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Commentary: Don't forget the branches

Anthony L. Estrera, MD

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CENTRAL MESSAGE

The authors should be credited for raising awareness of the importance of dissection into arch branch vessels. As surgeons, it is easy to focus on the trunk and root but we should not forget the branches.

Over the past 3 decades, much has improved in the care of patients presenting with acute type A aortic dissection. This has led to lower early mortality, even as more extensive repairs addressing the transverse arch and aortic root have been performed. As a discipline, our skills have improved, which has led to increased confidence in undertaking more complex repairs.[1] In many aortic centers, an early mortality of <10% is expected.[2,3]

For many surgeons, hemiarch repair remains the principal approach, with more extensive repairs performed when indicated. Established indications for total arch replacement—with or without frozen elephant trunk—include extensive arch tears, retrograde dissection, non-A and non-B dissection, and aneurysm enlargement. Arch branch vessel involvement is rarely discussed.

The University of Michigan group is to be commended for their recent reports on acute type A aortic dissection. They recently published their experience with arch replacement in acute type A aortic dissection in patients with arch vessel involvement with cerebral malperfusion and concluded that the more extensive repair can be safely performed.[4]

The group's current work examined the significance of arch vessel involvement in the setting of no clinical malperfusion.[5] This study cohort was a specific group of 276 patients who underwent hemiarch replacement without cerebral malperfusion out of a total of 479 patients over an 11-year period. The arch branch vessel disease (ABVD) group was clearly defined as dissection flap extension into the main bodies of the innominate and left common carotid arteries (left subclavian artery excluded), not just involving the ostia. In addition, the authors reported consistent pathoanatomic observations. In the end, early clinical outcomes did not differ in relation to ABVD, but increased late reoperations were observed when the arch branched vessels were involved. This was consistent with their earlier report with branch vessel involvement.[2,4]

The following points are worth emphasizing:

- The overall consensus has been to perform more extensive resections at the initial intervention for acute type A aortic dissection; however, this should be qualified to: take an aggressive approach *when indicated.* The University of Michigan surgical group still performed hemiarch replacement in >60% of patients in this series.
- Contemporary series of acute type A dissection repair can be associated with a mortality of <10%. It should be recognized that the University of Michigan group has led the way in fenestration for malperfusion, and thus a very high-risk patient subset is often excluded from these series of open repair of type A dissection. The group previously reported that 14% of type A patients had associated mesenteric malperfusion and underwent initial fenestration. In addition, 58% underwent eventual open type A repair, with 42% (32/82) never reaching repair. All but 1 of the patients (97%; 31 of 32) had died.[6]
- Interesting pathoanatomic observations were made in Table E4. As expected, innominate artery involvement was most common, with varying combinations occurring

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frequently. Data on which combinations of vessel involvement were associated with late intervention would be informative.

- Late degeneration in aortic dissection is all about residual pressure and flow in the false lumen. Whether it is in repaired type A or type B, the same pathological mechanisms likely exist. Thus, the authors theorize that the late reinterventions were related to retrograde false lumen flow from the residual dissected vessels. This is plausible.

In the end, the group should be credited for this work and for raising awareness of the importance of the dissection into arch branch vessels. This becomes important not only in the early setting with associated stroke, but also in late follow-up with need for reintervention. As aortic surgeons, it is easy for us to focus on the trunk and the roots, but we should not forget the branches.

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Commentary: Total arch or semiarch: That is the question

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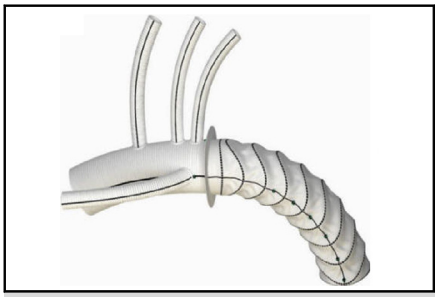
In the article titled "Is Arch Branch Vessel Dissection Without Malperfusion Associated With Worse Outcomes After Hemiarch Replacement in Acute Type A Aortic Dissection?" in the present issue of the *Journal*, Norton and coworkers[1] analyze the immediate and late consequences of leaving an unrepaired dissected supra-aortic vessel without cerebral malperfusion as compared with the immediate and late results in patients without supra-aortic vessel dissection.

This study is based on the comparison of 2 important-enough cohorts of patients operated on during the same period of time, with excellent immediate postoperative results. It is interesting, as it shows that the immediate results are similar for both groups but that, in the long term, leaving the unrepaired dissected supra-aortic vessel leads to a significantly greater rate of complications and reoperations.

This observation is somewhat intriguing and may raise some questions. It is indicated that all reoperations were



One modern prosthesis used for safe and stable total replacement of the arch.

CENTRAL MESSAGE

With the present surgical techniques and prostheses, it might be more appropriate to systematically perform a total arch replacement in the case of any kind of involvement of the supra-aortic vessels.

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