Combined Endoscopic Valve Surgery And Coronary Artery Bypass Via Mini-Thoracotomy

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Background: Consistent evidence in favor of endoscopic valve surgery (eVS) exists. Yet, the adoption of minimally invasive coronary surgery (MICS) remains low, particularly for combined procedures. We aim to describe our experience with combined eVS and MICS.

Methods: We reviewed data from 13 patients who underwent combined eVS+MICS at Santa Maria Hospital, Bari, Italy, from 2021 to 2024. The primary outcome was follow-up mortality. Patients received MICS combined with either endoscopic mitral repair (eMVr) or aortic valve replacement (eAVR). After double-lumen endotracheal intubation, the right internal jugular vein was cannulated percutaneously. Following right groin incision for echo-guided cannulation, cardiopulmonary bypass was established, a Chitwood clamp was inserted at the second interspace (IS-2), and cardioplegia was delivered via the main incision. eMVr was performed via a right-MT above the nipple at IS-4 while eAVR via anterior MT at IS-3. MICS consisted of a left internal thoracic artery (LITA) to left anterior descending off-pump graft performed via an additional left-MT at IS-5 in eMVr cases, and a saphenous vein (SVG) to posterior descending artery (PDA) graft via the same right-MT, in eAVR cases. The LITA was harvested under direct vision. The proximal anastomoses were performed using a subxiphoid-inserted stabilizer and intracoronary shunts, followed by transit time flowmetry.

Results: Thirteen patients underwent combined eVS+MICS: age was 67±4 years, 8 were male, and EuroSCORE II was 2.6±1.1. Nine patients had eMVr: 6 posterior leaflet resections, and 4 neochordal repairs. All eMVr included ring annuloplasty; four had monopolar ablation and left atrial appendage closure. Four patients had eAVR with bioprosthesis and SVG-to-PDA. Mechanical ventilation averaged 4±2 hours, with ICU discharge after 2±1 days. All patients were discharged healthy, with no deaths at 2-year follow-up.

Conclusion: Combined eVS+MICS is safe, with satisfactory outcomes. Minimally invasive techniques should be adopted in specialized centers, even in complex cases.