Totally endoscopic, robotic-assisted redo mitral valve re-repair

Andrea Amabile, MD,[a] Makoto Mori, MD, PhD,[a] Michael LaLonde, MHA, PA-C,[a] Markus Krane, MD,[b] and Arnar Geirsson, MD,[a] New Haven, Conn, and Munich, Germany

From the [a]Division of Cardiac Surgery, Department of Surgery, Yale School of Medicine, New Haven, Conn; and [b]Department of Cardiovascular Surgery, Institute Insure, German Heart Center Munich, Technical University of Munich, Munich, Germany.

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Address for reprints: Arnar Geirsson, MD, Division of Cardiac Surgery, Yale School of Medicine, 330 Cedar St, Boardsman 204, New Haven, CT 06250 (E-mail: arnar.geirsson@columbia.edu).

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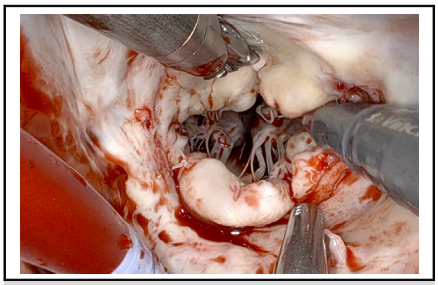


Intraoperative view of a failed prior mitral valve repair.

CENTRAL MESSAGE

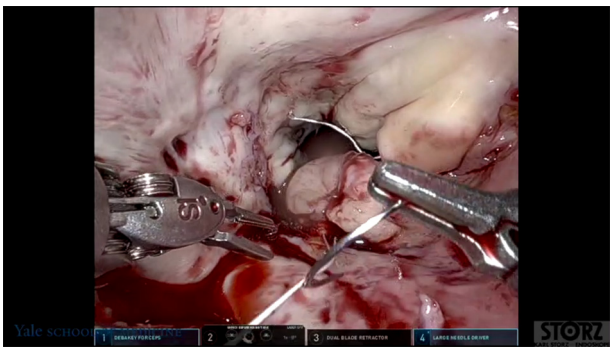
This case video highlights technical details of totally endoscopic, robotic-assisted redo mitral valve re-repair.

Video clip is available online.

CASE VIDEO

Long-term freedom from recurrent mitral regurgitation following mitral valve repair exceeds 90% in experienced hands.[1] However, mitral re-repair is successfully achieved only in a small proportion of these patients.[2] Furthermore, prior cardiothoracic surgery is often considered a relative contraindication to offering a minimally invasive approach for redo mitral valve surgery. We have previously reported that the utilization of the surgical robotic platform allows for an effective adhesiolysis, owing enhanced dexterity as well as magnified visualization.[3] We report the case of a 66-year-old woman with history of paroxysmal atrial fibrillation and degenerative mitral regurgitation who underwent totally endoscopic, robotic-assisted mitral valve repair (P2 neochordoplasty and annuloplasty with a 36-mm SimuForm band) (institutional review board No. 2000032417; March 4, 2023; informed written consent for publication of study data was obtained).

Approximately 1 year later, the patient developed dyspnea on exertion and increased fatigue, and transesophageal echocardiogram revealed severe mitral regurgitation. We offered a totally endoscopic, robotic-assisted approach for redo mitral valve repair. After induction of general anesthesia, femoral percutaneous cannulation was performed[4] and robotic ports were placed in our standard fashion.[5] After careful intrathoracic adhesiolysis,[3] aortic endoclamping was achieved using the IntraClude intra-aortic occlusion device (Edwards Lifesciences), and the Waterston's groove was accessed. As shown in Video 1, the posterior leaflet was prolapsing in area of previously placed CV-4 GoreTex (W.L.



VIDEO 1. Narrated case video. Video available at: https://www.jtcvs.org/article/S2666-2507(23)00396-6/fulltext.

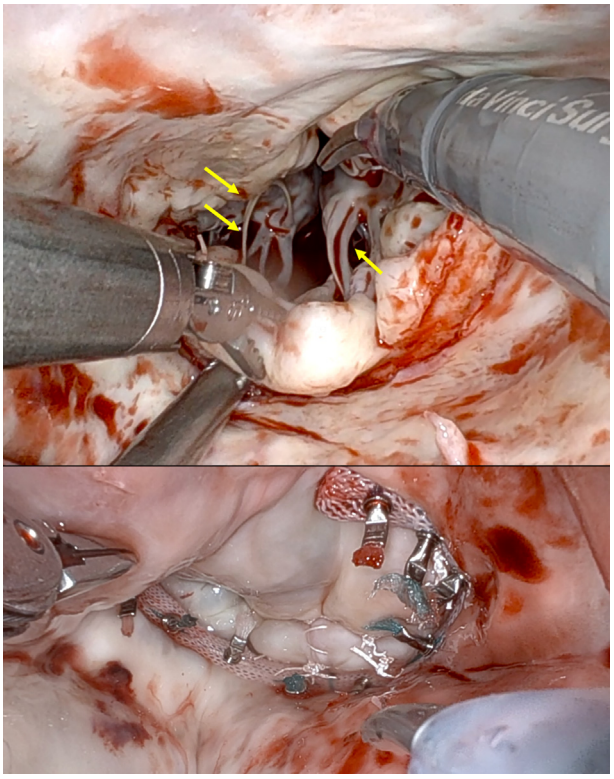


FIGURE 1. Intraoperative view of the mitral valve, before (*top*) and after (*bottom*) re-repair. Elongated chordae are marked with *arrows*.

Gore & Associates) neochords (Figure 1). We opted to re-repair the valve by performing quadrangular resection of P2 (interrupted figure-of-8 sutures) with sliding plasty, P1/P2 and P2/P3 clefts closure, P3/A3 commissural plication, and release of secondary chordae to A1. The repair was then completed with an annuloplasty using a 32-mm Physio Flex Annuloplasty Ring (Edwards Lifesciences) (Figure 1). The patient was extubated shortly after the procedure and had an unremarkable postoperative course, with trace mitral regurgitation and mitral gradient of 3 mm Hg at discharge.

In experienced hands, a totally endoscopic, robotic-assisted mitral valve re-repair is achievable with favorable outcomes in patients with recurrent mitral regurgitation in the setting of prior robotic mitral valve repair.

Conflict of Interest Statement

Dr Amabile receives consulting fees from JOMDD/Sanamedi. Mr LaLonde receives consulting fees from Edwards Lifesciences and Intuitive Surgical. Dr Geirsson receives consulting fees for being a member of the Medtronic Strategic Surgical Advisory Board and from Edwards Lifesciences. Dr Krane is a physician proctor and a member of the medical advisory board for JOMDD/Sanamedi, a physician proctor for Peter Duschek, a consultant for EVOTEC and Moderna, and receives speakers' honoraria from Medtronic and Terumo. Dr Mori reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

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