Commentary: To wrap or not to wrap—Have we now come full circle?

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Central Message

The use of a modified Cabrol shunt in all patients may completely eliminate postoperative bleeding complications and improve outcomes in patients undergoing repair of type A aortic dissections.

See Article page 1307.

Aortic dissection: The term strikes terror into the hearts of many outside our specialty, with whispered mortalities of 1% to 2%/hour or 15% to 18% mortality at surgery. The development of surgical approaches to the management of aortic dissection has in many ways closely followed that of surgery of the aortic root: Early efforts were plagued with excessive bleeding, and not until the inclusion technique reported by Bentall and DeBono¹ were outcomes more universally successful. The “button” described by Kouchoukos and colleagues² alleviated the major complication associated with the inclusion technique (pseudoaneurysm formation), allowed complete replacement of the root and ascending aorta, and made treating these patients more routine with acceptable outcomes. Nonetheless, complications of the repairs remain confounding. Among the most humbling of these complications is bleeding, which has been reported in as many as 28% of selected patient subsets. In this issue of the *Journal*, Zhang and colleagues³ report on their experience with a modified Cabrol fistula that reduces this figure to 0%.

The Cabrol fistula (or shunt) is a periaorta-to-right atrial fistula created to direct any bleeding from the repair into the right atrium, thereby both preventing tamponade and diminishing the operative duration. First described in 1986,⁴ the technique has undergone many modifications, all of which require obliteration of any egress points (eg, transverse sinus) from which free blood might escape into the pericardium. Creation of this closed space is difficult in the virgin pericardium once the aortic repair has been effected, but Zhang and colleagues³ avoid this difficulty by creating the posterior closure before undertaking the aortic repair, whether primarily or with a piece of bovine pericardium. After completion of the aortic repair and control of any major (spurting) bleeding, the periaortic “sac” is completed by suturing another piece of bovine pericardium over the anterior structures. Before completion of the repair, a small defect is created in the right atrium or medial superior vena cava, and the anterior baffle is completed.

Direct comparison of shunt and nonshunt groups was undertaken: Group sizes and characteristics were essentially identical, and all surgeries were performed by the same surgeon. Interestingly, the decision to shunt or not to shunt was made by a second surgeon; Zhang and colleagues³ do not elaborate as to why. Comparison of the 2 groups’ outcomes demonstrated statistically significant improvements in chest tube drainage, reexploration for bleeding, blood transfusions, intensive care unit stay, and dialysis need. A trend toward decreased length of ventilator support was seen but did not reach significance. A metric labeled “chest closure time” was also significantly decreased, although the term is not defined. Zhang and colleagues³ note that closure of the transverse sinus only requires 1 to 2 minutes, although time to create the completed fistula was not studied. In addition, no episodes of postoperative heart failure from shunt flow were seen, and all fistulas spontaneously closed although the methods used to determine this are not specified.

The potential to offer a type A dissection repair without any risk of reexploration for bleeding is enticing, although one questions whether the need to add a supplemental procedure for all patients is justified. Despite the historical reports of high “take-back” rates,⁵⁻⁷ with meticulous care and precise technique, reoperative rates of 2% to 4% are

increasingly reported.^{8,9} Although accurate assessments of postoperative reexploration rates are difficult to ascertain (most type A series do not report bleeding rates), and the present series results remain to be replicated (or even extended), one is compelled to question whether the placing of an additional piece of foreign material in every patient is justified and what, if any, long term sequelae of fistula formation exist. Indeed, one may also reasonably question whether the shunt actually functions as such or spontaneously closes after heparin reversal.

Zhang and colleagues³ have presented an intriguing solution to a frustrating problem associated with dissection repairs. Further evaluation of their results seems to be ongoing, and studies by others may confirm these findings. It may ultimately be that wrapping the repair, albeit in a larger baggie than originally described, may return us to the early days of dissection and root repairs.

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