INDIAN HEART JOURNAL 68 (2016) S8–S10

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Case Report

PTMC in post-MV repair status

Lachikarathman Devegowda [a,*], *Prabhavathi Bhat* [b], *Cholenahally Nanjappa Manjunath* [c], *Prasanna Simha Mohan Rao* [d]

[a] *Cardiology Resident, Sri Jayadeva Institute of Cardiovascular Sciences and Research, Bangalore 560069, India*

[b] *Professor of Cardiology, Sri Jayadeva Institute of Cardiovascular Sciences and Research, Bangalore 560069, India*

[c] *Director, Professor and Head of the Department, Cardiology, Sri Jayadeva Institute of Cardiovascular Sciences and Research, India*

[d] *Professor of Cardiothoracic Surgery, Sri Jayadeva Institute of Cardiovascular Sciences and Research, Bangalore 560069, India*

ARTICLE INFO

Article history:
Received 17 December 2015
Accepted 7 March 2016
Available online 29 March 2016

Keywords:
Mitral balloon valvotomy
Post-MV repair
Mitral valvuloplasty
PTMC

ABSTRACT

MV repair in the rheumatic population is feasible with acceptable long-term results.[1] Incidence of mitral stenosis (MS) following mitral valve (MV) repair for severe rheumatic mitral regurgitation (MR) and usefulness of percutaneous transluminal mitral valvuloplasty (PTMC) in these patients is not described in literature. We report a case of successful PTMC in severe MS following MV repair for severe rheumatic MR.

1. Case report

19-year-old male, a known case of rheumatic heart disease for 7 years was diagnosed to have severe mitral regurgitation (MR) in 2008, when he was 12 years old. Patient had NYHA class III symptoms; hence he was taken for MV surgery. Intra-operative findings were suggestive of rheumatic etiology. He underwent mitral valve (MV) repair using indigenous annuloplasty ring with a geometrical area of 3.6 cm^2, which is equivalent to a 24 mm commercial ring and posterobasal chordal release. Post-operative echocardiography revealed grade I MR and no evidence of MS with MV mean gradient of 3 mmHg, MV orifice area (MVOA) of 2.6 cm^2.

In May 2015, after 7 years of MV repair, patient presented with history of extertional dyspnea and fatigue of three months duration. He was diagnosed to have severe mitral stenosis (MS). Echocardiography revealed commissural fusion with MVOA of 0.8 cm^2, mild MR and no significant subvalvar pathology or calcification of the valve (Figs. 1 and 2). In view of younger age of patient, poor physical growth and suitable morphology of MV for percutaneous transluminal mitral valvuloplasty (PTMC) with Boston score (Wilkins score) of 6, he was considered for PTMC. Same was discussed with thoracic surgeons. Heart teams opinion was to attempt PTMC so that MV replacement (MVR) may be delayed for few more years.

Through right femoral vein approach patient underwent PTMC with 26 mm Accura balloon inflated to 23 mm (Figs. 5–8). Procedure was successful with single inflation. Medial commissure was split and lateral commissure was partially split. MVOA increased from 0.8 to 1.65 cm^2, MV gradient decreased from 24/15 to 14/7 mmHg, mean left atrial pressure (LAP)

* *Corresponding author.*
E-mail address: lachikarathmand@yahoo.com (L. Devegowda).

http://dx.doi.org/10.1016/j.ihj.2016.03.008

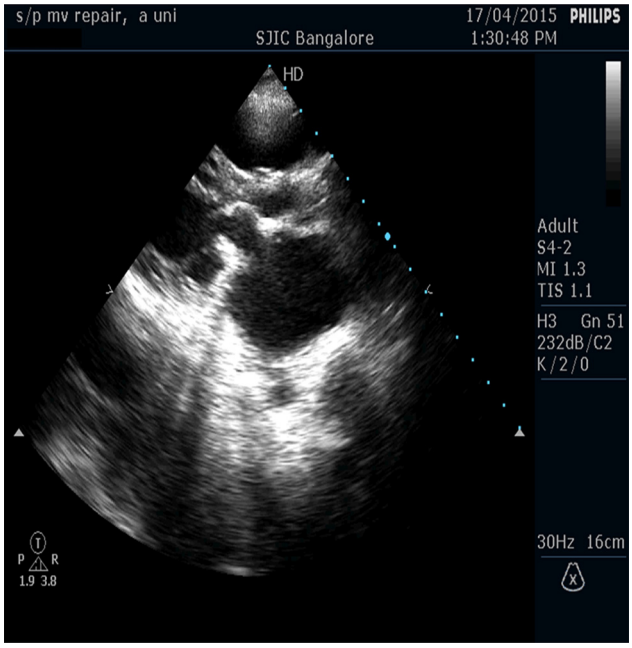

Fig. 1 – Pre-PTMC echo showing restricted mobility of mitral leaflets.

