease, he was considered not suitable for repeat PCI.
- CT scan showed severe calcification of the ascending aorta (left), and mild disease on the descending aorta.

Pre-operative catheterization



- 70% stenosis of the distal left main
- 80 % stenosis of the mid LAD stent
- 75% stenosis of the ostium of the LCx
- SVG to RCA was diseased but patent
- SVG to the LAD was totally occluded

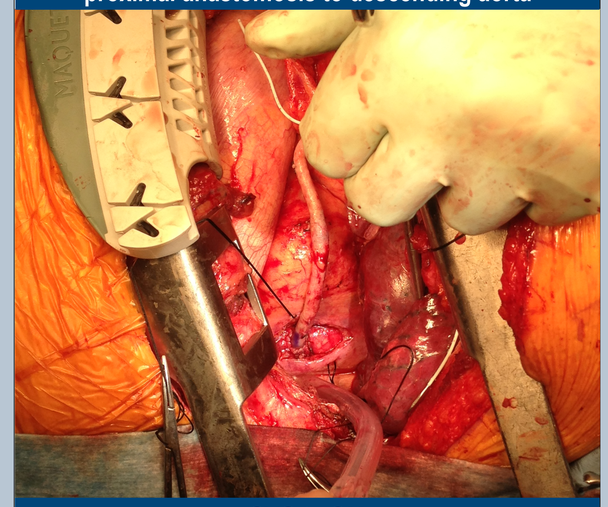
CT scan



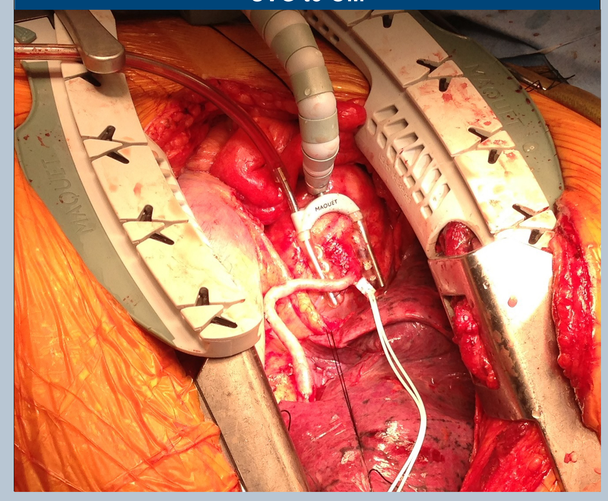
Intra-operative technique

- Double lumen endotracheal intubation Supine position → right lateral decubitus position with the pelvis corkscrewed
- Left postero-lateral thoracotomy through 5th intercostal space
- The pericardium was opened longitudinally anterior to the phrenic nerve
- Heartstring III and Acrobat-i (Maquet Inc., Wayne, NJ, USA) were used for the anastomosis

proximal anastomosis to descending aorta



SVG to OM



Post-operative catheterization

Postoperative catheterization demonstrates patent grafts.
(Arrowheads: SVG to OM, arrow: radial artery to LAD.)

Hospital course

The overall cardiac function was stable and he was transferred to a rehabilitation facility on postoperative day 17.

Conclusion

Redo CABG is a technical challenge, but we were able to successfully undergo a 4th time redo CABG via the left thoracotomy approach and proximal anastomosis of the conduits in the descending aorta.

This technique in selected patients could be a useful that may reduce the complications related to redo sternotomy.

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