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Case Report

Re-Redo Mitral Valve Repair – Useful or Even Possible – A Case Report

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Keywords

- Mitral valve regurgitation
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Abstract

Mitral valve repair is the surgery of choice in patients with mitral valve regurgitation. Reoperations are becoming more frequent and more complex over the past four decades. There are limited reports describing multiple time redo mitral valve surgery in particular mitral valve repair.

We report on a 36 year old female in NYHA class II – III preoperatively, who underwent successful re-redo mitral valve repair. In 1997 and 2005, the patient underwent mitral valve repair through an anterolateral thoracotomy. The patient refused mechanical valve implantation as she is still in child-bearing years. The third operation involved a complex repair with resection of cords class I and II at A2 and implantation of three artificial cords at A1, A2 and A3 with implantation of Cosgrove Edwards ring. The post-operative course was uneventful. Postoperative echocardiography revealed only a mild regurgitation and a mild to moderate stenosis. The last transthoracal echocardiography 3 years after operation showed no further changes. The patient is doing well in NYHA class I without medical therapy. This case report shows that the approach of mitral valve repair, even in re-operations, is a safe and excellent option and mitral valve replacement can be avoided.

ABBREVIATIONS

NYHA: New York Heart Association; TEE: Transesophageal Echocardiography; TTE: Transthoracic Echocardiography; PTFE: Polytetrafluoroethylene; INR: International Normalized Ratio

INTRODUCTION

Mitral valve repair is the surgery of choice in patient with mitral valve regurgitation. It is an attractive concept to avoid structural deterioration of biological prostheses and need for anticoagulation of mechanical prostheses. Reoperations are becoming more frequent and more complex over the past four decades as well as redo mitral valve surgery. Mitral valve repair or replacement varies from center to center as do the outcomes, especially since there are only limited reports describing multiple time redo mitral valve repair [1-4].

CASE PRESENTATION

In May 2009, a 36 year old female with diagnosis of severe mitral valve regurgitation was admitted to our hospital. She was in New York Heart Association (NYHA) class II-III and had a history of progressive dyspnea. The ejection fraction was in normal range. The patient was of normal weight (65 kg) and height (170 cm). Both previous cardiac operations were through an anterolateral thoracotomy. The first operation was in 1997 when the patient underwent a cleft closure of the mitral valve and a closure of primum atrial septal defect. The second operation was in 2005 which was a re-cleft closure and an annuloplasty of the mitral valve along with a tricuspid valve repair (MEDTRONIC future band®).

The preoperative transesophageal echocardiography revealed severe mitral valve regurgitation Grad III (Figure 1) with dilatation of the posterior annulus and retraction of A3. In stress echocardiography a progressive mitral valve insufficiency under mild to moderate exercise could be shown. The left ventricular ejection fraction and the end diastolic volume were in normal range. The previous repaired tricuspid valve showed only a mild regurgitation and the closure of the atrium septal defect was competent.

The patient was prepared for surgery using the normal institutional protocol. After median sternotomy and aorto-bicaval cannulation, mild hypothermic (34°C) cardiopulmonary bypass was instituted. The aorta was cross clamped and blood cardioplegic solution was infused retrograde and antegrade. All adhesions were dissected in the groove of water stone the left atrium incised and the old MEDTRONIC future band® was removed.

Direct inspection of the mitral valve revealed dilatation of the posterior annulus though previous mismatch of the Future band. Furthermore, we could see a prolapse of the anterior leaflet in segment A1 and A3 and a significant retraction of A3 caused by previous triangular resection in this segment.

After resection of the retracted cords class I and II at A2, the segment A2 was remodeled. A broad based inserting cord was used as a swiveling overlap to reconstruct this segment (Figure 2). Artificial cords consisting of three 4-0 PTFE sutures (Gore Tex®) A1-3 and a Cosgrove Edwards Annuloplasty band 26mm were then implanted. Following reconstruction, valvular competence test with forceful injection of saline solution into the left ventricle showed good coaptation of the mitral valve leaflets.

RESULTS

The patient was weaned from cardiopulmonary bypass without complications. Directly after termination of cardiopulmonary bypass, valve insufficiency was evaluated by TEE, which showed a good result with restoration of mitral valve competence and only trivial residual mitral valve regurgitation. The patient was extubated on the same day and discharged from hospital in good clinical condition. The postoperative TTE showed only mild mitral valve regurgitation and mild stenosis.

At the latest follow up, 3 years after surgery, the patient was asymptomatic in NYHA class I without medical therapy. The echocardiographic findings were unchanged during the period of 3 years (Figure 3).

DISCUSSION

Unfortunately, there are only few reports of re-redo mitral valve repair. As reoperations are more complex, it is important to know that mitral valve repair is an excellent option for reoperations and mitral valve replacement can be avoided with good results. This approach represents a safe and effective technique especially for the patient who is not faced with prosthesis related complications as well as bleeding complications caused by high INR anticoagulation.

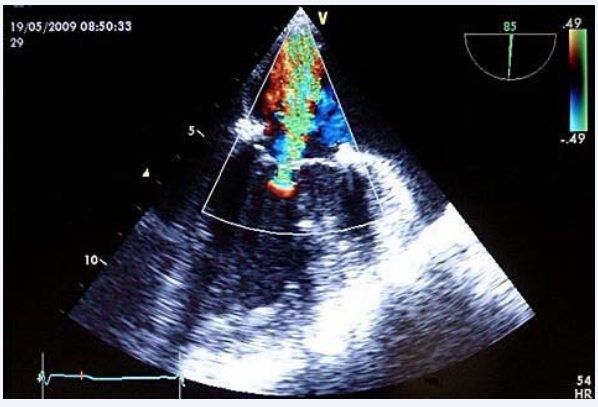

Figure 1 Preoperative transesophageal echocardiography.

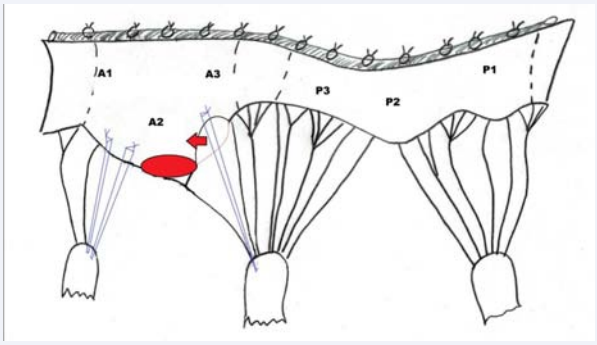

Figure 2 Surgery sketch.

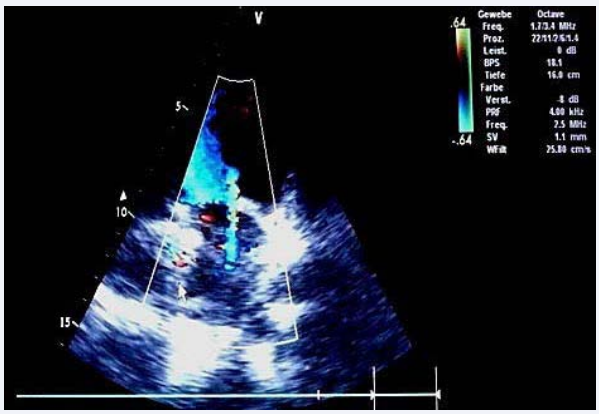

Figure 3 TTE - mild regurgitation 3 years after operation.

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