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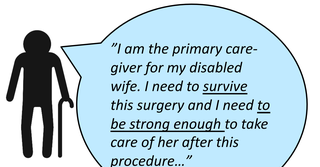
Multivessel Minimally Invasive Direct Coronary Artery Bypass Grafting of the Lateral and Inferior Wall: Challenges and Solutions

Alaa Abd El Al[1], Matteo Montagner[1], Volkmar Falk[1,2], Stephan Jacobs[1], Jörg Kempfert[1], Timo Z. Nazari-Shafti[1,3]

Who Benefits from Multivessel MIDCAB?

Patients with multivessel disease (MVD), high-risk profile for postoperative complications, and complex lesions of the coronary arteries may benefit from multivessel minimally invasive direct coronary artery bypass grafting (MV-MIDCAB). This procedure is technically demanding and requires excellent pre-operative planning. Here we present some of the technical challenges and mitigation strategies for performing anastomoses on the inferior and lateral wall in MV-MIDCAB.

Patient 1



"I am the primary care-giver for my disabled wife. I need to survive this surgery and I need to be strong enough to take care of her after this procedure…"



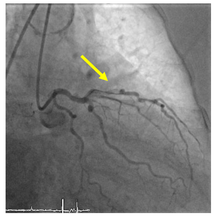
85-year old patient with
- Highly clacified aorta (yellow arrow)
- Hypertension
- History of colon carcinoma

3 vessel disease

Patient 2

"I don't want my chest cracked open. I am too afraid, that I won't wake up and can't move after surgery… "





84-year old patient with
- Diabetes
- Hypertension
- Frustrane re-canalization of LAD (yellow arrow)

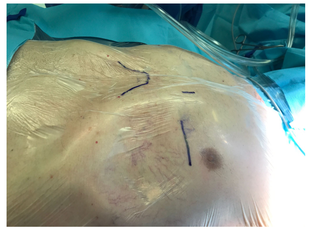
2 vessel disease (LAD and RCA)

General Aspects to Consider

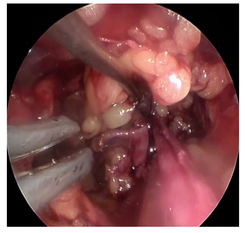
CT-Angio for pre-OP planning



Optimal positioning of patient on OR table (30 degrees right lateral)



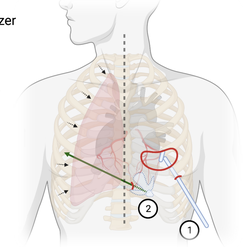
Endoscopic graft harvesting

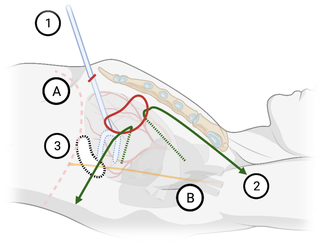


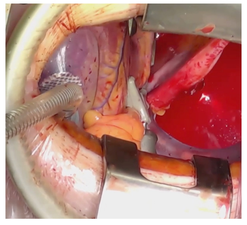
Challenges and Solutions

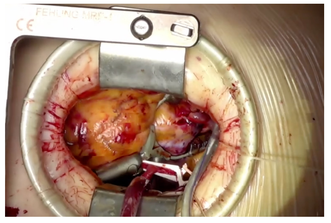
Optimizing Exposure to Circumflex

1 Endoscopic stabilzer
2 Stay sutures
3 Gauze
4 Starfish stabilizer
A Diagphram
B Phrenic nerve



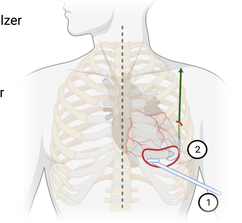


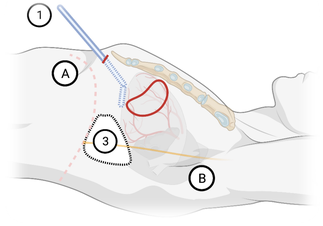


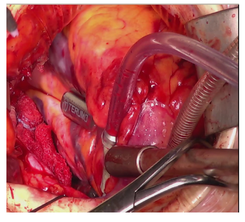


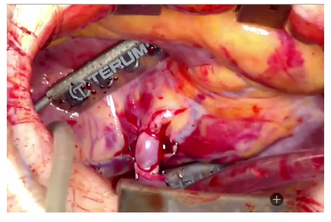
Optimizing Exposure to Right Coronary

1 Endoscopic stabilzer
2 Stay sutures
3 Gauze
4 Starfish stabilizer
A Diagphram
B Phrenic nerve

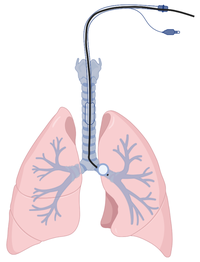




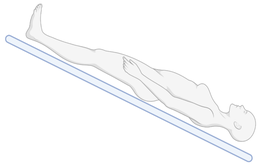




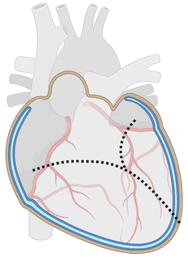
Additional Tips and Tricks



Tubus blocker for one lung ventilation

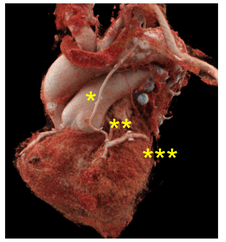


45 degrees Trendelenburg position for better hemodynamics during luxation

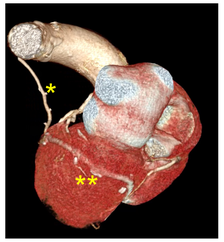


Open pericardium with extending the incision above the diaphragm to the right as far as possible

Outcomes and Conclusion



* LITA to LAD
** T-graft
*** saphenous vein to CX



* LITA to LAD
** saphenous vein to RIVP

Outcome

In these case reports we demonstrate that with optimal exposure of the posterior and lateral wall can be achieved in a MIDCAB setting. Postoperatively, the patients were transferred to the regular ward less than 24 hours after surgery. Both high-risk patients had an excellent postoperative outcome with no additional postoperative morbidities.

Affiliations

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