EuroSciCon

2nd Edition of EuroSciCon Congress on

Heart Disease and Interventional Cardiology

February 25-26, 2019
Paris, France

Interv Cardiol J 2019, Volume: 5
DOI: 10.21767/2471-8157-C1-006

IS INFERIOR MINI-STERNOTOMY MORE SUPERIOR OVER THORACOTOMY APPROACH FOR MIDCAB PROCEDURE?

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Background: In selected patient population, minimally invasive approach for coronary artery bypass grafting could be an excellent option to reduce mortality and morbidity. In this study, we are reporting minimally invasive surgical approach for off-pump coronary artery bypass grafting in terms of by using L-shaped inferior mini-sternotomy technique.

Methods: Nine consecutive patients underwent minimally invasive bypass surgery using the L-shaped inferior mini-sternotomy approach. 6 of them were male and 3 female patients with mean age of 69.3±8.2 years, mean preoperative left ventricular ejection fraction (EF%) was 43.7±8.7, all patients were in Canadian class system (CCS) III-IV, and the NYHA class was II-IV (mean was 2.7±0.6), three (33.3%) patients had mitral regurgitation mild to moderate degree, two (22.2%) patients were in chronic atrial fibrillation, four (44.4%) patients had recent acute myocardial infarction, one (11.1%) patients was previously treated with PCI with stenting. In three (33.3%) patients, serum creatinine level was >2 mg/dl, two (22.2%) patients have left main desease. Before operation, IABP was implanted in one (11.1%) patient because of the urgency and left main desease. All patients were carried out MIDCAB with L-shaped inferior ministernotomy approach with various types of conduits: LITA (left internal thoracic artery), radial and venous grafts. In all patients, we performed first LIMA to LAD (left anterior descending) anastomosis and if reqiured, by using of Y-grafts with radial or venous grafts on the lateral or posterior wall of myocardium. The number of distal anastomosis was varied from one to two according to the coronaroangiography view. In all cases, we used with coronary vessel snares and intracoronary shunts and the deep stitch technique was perfomed when needed to revascularize on the lateral and posterior wall.

Results: No mortality was observed during the mean 5.4 months follow-up period. Conversion to cardioplumonary bypass with a full median sternotomy was never required and the anastomosis was carried out with the off-pump technique in all patients. The mean mechanical ventilation time ranged between 2–8 hours. The mean intensive care unit stay was ranged 12–45 hours. All patients 4-8 days after surgery were discharged from the hospital and not observed any complications. At a mean follow-up of 5.4 months, the CCS was 1.2±0.5, and the NYHA class was 1.0±0.4, the EF (%) is increased up to 52.1±9.8. We did not measure the graft patency during this follow-up period.

Conclusion: Through a L-shaped mini-sternotomy approach, single- or double-vessel revascularization can be performed safely off-pump even in high-risk patients. Multivessel diseases can be performed by using of T-shaped mini-sternotomy as reported by some surgical team that we have not performed yet. A mini-sternotomy allows extension to a full sternotomy and avoids a second skin incision in emergency cases in which full access is nessessary to establish CPB. Additional potential advantages include a decreased risk of sternal wound dehiscence and wound infection, less risk of traction injuries to the brachial plexus as the proximal aspect of the sternum is not distracted, improved cosmetic results, earlier extubation, and shorter intensive care and hospital stay. Of course, we described a small cohort of patients, but nevertheless, a further investigation is required to evaluate the long-term results in a larger cohort of patients.

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