

EDITORIAL

# What Can We Expect From MitraClip After Failed Surgical Mitral Repair?

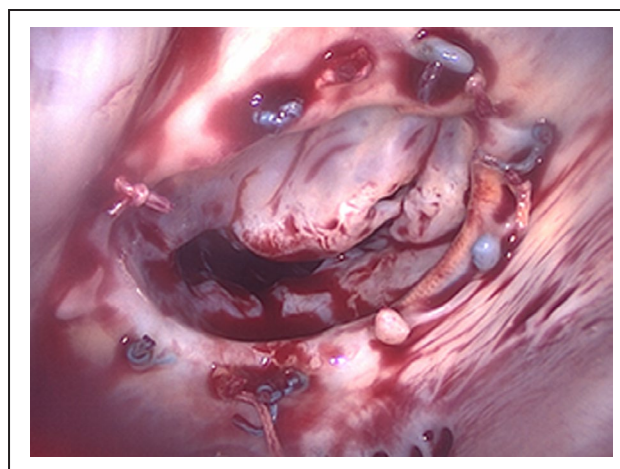
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In this issue of the *Journal of the American Heart Association (JAHA)*, Rahhab et al<sup>1</sup> present a multi-institutional series of 104 patients undergoing placement of MitraClip after failed surgical mitral valve repair (SMVR). The authors conclude that MitraClip is a safe and less invasive treatment option for patients with recurrent mitral regurgitation after failed SMVR.

**See Article by Rahhab et al.**

To my knowledge, this may be largest series to date of MitraClip after SMVR.<sup>2</sup> The authors provide evidence of good initial procedural and device success along with good procedural safety. The resultant mitral regurgitation was acceptable up to 6 months follow-up. Technical issues related to sonographic masking from the surgical ring were addressed with additional or modified views along with intracardiac echocardiography. The alternative imaging techniques shortened procedure time.

While the early results are good, time will be needed to demonstrate the durability of this alternative technique. Valves that fail surgical repair inherently tend to have a higher likelihood of replacement than repair after prior operation.<sup>3</sup> Valves that have already failed have been selected to have a greater degree of underlying leaflet disease, in addition to potential postoperative changes such as pannus overgrowth (Figure 1). Mitral replacement has the advantage of more predictable durability but the disadvantage of either lifelong warfarin anticoagulation versus the predictably limited life of a bioprosthesis. There is little doubt that morbidity and mortality will be less with the MitraClip approach in



**Figure 1. A typical valve with recurrent mitral regurgitation after surgical repair.**

Not the extensive leaflet fibrosis and leaflet contraction with pannus formation.

patients at high risk as opposed to surgical reoperation (Figure 2, left).

In patients with failed SMVR, surgical reoperation remains an option for patients not at high risk. The authors failed to mention that the mini-thoracotomy approach to mitral reoperation can have a mortality rate of 0% to 7% in some series<sup>4,5</sup> as opposed to 11% in the quoted series of Mehaffey for redo sternotomy.<sup>6</sup> Surgical reoperation for failed SMVR usually results in mitral replacement. In the Duke series of 139 right mini-thoracotomies for mitral disease after prior mitral repair, mortality was 3 of 139 (2%), and mitral replacement was

