Maxing out the axillary artery for arterial cannulation in acute type A dissection

W. Brent Keeling, MD, and Edward P. Chen, MD

From the Division of Cardiothoracic Surgery, Emory University, Atlanta, Ga.

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Address for reprints: Edward P. Chen, MD, Division of Cardiothoracic Surgery, Emory University School of Medicine, 5665 Peachtree Dunwoody Rd, Suite 200, Atlanta, GA 30342 (E-mail: epchen@emory.edu).

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Over the past decade, many reports have surfaced in the surgical literature detailing the safety and utility of right axillary artery cannulation strategies during aortic surgery.¹⁻³ Researchers have demonstrated equivalent neurologic outcomes after major aortic reconstructions with open distal anastomoses. Cannulation of the right axillary artery has been shown to be safe and facilitates antegrade cerebral perfusion techniques.

Persistent questions continue to surround right axillary artery cannulation strategies: What if the right axillary artery is damaged or dissected? How often is the innominate involved in the dissection? Can it still be used for arterial inflow? What if just the innominate is involved in the disease process? Rylski and colleagues⁴ attempted to answer most of these in their multicenter examination of dissected innominate arteries during type A dissection repair. More than 400 patients were included for analysis in the study, and 45% of them had some degree of dissection within their innominate artery. Outcomes based on cannulation strategy (right axillary artery vs non-right axillary artery) were compared for the 186 patients with an innominate dissection. Most important, the researchers found no difference in neurologic outcomes or rates of in-hospital mortality between patients who underwent right axillary artery cannulation and patients managed with other cannulation strategies. Although the numbers were small, the authors also detailed successful right axillary arterial cannulation in 8 patients who had involvement of their right axillary involvement in the dissection process. These data are encouraging and novel. The layers of the axillary artery can be successfully reapproximated and safely used for arterial inflow, a strategy used in our own institution with satisfactory results when this problem is encountered.

However, this research generated many unanswered questions. Why did the group who underwent right axillary artery cannulation require a higher number of supplemental arterial cannulation sites (30% vs 9%)? Surgeon preference was

Edward P. Chen, MD, and W. Brent Keeling, MD

Central Message

Little data exist regarding the safety and efficacy of cannulating the right axillary artery in the setting of a dissected innominate artery for type A dissection repair. The authors present a series detailing the safety of this practice.

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cited as the reason in half of these 30% of patients, but this alone does not help to explain the disparity. Although the perfusion strategies were well described before the initiation of circulatory arrest, the authors failed to mention alterations in perfusion strategy after completion of the open distal aortic anastomosis. Most surgeons would advocate for reestablishment of true antegrade flow across the great vessels via cannulation of a side branch off the ascending graft, but these details were unclear. Given that this was a multi-institutional study, perfusion practices varied, thus introducing further inequities in practice and likely in outcomes.

Nevertheless, this study remains important for the reasons stated. According to the authors, cannulation of the right axillary artery in the setting of an innominate dissection is safe and, in the absence of an elevated line pressure, effective. The authors also establish that reapproximation of a dissected right axillary artery for the purposes of cannulation is feasible. Rylski and colleagues⁴ have yielded additional insight making right axillary artery cannulation possible for expanded indications.

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1917	1918	1938	1948	1951	1955	1959
<p>June 17, 1917, a meeting was held at the Waldorf Astoria in New York City at which the American Association for Thoracic Surgery was founded.</p>	<p>June of 1918, George Dehelly of LeHavre, France was approved as the first International Member of the Association</p>	<p>August 16, 1938, Robert Gross performed the first ligation of a patent ductus arteriosus.</p>	<p>In June of 1948, Dwight Harken and Charles Baily performed the first Closed Mitral Commissurotomies.</p>	<p>In July of 1951 William Muller completed first pulmonary artery banding to protect pulmonary vasculature.</p>	<p>June 24, 1955, Denton A. Cooley performed the first aortic arch replacement.</p>	<p>In July of 1959, the Association's original publication, The Journal of Thoracic Surgery was renamed the Journal of Thoracic and Cardiovascular Surgery.</p>

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