

Single Left Minithoracotomy for Concomitant Mitral Valve Repair, CABG, and LAA Closure in a High-Risk Elderly Patient

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BACKGROUND

Minimally invasive cardiac surgery may reduce surgical trauma and avoid sternal complications in frail or elderly patients. Combined management of mitral regurgitation, coronary artery disease, and left atrial appendage (LAA) pathology through a single left-sided approach remains technically demanding but clinically attractive.



PATIENT PROFILE

- 72-year-old underweight woman (146 cm, 43 kg)
- Recurrent chest tightness and orthopnea 6 months after LAD stenting for acute anterior MI
- Left ventricular systolic dysfunction: EF 36%
- Paroxysmal atrial fibrillation on ECG
- Coronary angiography: 99% intermediate artery stenosis
- Declined median sternotomy because of invasiveness and possible sternal complications



CLINICAL CHALLENGE

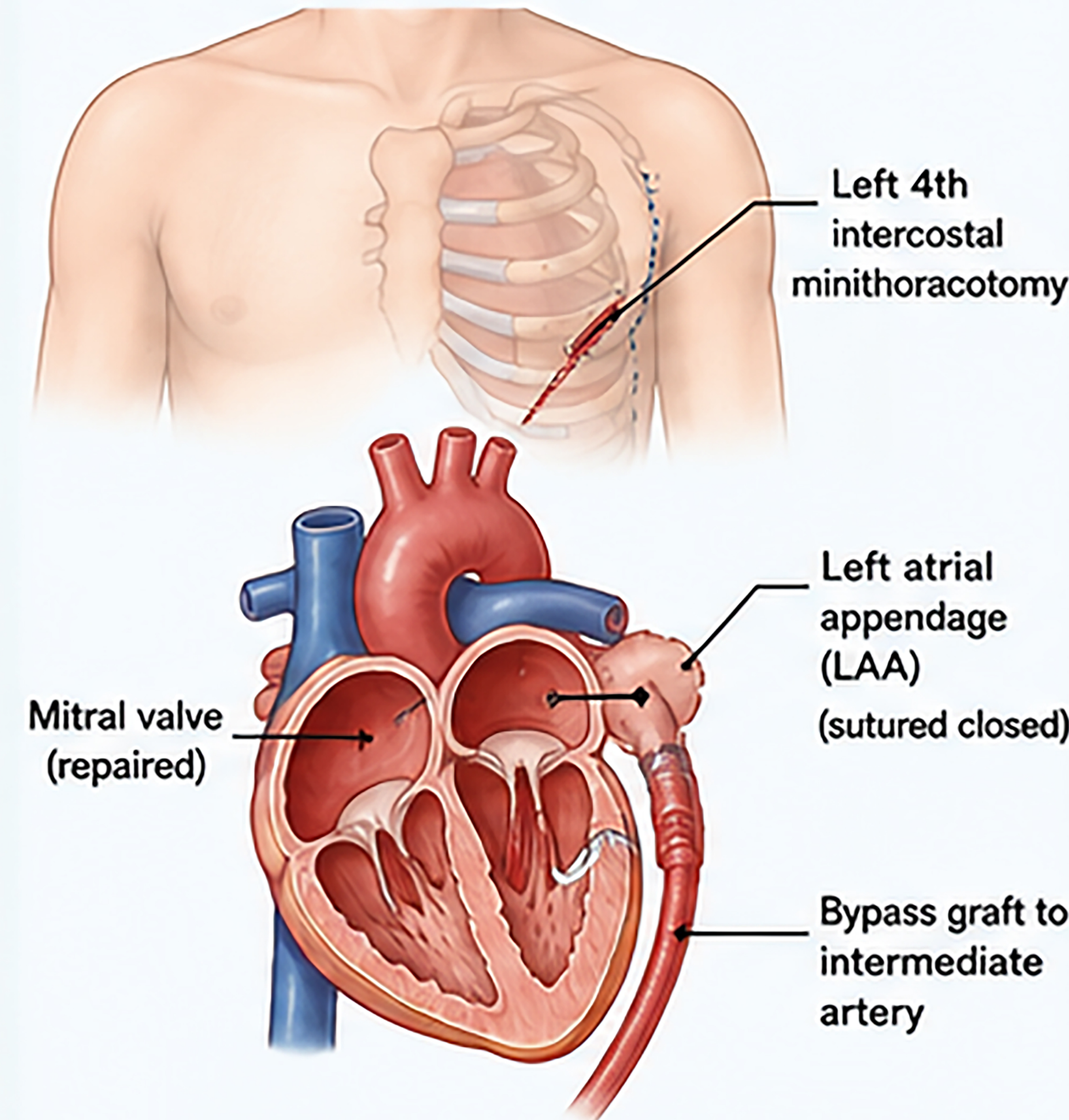
High-risk elderly patient with post-MI ischemic heart disease, severe MR, low EF, and AF requiring multi-procedure treatment through a minimally invasive strategy.



OPERATIVE STRATEGY

- 1 Left 4th intercostal minithoracotomy
- 2 Femoral cardiopulmonary bypass established
- 3 3rd intercostal portal for aortic clamping and root cardioplegia
- 4 Left atriotomy 1 cm below LAA base, sparing the coronary sinus
- 5 Mitral valve inspection: P2 chordal rupture with severe MR
- 6 Artificial chordae reconstruction
- 7 Residual mild MR addressed with A2-P2 edge-to-edge repair using 5-0 Prolene
- 8 Autologous pericardial annuloplasty to maximize valve preservation
- 9 LAA sutured closed
- 10 Ascending aorta-to-intermediate artery CABG completed

SINGLE LEFT-SIDED APPROACH



SURGICAL INNOVATION

A single left minithoracotomy enabled simultaneous MV repair, CABG, and LAA closure while avoiding sternotomy. Chordal reconstruction and autologous pericardial annuloplasty provided an economical and valve-preserving repair strategy.



RESULTS



Cross-clamp time: 73 min



Total operative time: 4 h



Discharged on postoperative day 10



Successful completion of combined minimally invasive procedure



BENEFITS AND DISCUSSION

This approach avoids sternotomy-related sternal risks and may be especially suitable for elderly, frail, or diabetic patients. Literature suggests minimally invasive strategies can be associated with low mortality, faster recovery, and reduced surgical trauma when performed by experienced teams.



TAKE-HOME MESSAGE



Single left minithoracotomy can be a feasible and effective option for selected high-risk patients requiring concomitant mitral valve repair, coronary bypass, and LAA closure. In experienced hands, it offers multi-procedure efficiency, preservation of valve function, and a less invasive alternative to median sternotomy.



Keywords: minimally invasive cardiac surgery; mitral valve repair; CABG; left atrial appendage closure; elderly patient; minithoracotomy