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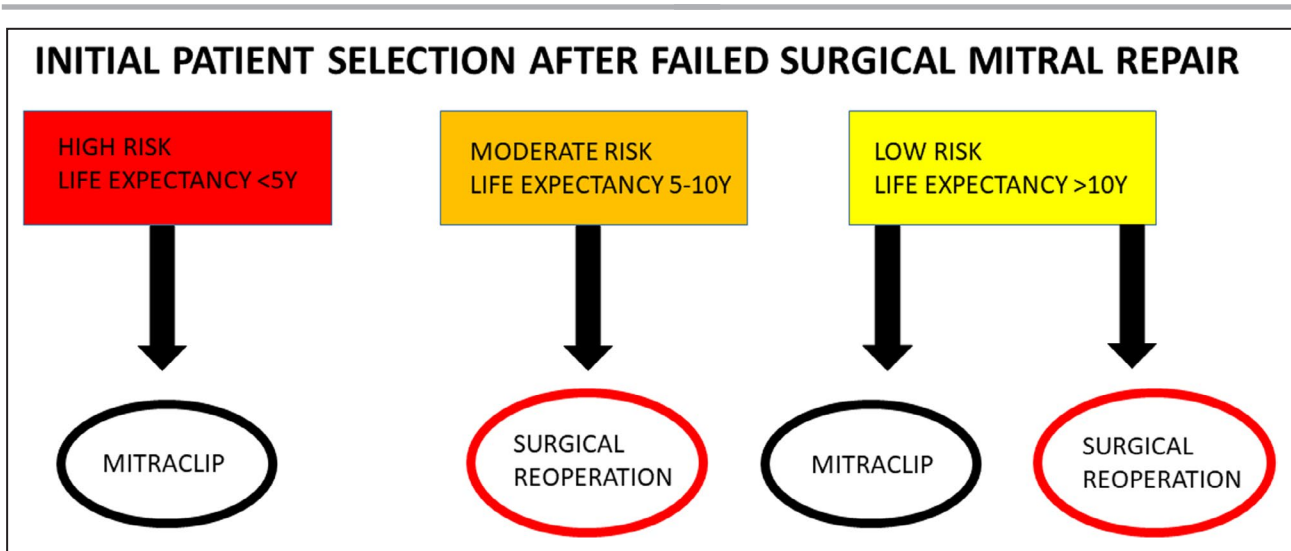
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**Figure 2.** Potential patient selection for MitraClip vs surgical reoperation after failed surgical mitral valve repair, barring anatomic contraindications to MitraClip.

done in 129 of 139 (93%) (D. Glower, MD unpublished data, 2021). Referral of patients at low-intermediate risk for MitraClip instead of surgical reoperation probably doesn't burn any bridges in most patients and might eliminate or delay reoperation by several years (Figure 2, right). However, the danger might be that Mitraclip could delay some healthy 70-year-olds until they are too high risk for *any* surgical or transcatheter options. Thus, some healthy 70-year-olds might do better with a durable surgical mitral replacement than a palliative MitraClip after failed SMVR (Figure 2, middle).

Mitral stenosis remains a relative contraindication to MitraClip, even after SMVR. Dr. Alfieri has great experience with the edge-to-edge technique essential to MitraClip, and Dr. Alfieri has generally applied the edge-to-edge technique in mitral annuloplasty rings sized at least 30 mm.<sup>7</sup> This advice needs to be tempered by considerations such as whether the edge-to-edge technique or MitraClip is applied centrally, at the commissures, or somewhere in between. Similarly, complete rigid rings may be more stenotic than partial flexible bands of the same nominal size. In this series, 41% of ring sizes were  $\leq 30$  mm, and the resultant gradient was 4.7 mm Hg. The authors quote unfavorable outcomes with gradients of  $\geq 5$  mm Hg after MitraClip. However, mechanical mitral replacement with a 25-mm prosthesis is associated with symptomatic improvement despite a mean mitral around  $6 \pm 2$  mm Hg in most series.<sup>8</sup> The difference may be that surgical mitral replacement prostheses have a limited likelihood for early restenosis, whereas the native valve tissue in MitraClip or surgical repair will always have some tendency to restenose.

These data do suggest that, in the short-term, transcatheter MitraClip is a potential alternative to surgical

reoperation in selected patients with failed surgical mitral repair. More follow-up will be needed to assess the durability of this option. One should not expect durability comparable with unoperated valves. Imaging refinements suggested by Van Mieghem et al<sup>1</sup> are likely to improve the success rate of MitraClip, but transcatheter MitraClip after failed SMVR will not be an option for all patients. Patients with moderate mitral stenosis or other valve pathology like a short or frozen posterior leaflet may still need mitral replacement via surgical or transcatheter means.

## ARTICLE INFORMATION

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