



MITRAL VALVE REPAIR IS STILL A REASONABLE OPTION IN THE ABSENCE OF AN INTRAOPERATIVE ECHOCARDIOGRAPHY

Medical Science

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ABSTRACT

Mitral valve repair is the treatment of choice in patients with mitral insufficiency. Mechanical valves, even when functioning perfectly, are less efficient hemodynamically than a native mitral valve and also have attendant morbidity from thrombolism, anticoagulant-related hemorrhage, and endocarditis. Long-term data have confirmed the durability of mitral repair. Mitral valve repair was performed on 64 consecutive patients between Nov. 2009 and april 2013,. The repair technique included quadrangular resection, artificial chordae placement, chordal transfer, and chordal shortening. In all patients repair was reinforced with flexible incomplete annuloplasty ring. There were 64 patients(consecutive) in our study.Of these 37 were males(57.8%).Most of our patients were having mitral valve prolapse(50%).Other etiologies being Rheumatic (26.5%). Associated procedures included AVR(4/64), Tricuspid repair(4/64), LV aneurysm repair(1) and ASD closure(1).All patients underwent placement of annuloplasty with flexible incomplete ring. Additional procedures included triangular resection, quadrangular resection, placement of synthetic chordae , commissurotomy, chordal splitting and closure of clefts. The approach valve was mostly through LA. All cases had moderate or mod-sev or severe MR. Before and after repair they underwent saline test. Our hospital did not have the privilege of an intraop TEE during the period of study. No patients had more than mild MR post op.

KEYWORDS

mitral valve repair

Introduction

Mitral valve repair is the treatment of choice in patients with mitral insufficiency. Mechanical valves, even when functioning perfectly, are less efficient hemodynamically than a native mitral valve and also have attendant morbidity from thrombolism, anticoagulant-related hemorrhage, and endocarditis. Long-term data have confirmed the durability of mitral repair.

The advantages of mitral valve repair over replacement with a valve prosthesis are no longer debated, and mitral valve repair is the standard of care whenever it is feasible. Successful mitral valve repair is achieved in $\approx 80\%$ of all surgical cases of chronic MR(1). The importance of intraoperative transesophageal echocardiography cannot be overstated, and its use should be considered routine. The most important goals of surgical intervention are improvement of symptoms, preservation of LV function, and increased longevity. Other considerations include preservation of the native mitral valve apparatus, avoidance of chronic anticoagulation, maintenance and/or restoration of sinus rhythm, and prevention/improvement of pulmonary hypertension and right ventricular dysfunction(3). Surgery should be considered in all patients with severe MR caused by degenerative mitral valve disease.

Methodology

The study was conducted between January 2009 and march 2013 at Government medical college, Kottayam in south india.This is a tertiary level hospital with about 500 cases of open heart surgery annually.

Results

There were 64 patients(consecutive) in our study.Of these 37 were males57.8%.Most of our patients having mitral valve prolapse(50%).Other etiologies being Rheumatic (26.5%) and ischaemic (18.75%).Associated procedures include CABG(16/64),AVR(4/64),Tricuspid repair(4/64),LV aneurysm repair(1) and ASD closure(1).All patients underwent placement of annuloplasty with SJM taylor ring.Additional procedures included triangular resction,quadrangular resection,synthetic chordate,commissurotomy,chordal splitting and closure of clefts.the approach valve was mostly trans LA ,but other routes were via right atrium.All cases had moderate or mod-sev or severe MR.Before and after repair they underwent saline test.Our hospital did not have the

privelage of an intraop TEE,during the period of study.No patients had more than mild MR .

