very attractive. In this respect, extreme care should be taken to avoid dissecting the adventitia from the aortic surface in reoperative procedures.

To our knowledge, this is the largest series reporting results on ED technique showing that ED intervention can be performed successfully and safely. ED use can complete the alternative strategies of cannulation and perfusion for MIMVS, avoiding the limitations and the morbidity of a peripheral approach. Despite the fact that the production of this cannula has been suspended for regulatory reasons, our experience underlines that it is definitely a useful and safe tool that allows us to extend MIMVS also to this subgroup of high-risk patients.

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EDITORIAL COMMENTARY

Combining cannula and crossclamp: Not a “Cannulo-Matic,” but a versatile technique in the cardiac toolbox

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See related article on pages 1669-72.

In their surgical technique article in this issue of the *Journal*, Barbero and colleagues¹ report their institutional experience with an alternative aortic cannulation strategy for minimally invasive mitral valve surgery. The technique uses a specifically designed ascending aortic cannula (EndoDirect; Edwards Lifesciences Corporation, Irvine, Calif) that has a side limb enabling delivery of a balloon-tip catheter. The autoincising cannula obturator has a retractable knife tip that combines the process of puncturing the aortic wall

and delivering the cannula through the purse-strings. The catheter paired with this cannula permits proximal endoballoon occlusion of the aorta, either delivery of antegrade cardioplegia or venting, and monitoring of root pressure. This is all accomplished while still allowing distal antegrade aortic flow from the cannula. In summary, this cannula system eliminates the need for external aortic crossclamping and placement of a cardioplegia or vent needle while also decreasing the risk of morbidity from peripheral cannulation in high-risk patients.

Although these features may provide minimal additional benefit for the standard sternotomy approach to the heart, they are very useful for minimally invasive right chest approaches for mitral valve operations. As we have become more sophisticated in identifying those subsets of patients for whom we should not use retrograde perfusion, this may become the go-to technique for the minimalist approach when we desire antegrade perfusion. Barbero and colleagues present their experience and excellent results when routinely applying this technique to these patients.

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We would suggest another scenario in which we might consider the use of this device: sternotomy approach for reoperative mitral valve procedures with patent grafts. In approaching this clinical situation, all that the surgeon has to do is expose enough space on the aorta at the base of the innominate artery for this EndoDirect cannula placement. This placement eliminates the risks of damaging grafts, the pulmonary artery, and nearby internal thoracic

arteries when mobilizing the aorta for a traditional external crossclamp approach.

Cannulo-Matic? No, but useful to have around.

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