

Surgical Intervention for Moderate Anterior Paravalvular Leakage after Mitral Valve Replacement. Is it always necessary to replace the valve?

Mohamed Abdel Hady MD, Alaa Farouk MD, Ahmed Abdel Rahman MD, Mohamed Abdel Rahman MD, Abdallah Osama MD, Ahmed El Ashkar MD, *Cardiology Person MD.

Department of Cardiothoracic Surgery, Kasr El Ainy Faculty of Medicine, Cairo University.
* Cardiology Department, Kasr El Ainy Faculty of Medicine, Cairo University.

Abstract

Background: Postoperative paravalvular leak (PVL) is one of the common complications following post-rheumatic prosthetic mitral valve replacement (MVR). The surgical solution needed for each type of PVL must be individualized according to its size, location, as well as the presenting clinical symptom(s). This study is a trial to assess the value of a simple and reproducible surgical procedure for single moderate (≤ 4 cm) anterior paravalvular leak (APVL) in absence of infective endocarditis IE versus classic mitral valve re-replacement.

Patients and Methods: This comparative analytic study was conducted between 2005 & 2010 in the Departments of Cardiothoracic Surgery and Cardiology of Faculty of Medicine Cairo University as well as El Moasat Hospital (KSA) after obtaining the approval of the local ethical committees. Thirty patients who developed single moderate (≤ 4 cm) anterior paravalvular leak (APVL) without IE following isolated primary MVR were enrolled. Patients were allocated in 2 groups of equal number and matching preoperative risk factors. Group A contained prospective data of 15 patients in whom APVL were repaired by 2-5 pledgeted stitches between LA wall & valve's prosthetic ring. Group B contained retrospective data of 15 patients in whom the prosthetic mitral valve was replaced. All patients were followed-up over the first PO year by regular clinical examination and transthoracic echocardiography (TTE).

Results: In group A, APVL was diagnosed after a mean time of 68 ± 10 days (range 3 weeks - 6 months); whereas in group B, it was detected after 105 ± 3 days (range 5 weeks – 9 months) ($P=NS$). The anterior mitral annulus was the site of PVL in all patients. In group B, the total operative time, CPB time, and aortic cross clamp time were markedly prolonged compared to group A with high statistical significance. Intraoperative weaning off-CPB was more smooth using less inotropic support in group A patients. In group A, there was no mortality; whereas 3 patients died (20 %) in group B. Mortality in 1st patient occurred in PO day 25 due to chest infection; 2nd one to occurrence of sudden valve sticking; and the 3rd to progressive LV dysfunction ending by CHF and death. Morbidity complications occurred in 6 (40 %) of group B patients; versus only 2 (13 %) in group A ($p < 0.001$). Following surgery, group A patients showed a faster improvement in clinical symptoms (SOB, easy fatigability) as reflected by NYHA clinical class assessment. Mean duration of ICU and hospital stay was longer in group B patients.

Conclusion:

We concluded that surgical closure of postoperative single moderate (≤ 4 cm) APVLs occurring without IE following MVR can be done effectively and safely using Teflon pledgeted stitches taken between valve sewing ring and the adjacent area of the left atrial septal wall. Mitral replacement in this context is not advisable as it is associated with higher morbidity & mortality.

Key words & abbreviations: APVLs: Anterior Para-Valvular Leaks. IE: Infective Endocarditis MVR: mitral valve replacement. LA: Left Atrium PO: postoperative. NYHA: New York Heart Association. TEE: Transesophageal echocardiography TTE: Transthoracic echocardiography LVEF%: Left ventricular ejection fraction %. SD: standard deviation Statistical Significance was detected if $P < 0.05$