Table 1. Outcome of the study

No of patients	64
Gender	37 (M)-57.8%
Etiology	Rheumatic-17(26.5%) MVP-32(50 %)
Concomitant procedures	CABG-16(25%) AVR-5(7.8%) TV repair-4(6.25 %)
Ejection fraction,mean	Preop-58.8 Post op-54.56
Grade of MR-post op mean	No MR-52.2%,trivial-21.8%,mild MR-26%
Perioperative complications	Death CVA Wound infection Prolonged ventilation

Discussion

The advantages of mitral valve repair over replacement with a valve prosthesis are no longer debated, and mitral valve repair is the standard of care whenever it is feasible. Successful mitral valve repair is achieved in $\approx 80\%$ of all surgical cases of chronic MR(1). The importance of intraoperative transesophageal echocardiography cannot be overstated, and its use should be considered routine. The surgeon and echocardiographer discuss the severity of MR, the mechanism, the lesion, segmental valve pathology, subvalvular pathology and calcification, left ventricular size and function, left atrial size and thrombus, and other pathology, especially other valve lesions such as tricuspid regurgitation, aortic pathology such as atherosclerosis, a patent foramen ovale, and right ventricular dysfunction. After the repair has been completed and the patient has been weaned off cardiopulmonary bypass, the valve is reassessed for any residual MR (1+ or greater is cause for concern), SAM, and mitral gradient. Ventricular function is also assessed, and the heart is inspected for residual intracardiac air.But our centre did not have the privilege of a TEE until recently.But we had been doing MV repair for the past 4 years .Repair adequacy was evaluated with intraop saline

injection.. Repair has been demonstrated to be superior in the setting of combined coronary bypass procedures, reoperations, double-valve procedures, and in elderly patients. Given the excellent outcomes that are now obtained, the indications for mitral valve repair have been extended to a larger group of selected patients and to include repairing the valve before the onset of symptoms. Asymptomatic patients have demonstrated improved measures of exercise tolerance after repair(2). According to the preoperative echocardiographic analysis and the intraoperative findings, the valve pathology was identified and coded: location of the leaflet degeneration (anterior, posterior or both), leaflet integrity (normal, prolaps, perforation, calcification, cleft formation), annular integrity (normal, dilated, calcified), chordal integrity (normal, ruptured, elongated, retracted, fused), and papillary muscle integrity (normal, ruptured, elongated, fibrotic, necrotic). The most important goals of surgical intervention are improvement of symptoms, preservation of LV function, and increased longevity. Other considerations include preservation of the native mitral valve apparatus, avoidance of chronic anticoagulation, maintenance and/or restoration of sinus rhythm, and prevention/improvement of pulmonary hypertension and right ventricular dysfunction(3). Surgery should be considered in all patients with severe MR caused by degenerative mitral valve disease. More liberal indications for surgery are the result of increased understanding of the unfavorable natural history of patients with severe MR, extremely low operative risk in most patients with degenerative mitral valve disease, and excellent long-term results obtained with mitral valve repair . Definite indications for surgery in patients with severe MR are presence of symptoms or LV dysfunction (ejection fraction <0.60, end-systolic dimension >40-45 mm). Surgery should also be offered to patients with severe MR and new-onset atrial fibrillation. natural history studies demonstrate that asymptomatic patients with severe MR (effective ROA 40 mm²) have reduced survival; surgical repair in such patients is associated with improved survival . In summary, the decision for surgical repair in patients with degenerative MR should be based on symptoms, LV function (at rest and exercise), severity of MR and local operative mortality and rate of successful repair. Anterior leaflet pathology may be corrected with a variety of repair techniques including creation of artificial chordae, chordal transfer, the edge-to-edge repair, chordal shortening, and anterior leaflet resection. Segmental posterior leaflet prolapse is the most common finding, affecting 60% to 80% of patients with severe MR caused by degenerative disease . This is usually repaired by quadrangular resection and annuloplasty. All mitral valve repairs include annuloplasty. Functions of the annuloplasty include improved leaflet coaptation by reduction of the septal-lateral dimension of the valve, reduced tension on suture lines, and prevention of future annular dilatation. A variety of annuloplasty techniques are available (partial versus complete; flexible versus rigid), and all appear to function well in patients with degenerative disease. The operative mortality for isolated mitral valve repair in degenerative disease is less than 1%; in contrast, most series report somewhat higher mortality for mitral valve replacement.

Conclusion

The results of our study confirm that mitral valve repair results in acceptable operative mortality rate, excellent early and medium-term results and incidence of postoperative complications

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