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# The Journal of Thoracic and Cardiovascular Surgery

## Open versus clamp-on distal anastomosis techniques in acute type A aortic dissection: the ship has already left the port.

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<b>Please submit your article's <a href="#">Central Message</a> here. The text box will limit you to 200 characters, spaces included</b>	Central message Open distal or clamp-on to repair type A aortic dissection? Only a careful and well-designed comparative analysis can provide an answer to this complicated question.
<b>Please submit the <a href="#">abbreviated legend for your Central Picture</a>. The text box will limit you to 90 characters, spaces included</b>	P. Chivasso (left) and V.D. Bruno (right)

**Open versus clamp-on distal anastomosis techniques in acute type A aortic dissection: the ship has already left the port.**

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**Conflict of interest statement**

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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1 In the present issue of the *Journal*, Geirsson and colleagues<sup>1</sup> present the outcomes of open-distal versus  
2 clamp-on technique from the Nordic Consortium for Acute Type A Aortic Dissection (NORCAAD) database  
3 including more than thousand patients with 153 of them operated with the clamp-on. The authors had to  
4 compare two groups with numerous differences in the pre-operative and operative characteristics: for certain  
5 aspects, one could argue that they are not comparable at all. When facing this situation, the use of propensity  
6 score (PS) methods appear to be a sensible option and not surprisingly PS is increasingly used in  
7 observational cardiovascular studies<sup>2</sup>. When using a PS method two conditions must hold: the first  
8 assumption implies that all the variables affecting treatment assignment and outcome have been measured  
9 (“no unmeasured confounders assumption”); the second assumption indicates that every subject has a  
10 nonzero probability to receive either treatment<sup>3</sup>. In this study there was a risk of violation of these  
11 assumptions due to the nature of the disease and the related impact on the surgical treatment chosen. Instead  
12 of a PS method, the authors used a multivariable adjusted modelling approach: this approach might be  
13 considered “old-fashion” but is not necessarily inferior to PS methods<sup>2</sup> and in certain cases is even better.

14 With their analysis the authors have shown that the use of open-distal anastomosis is associated with better  
15 short and mid-term survival: in an adjusted multivariable Cox model, open-distal was a protective factor (HR  
16 0.36; 95% CI 0.15-0.82). Interestingly, open-distal anastomosis was associated with higher rates of  
17 postoperative complications especially cerebro-vascular accidents. However, as noted by the authors, some  
18 of the difference observed could be explained by higher rates of intraoperative and earlier death in the clamp-  
19 group, thereby excluding specific complications prior to death. Another important finding is related to the  
20 fact that the use of open-distal technique increased over the study period and higher volume hospitals used  
21 open-distal technique more commonly than lower volume hospitals. In the contemporary era there is growing  
22 consensus that the distal anastomosis should be performed using the open-distal technique because of a better  
23 visualization of the dissected aorta, proper exclusion of the false lumen, possibility of inspecting and  
24 identifying eventual tears in the arch<sup>4</sup>. Moreover, the natural history of aortic dissection teaches us that in  
25 most cases there is a distal progression of the aortic disease that often requires further surgical and/or  
26 endovascular treatments. Considering this, increasing the extent of aortic replacement during the first  
27 operation, such as performing a total arch replacement with the frozen elephant trunk technique, may  
28 improve the outcomes reducing the probability of a second surgery<sup>5</sup>. Furthermore, the new standardized

29 techniques of cerebral protection together with the increasing enrolment of the right axillary artery as site of  
30 arterial cannulation have shown significant reduction of post-operative strokes compared with the more  
31 traditional deep hypothermic circulatory arrest without any cerebral protection<sup>6</sup>.

32 The idea of specialized centers with high volume in aortic surgery to treat acute aortic syndrome is now  
33 becoming paramount. There is a large consensus that patients affected by acute aortic syndromes may benefit  
34 from treatment at dedicated specialized aortic centers with significantly improved outcomes and decreased  
35 mortality<sup>7</sup>. Patients undergoing emergency repair of acute aortic dissection by lower-volume surgeons and  
36 centers have approximately double the risk-adjusted mortality of patients undergoing repair by the highest  
37 volume care providers<sup>8</sup>. Although the present study suggests that in selected circumstances, such as in very  
38 sick patients or at lower volume hospitals, clamp-on technique can be used with acceptable results, we think  
39 that the future treatment of ATAAD is going towards an open-distal approach with standardized cerebral  
40 protection that should more and more be delivered by specialist aortic centers with expertise in this  
41 technique. At this stage, the ship has already left the port and there is only marginal room for a way back.

42 **Central message**

43 Open distal or clamp-on to repair type A aortic dissection? Only a careful and well-designed comparative  
44 analysis can provide an answer to this complicated question.

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