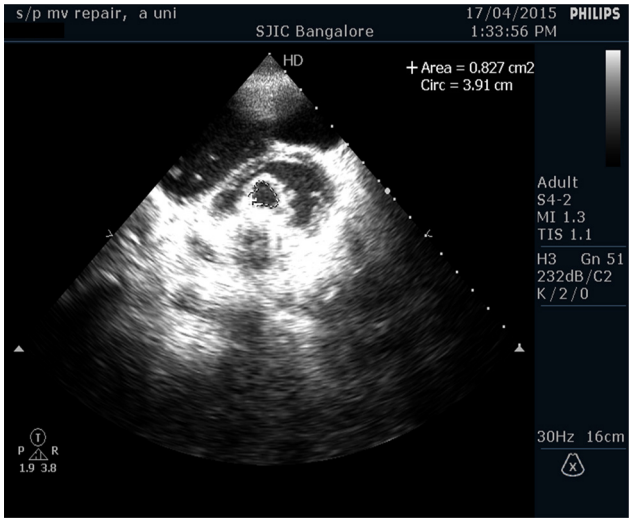

Fig. 2 – Pre-PTMC echo showing severe MS with MVOA-0.827 cm^2.

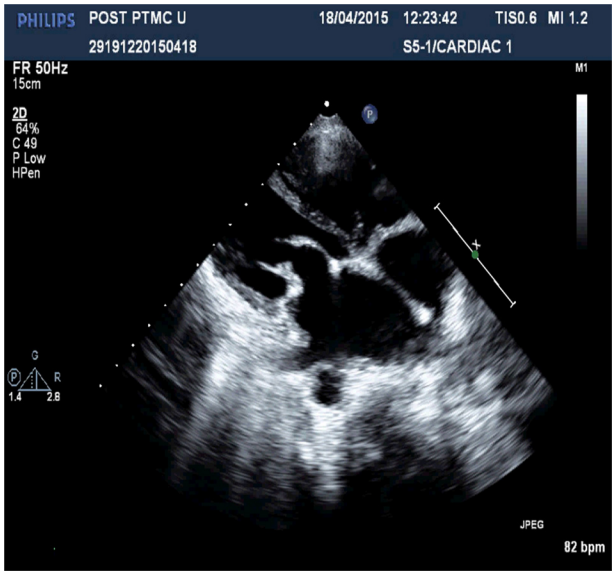

Fig. 3 – Showing good leaflet movement following successful PTMC.

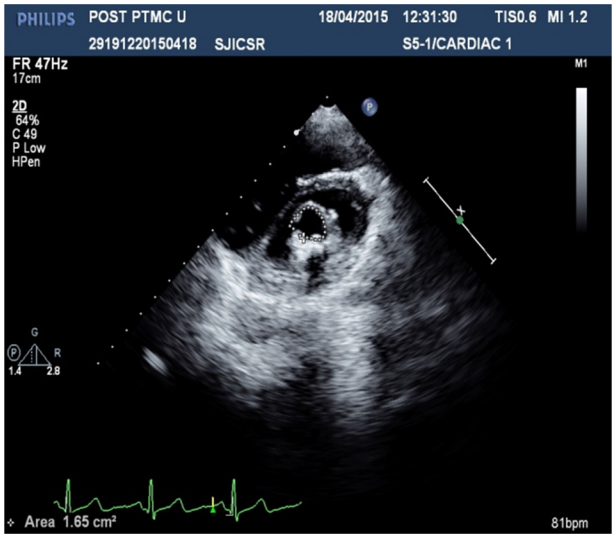

Fig. 4 – Showing MVOA of 1.65 cm^2 following PTMC.

decreased from 26 to 14 mmHg (Figs. 3 and 4, Table 1). There was significant reduction in PASP from 58 to 42 mmHg. There was no increase in MR. Procedure was uneventful.

2. Discussion

MV repair in rheumatic patients, using current techniques, can effectively correct hemodynamic and functional abnormalities with satisfactory results.[2]

In a study by Choudhary et al.[2] 718 patients with rheumatic severe MR underwent MV repair and three patients (0.4%) developed significant MS and all underwent reoperation.

Table 1 – Showing comparison of echocardiography and hemodynamic parameters before PTMC and after PTMC.

	Pre-PTMC	Post-PTMC
Mean LAP (mmHg)	26	14
Right ventricular systolic pressure (mmHg)	58	42
MVOA (cm^2)	0.8	1.65
MV Gradient (mmHg)	24/15	14/7
Commissures	Both fused	Medial split, lateral partially split
MR	Grade I	Grade I

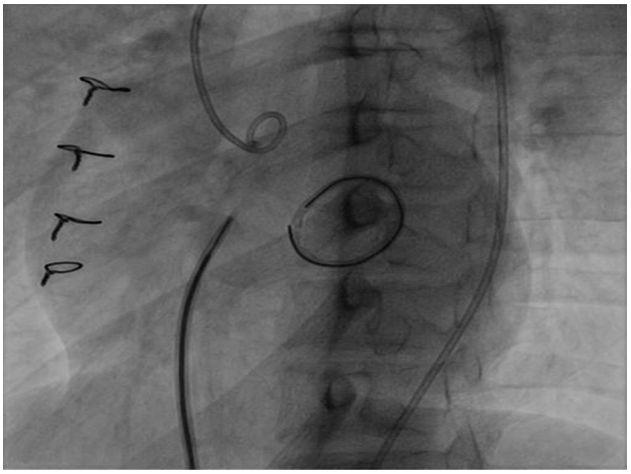

Fig. 5 – Fluoroscopic picture pre-septal puncture showing mitral annuloplasty ring.

