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Commentary: Adding endovascular techniques to the surgical toolbox

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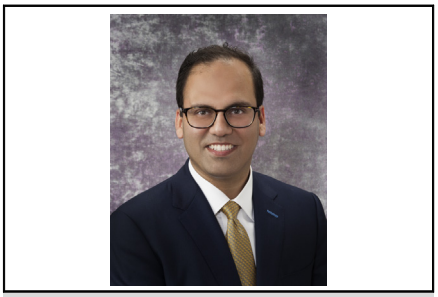

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CENTRAL MESSAGE

Concomitant valve in valve transcatheter mitral valve replacement and exclusion of LV pseudoaneurysm is a reasonable option in extreme-risk patients with favorable anatomy.

Left ventricular (LV) pseudoaneurysms (PSAs) are a rare, but potentially devastating, complication that typically occurs following a myocardial infarction, or less commonly in an iatrogenic setting. If left untreated, LV PSAs have a poor prognosis. In this issue of the *Journal*, Dershowitz and colleagues[1] present an endovascular approach for managing a failed bioprosthetic mitral valve and an LV PSA. The authors present a successful case of concomitant valve-in-valve transcatheter mitral valve replacement (TMVR) and an LV apical PSA closure. The authors ought to be congratulated for the favorable short-term outcome in this extreme-risk surgical candidate who may not have been a candidate for open surgery. An alternate approach that may merit consideration would have been transapical access for TMVR using the PSA as an access site and surgical closure after deployment of TMVR. While this may be slightly challenging depending on the patient's anatomy, it can ensure coaxial deployment of the TMVR and surgical closure of the PSA.[2] The valve-in-valve approach, and its implications, deserve careful consideration. The patient underwent implantation of the smallest-available bioprostheses at the index operation, which makes this and future transcatheter options limited. The very fact that the mitral bioprosthesis degenerated within 4 years is a reminder for us that history may very likely repeat itself with an even smaller mitral bioprosthesis in place. Moreover, patient prosthesis mismatch with both bioprostheses would be a legitimate concern in this patient.

Reoperative surgery for the mitral valve comes with a high predicted risk of morbidity and mortality, specifically an 8% risk of mortality from the Society of Thoracic Surgeons database.[3] A fifth of the patients in the report had a Society of Thoracic Surgeons predicted risk of mortality greater than 10%. With an operative mortality of 6.6%, the outcomes were clearly acceptable in this high-risk cohort. More importantly, for patients undergoing elective reoperative mitral valve surgery in the setting of a previous mitral prosthesis, the operative mortality was 3.4%. These data are encouraging when considering reoperative mitral surgery in high-risk patients. Having said that, most of these factors are relevant, assuming a near-normal life expectancy for this patient, which may not be the case because of her significant comorbidities. In a patient who would otherwise be a reasonable surgical candidate, open surgery would be the ideal approach. The authors do present favorable echocardiographic data for the mitral bioprosthesis as well as radiographic evidence of the exclusion of the apical PSA at 1-month postprocedure, which is encouraging. Finally, caution should be exercised in generalizing the possibility of endovascular repair to all cases of PSA. Apical pseudoaneurysms are more amenable to transcatheter repair, given reduced risk for complications related to adjacent coronary or valvular structures. Larger PSA or posterior PSA without a narrow risk are greater risk and may be challenging to exclude with an endovascular

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approach.[4] The case described by Dershowitz and colleagues represents the kind of innovation that seeks to provide maximal benefit to even the greatest-risk patients with life-threatening cardiovascular pathology.

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