Totally Thoracoscopic Closed-Chest Robotic Mitral Repair And Myocardial Revascularization

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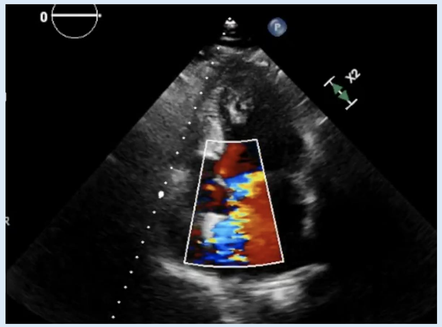
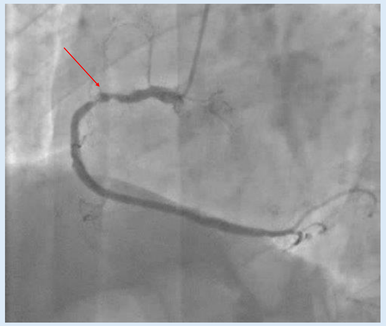
Closed-chest robotic surgery represents the least invasive way to perform cardiac surgery. In the valvular repair field, its feasibility has already been reported.
In the coronary surgery arena, TECAB allows for a completely endoscopic myocardial revascularization.

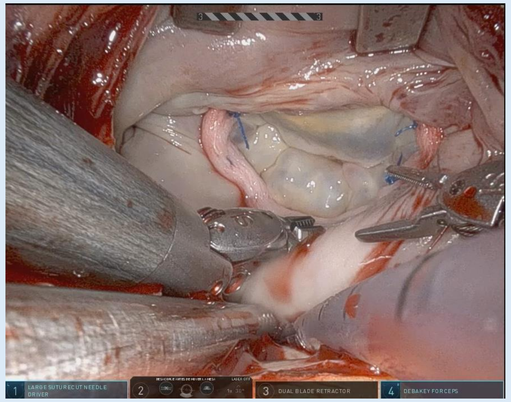
A 75-year-old male was diagnosed of severe mitral regurgitation due to posterior leaflet prolapse (echo below). The preoperative work-up discarded any vascular contraindications but the coronary angiography revealed a significant lesion in the proximal right coronary artery (red arrow).

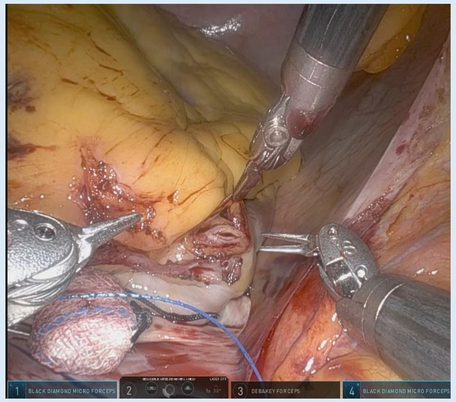




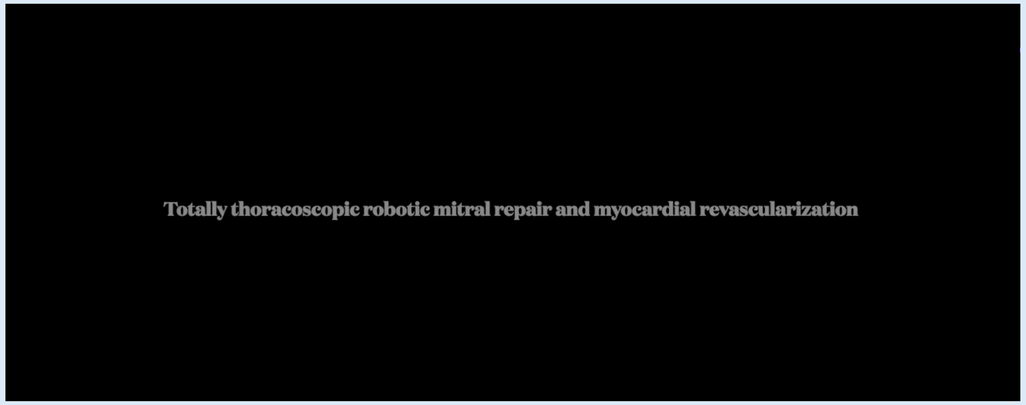
The four robotic trocars were placed in the 4th right intercostal (IC) space for the camera, 3rd and 6th right IC spaces for the left and right arms and in the 5th right IC space, at the parasternal level, for the atrial retractor. A 12mm valveless trocar was placed in the 4th IC space, below the camera port . Once the trocars were placed, the robotic platform docked.

The right internal mammary artery (RIMA) was dissected and left in situ. Cardiopulmonary bypass (CPB) started using right femoral cannulation. A 34mm Cosgrove band was implanted and a pair of neochords were constructed from the postero-medial papillary muscle to the P2 segment. The RIMA was then divided distally and prepared and the RCA was incised with Potts scissors. The anastomosis was then performed with a running 8/0 nonabsorbable suture. Total cardiopulmonary bypass time was 173 minutes and ischemic time was 86 minutes.





The patient recovered uneventfully and was discharged home on the 4th postoperative day.



A combined robotic valvular and coronary surgery case is feasible and safe using a closed chest approach.