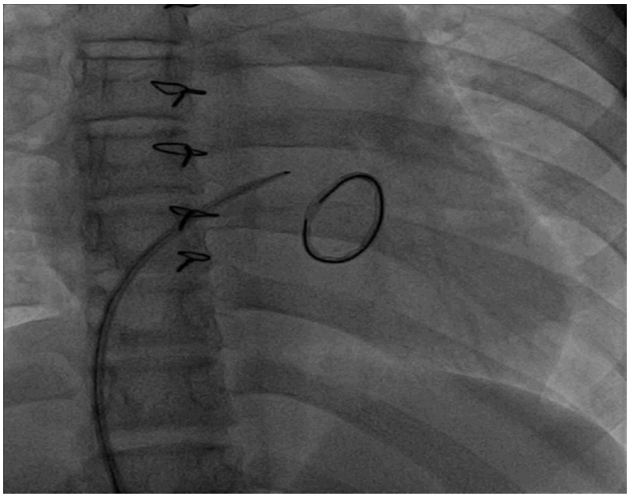

Fig. 6 – Fluoroscopic picture post-septal puncture showing mullin sheath in LA.

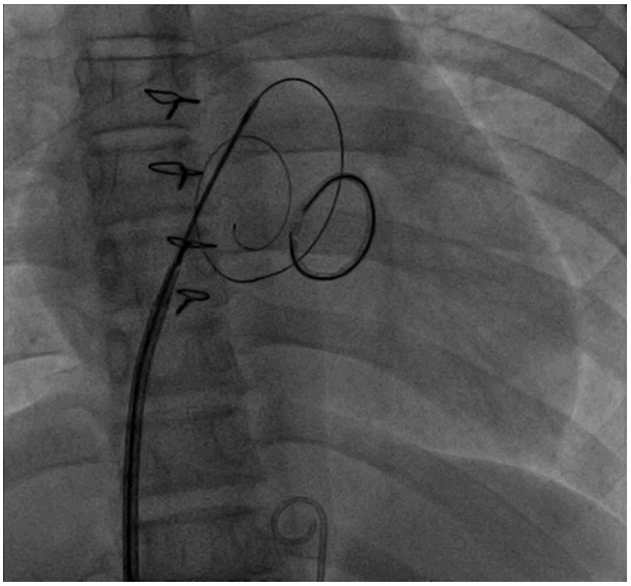

Fig. 7 – Fluoroscopic picture showing coiled guide wire in LA.

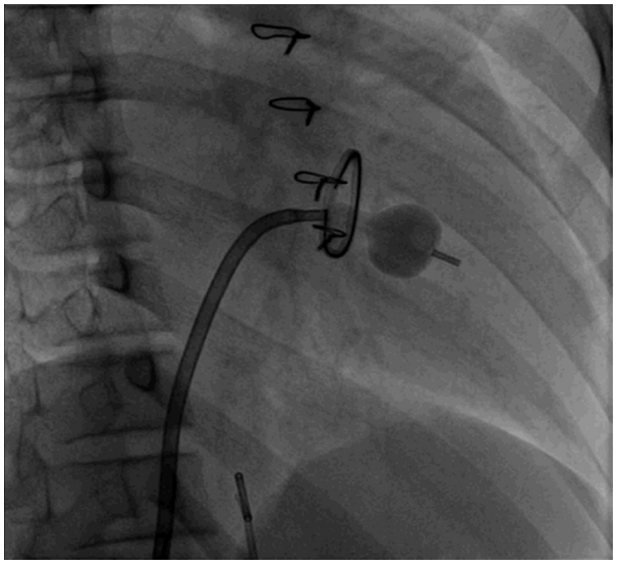

Fig. 8 – Fluoroscopic picture showing inflation of accura balloon across MV.

PTMC is the procedure of choice for the treatment of MS; surgical intervention is now reserved for patients, who are not candidates for a percutaneous procedure.[3]

Incidence of MS following MV repair for rheumatic MR is not known. There are no data available regarding treatment plan for these patients. To the best of our knowledge usefulness of PTMC for MS following MV repair for rheumatic MR is not available in the literature.

Hence we share our experience of feasibility and safety of PTMC in MS following MV repair for severe rheumatic MR.

3. Conclusion

In patients with suitable valve morphology PTMC can be done successfully in MS following MV repair for severe rheumatic MR. This may help to delay the need for MVR in younger patients.

Conflicts of interest

The authors have none to declare.

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