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Commentary: Even simplified, it is still a commando operation

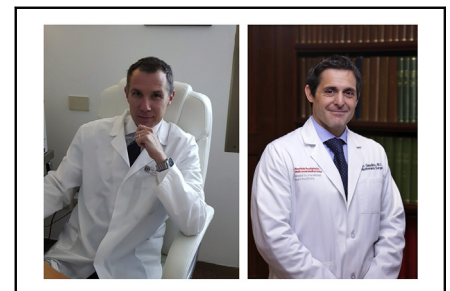
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The inner scaffolding of the heart, known as the fibrous skeleton, is the structure that surgeons rely on to provide good anchoring when performing surgery on valves. The intervalvular fibrosa (IVF) is the fibrous structure between the lateral and medial fibrous trigones that connects the base of the anterior mitral leaflet to the aortic annulus and aortic valve. Toward the aorta, the IVF connects to the noncoronary cusp on the right and to the left coronary cusp on the left, with the left coronary–noncoronary commissure in the middle, and posteriorly, the dome of the left atrium is attached to the IVF.

Destruction of the IVF typically occurs in infective endocarditis, owing to enzymatic degradation with a preference for connective tissue. To make things more difficult for both the patient and the surgeon, it usually occurs when prosthetic valves in the mitral and/or aortic positions are infected.

Up until the 1990s, this condition was considered inoperable, until radical debridement of infected tissue and foreign material, including all or part of the IVF, was attempted. Radical debridement followed by reconstruction of the IVF was first published by David and colleagues in 1997.¹ This procedure proved so technically challenging that it was nicknamed the “commando operation.”

Today, as patients presenting for surgery are becoming older and sicker, reconstruction of the IVF also may be required in patients without infective endocarditis with severe degenerative calcification or in those who have undergone previous valve operations and do not have adequate



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CENTRAL MESSAGE

Disruption of the fibrous skeleton, usually due to infective endocarditis, remains a challenging situation. Recently, simplifications of the original commando procedures have been proposed.

residual tissue to which to secure the new prosthesis. In this setting, IVF procedures are an option, allowing enlargement of both the mitral and aortic annuli for implanting larger prostheses.¹⁻⁵

Although the results of this heroic surgery have improved over the years, the operative risk remains considerable, with operative mortality ranging from 6.7% to 32% and a 1-year mortality as high as 52%.⁶ Recent efforts have been made to simplify the operation by using prostheses that incorporate extra tissue to aid suture anchoring instead of cryopreserved homografts and by providing less extensive access to the cardiac chambers.^{7,8}

In this issue of the *Journal*, Elde and coauthors⁹ propose an interesting iteration of both approaches, and the results seem promising. In their approach, both valves were replaced via an aortotomy without the need to open the dome of the left atrium, the aortic bioprosthetic valve was sewn into an hemashield graft, and the aortic valve sewing ring was secured to the remaining left ventricular outflow tract and to the sewing ring of the mitral bioprosthesis.

Although this approach remains a procedure requiring full mastery of structural heart valve reconstructive surgery, the path to its wider practicability is clear.

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