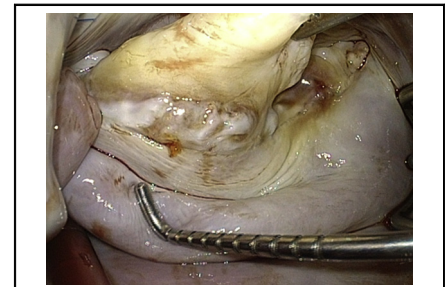


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Commentary: Pushing the boundaries? Robot-assisted excision of mitral annular calcification

Anelechi C. Anyanwu, MD, Aarti Patil, MD, and David H. Adams, MD



Posterior mitral annular calcification—ignore or resect?

CENTRAL MESSAGE

Robotic excision of mitral annular calcification can be done by highly skilled surgical teams but is associated with increased morbidity. The everyday surgeon should consider simpler alternatives.

Robotic mitral valve repair and radical resection of mitral annular calcification (MAC) independently require a high degree of technical skill. Loulmet and colleagues¹ describe a remarkable series of 64 patients undergoing robotic mitral valve repair and concurrent resection of MAC. The authors are to be applauded for this work. It goes without saying that theirs is an exceptionally skilled team in both robotic surgery and mitral valve surgery to reproducibly perform such complex surgery. This series demonstrates that this is an operation that can be done by a dedicated and highly advanced robotic surgical team. However, for the reader, the question these data pose is should it be done? Most surgeons have never performed a radical excision of MAC, and most surgeons do not perform mitral valve surgery with a robot. Should we now all learn how to (1) perform extensive resection of MAC, (2) do robotic mitral valve repair, and then (3) perform extensive resection of MAC with a robot? Is the authors' conclusion "Successful en-bloc resection and complex reconstruction, utilizing a variety of techniques, can be consistently achieved with a robotic approach" generalizable to other centers? If others embarked on this procedure, would similar results be achieved "consistently"? It must be noted that there are no other large series of robotic excision of MAC from other

centers. Indeed, extensive MAC has generally been considered a contraindication to the robotic approach.²

Despite the authors' impressive 97% repair rate, robotic MAC resection did come at a price of incremental morbidity and risk. For example, authors reported greater rates of conversion to sternotomy (4.7% vs 0.4%), return to operating room (7.8% vs 1.8%), repeat mitral reintervention (4.7% vs 0.4%), and 30-day mortality (3.1% vs 0.2%) compared with patients who underwent robotic surgery without MAC excision. Although the 2 groups may not be directly comparable, at least some complications may be explainable by the addition of MAC excision. In young or asymptomatic patients with MAC undergoing mitral valve repair, these incremental morbidity rates will challenge the benefits of early surgery. The question, therefore, arises as to the outcomes these patients would experience with alternative techniques. Loulmet and coworkers¹ did not evaluate other approaches of MAC management, so we do not know what their outcomes would have been for patients treated with less-radical approaches. We have favored a more conservative "respect" approach to MAC³ and with that have experienced very low morbidity and mortality.⁴

Globally, patients undergoing robotic mitral valve surgery remain a highly selected patient population. Older patients, those with advanced disease, complex valve

From the Department of Cardiovascular Surgery, Icahn School of Medicine at Mount Sinai, New York, NY.

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Address for reprints: Anelechi C. Anyanwu, MD, Department of Cardiovascular Surgery, Icahn School of Medicine at Mount Sinai, 1190 Fifth Ave, GP2W, Box 1028, New York, NY 10029 (E-mail: anelechi.anyanwu@mountsinai.org).

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pathology, and those with more comorbidity are more likely to be referred and/or accepted for sternotomy compared with the robotic approach. Patients with MAC are, no doubt, complex, so what would be the expected benefit of the robotic over sternotomy approach in such cases? How do we counsel the patients? It is worth mentioning that there have been no consistently demonstrable benefits of robotic mitral valve repair in standard cases, other than better cosmesis, and possibly quicker early recovery. There is certainly no evidence that robotic repairs are superior to sternotomy in terms of safety, effectiveness, or durability—indeed, there may be indirect pointers that the opposite may be the case. These are important considerations, as the greater the risk and complexity of a procedure, the more that safety and effectiveness, as opposed to cosmesis and short-term recovery, should be the driving factors in choice of procedure. At least in majority of surgeons' hands (including most robotic surgeons), the sternotomy should,

therefore, remain the default for the patient with MAC. This is truly a remarkable series demonstrating advanced surgical management by a highly focused 2-surgeon team working together on every case. Do watch the video and marvel at a demonstration that tests the extremes of technology, surgical skill, and surgical courage—but please don't try this one at home!

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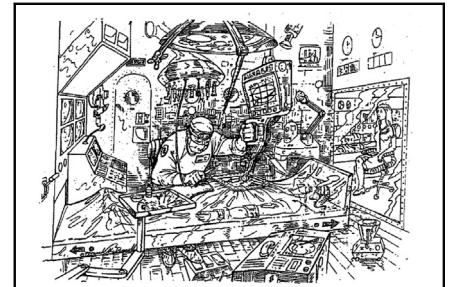
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Commentary: Lessons from 1000 robotic mitral repairs

Joanna Chikwe, MD, FRCS, Alfredo Trento, MD, Wen Cheng, MD, Dominic Emerson, MD, and Danny Ramzy, MD

In their analysis of 500 patients who underwent robotic mitral repair between 2011 and 2017, Loulmet and colleagues¹ encountered significant mitral annular calcification (MAC) in 54 patients (12%), which they addressed,



Robotic mitral valve repair as illustrated by Alain Carpentier.

CENTRAL MESSAGE

Robotic mitral repair is reproducible, safe, and effective, but requires great care when navigating the learning curve.

From the Department of Cardiac Surgery, Smidt Heart Institute, Cedars-Sinai Medical Center, Los Angeles, Calif.

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Address for reprints: Joanna Chikwe, MD, FRCS, Department of Cardiac Surgery, Smidt Heart Institute, Cedars-Sinai Medical Center, 8700 Beverly Boulevard, Beverly Hills, Los Angeles, CA 90048 (E-mail: Joanna.chikwe@cshs.org).

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largely successfully, with an aggressive strategy involving resections that necessitated atrioventricular groove repair in one-third of cases. Their findings demonstrate that MAC is common in patients with degenerative mitral regurgitation, significantly increases operative risk, and that