Reviewer's report

Title: Rare Early Prosthesis Obstruction after Mitral Valve Replacement: A Case Report and Literature Review

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Reviewer: Frank Edwin

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Major revisions

1. The authors describe prosthetic mitral valve obstruction secondary to pannus ingrowth occurring within three months of mitral valve replacement for mitral stenosis. The rarity value of the case lies in the etiology and time frame of occurrence of prosthetic valve obstruction and I expected the authors to build their discussion around that observation. The report however falls short of making a satisfactory argument as to why the patient developed this rare complication, let alone postulate a means of avoiding possible recurrence. I would prefer the authors to look further into that.

2. I would question the authors' suggestion that "the history of severe rheumatic disease, small mitral annulus and implanted SJM prosthesis in this female patient may have prompted acute pannus formation". There are many patients who would qualify for acute pannus formation under these circumstances; the rarity of their reported case itself casts doubt on that supposition. Can the authors offer more evidence in support of it?

3. Can the authors describe their postoperative anti-coagulation protocol following mechanical valve replacement? It is generally understood that prosthetic valve obstruction occurs according to the interplay between prosthesis thrombogenicity and adequacy of anticoagulation. In the early postoperative phase, thrombogenic suture rings can contribute to thrombus formation around the prosthetic valve ring, promoting inflammatory processes that facilitate pannus ingrowth. Pannus ingrowth when it occurs, is usually in the late postoperative period. However, early cases have been reported. Cleveland et al [Ann Thorac Surg 1982;33:496-498] reported a case in whom pannus ingrowth occurred 20 days after mechanical aortic valve implantation. In the present case, pannus ingrowth occurred 3 months after mitral valve replacement. The predisposing factors for such excessive fibrous tissue ingrowth are not clearly defined. One must wonder about the possible role of inadequate anticoagulation in the early postoperative period in such cases. It is important to be clear in such a case that inadequate anticoagulation has not played a significant role in the genesis of pannus ingrowth. This has obvious implications for the postoperative management following reoperation.

4. For mechanical mitral valve prostheses, I would imagine that an INR of 2
constitutes a low-intensity anticoagulation: we prefer to anticoagulate patients with mitral prostheses to an INR of 2.5-3.5, up-scaling the target INR by 0.5 if there is atrial fibrillation or LV dilatation. At that degree of anticoagulation, prosthetic valve obstruction (4 from thrombus, 1 from pannus) occurred at 0.56% per patient-year in 114 patients followed over 15 years [reference: Journal of Cardiothoracic Surgery 2011, 6:57; doi:10.1186/1749-8090-6-57]. It would be interesting to know the authors' opinion on increasing the target INR for this particular patient.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Declaration of competing interests:**

I declare that I have no competing interests