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## Commentary: Radical root resection for prosthetic valve endocarditis

Clancy W. Mullan, MD, Arnar Geirsson, MD, and Roland Assi, MD, MMS

Double-valve endocarditis involving the aortic and mitral valves represents one of the most formidable challenges in cardiac surgery, with outcomes limited to descriptions at the institutional level, notable for in-hospital mortality in the range of 9% to 32%.<sup>1</sup> Data on double prosthetic valve endocarditis remain even more sparse, and virtually no information exists on root replacements with a Commando operation. In this edition of the *Journal*, Aphram and colleagues present their approach to radical resection and reconstruction of the aortic root, aortomitral continuity, and both valves in a challenging case of double prosthetic valve endocarditis.<sup>2</sup>

This degree of aggressive resection followed by equally extensive reconstruction is certainly appealing in its likelihood of source control during the operation; however, as a technical report, information on complications of this approach is needed for the community to gauge its effectiveness and safety. Extrapolating from some of the largest cohorts of aortic root replacement for endocarditis, prosthetic valve endocarditis, and Commando operations, one could anticipate an operative mortality of at least 10% to 15%, pacemaker requirements of at least 15% to 20%, and prolonged ventilation in a majority of patients.<sup>1,3,4</sup> While potentially high reward, this surgical endeavor certainly is high risk, and patients and their families should be appropriately counseled.

The current American Association for Thoracic Surgery guidelines for the management of endocarditis include a class I recommendation for a multidisciplinary approach to



Clancy W. Mullan, MD (left), Arnar Geirsson, MD (center), Roland Assi, MD, MMS (right)

### CENTRAL MESSAGE

Aphram and colleagues present an excellent how-to for their approach to aortic-mitral double prosthetic valve infective endocarditis with root and aortomitral continuity involvement.

endocarditis on top of a class I recommendation for cardiac surgical teams with “mastery of the necessary reconstructive procedures.”<sup>5</sup> As described, these multidisciplinary teams should include infectious disease, cardiology, and cardiac surgery with access to any medical or surgical subspecialty that could be required to provide complete care of the infected patient, including, for example, nephrology, neurology, vascular surgery, neurosurgery, and addiction medicine. Needless to say, one can expect these to be resource-intensive patients. As the authors dutifully highlight, their operation was performed at a center with decades of experience in managing these complex patients, consistent with the aforementioned guidelines.

In our experience, the pool of patients requiring redo aortic root operations after 1 or more previous valve operations is expanding. This is in part because of the ongoing opioid crisis in North America, as well as the aging population with degenerating bioprosthetic valves. We agree with the authors that a clean radical operation is necessary. However, even after the most radical operations, outcomes are hindered by the underlying cardiomyopathy, severe comorbidities such as renal and hepatic failure, and disease recurrence in the case of illicit drug use relapse.

Despite its name, “The Commando,” being borrowed from otolaryngology, the title for this harrowing operation is apt when one considers its militaristic origin. The primary objective in the surgical management of this complex and morbid condition is to achieve source control, restore function, and get the patient through the hospitalization alive. Aphram and colleagues should be congratulated for their excellent depiction and masterful handling of an incredibly challenging problem.

From the Division of Cardiac Surgery, Department of Surgery, Yale School of Medicine, New Haven, Conn.

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Address for reprints: Roland Assi, MD, MMS, 330 Cedar St, Boardman 204, New Haven, CT 06519 (E-mail: [roland.assi@yale.edu](mailto:roland.assi@yale.edu)).

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