A perfect storm: Type A aortic dissection and previous cardiac surgery

Joseph C. Cleveland Jr, MD

Acute type A aortic dissection (AAD) is a lethal disease. The overall mortality rate—even when diagnosed and treated in a timely fashion with emergent surgical intervention—exceeds 20%. This fact alone serves as a constant reminder that this disease represents a formidable challenge to all cardiovascular professionals who encounter AAD. Cardiovascular surgeons maintain great respect for operations to deal with AAD, because achieving a successful outcome is based on executing a perfect technical operation and solving a myriad of management decisions during the procedure.

In this issue of Circulation, Stanger and colleagues report on the infrequent, but extraordinarily complex situation of AAD occurring after nonaortic surgery. The incidence of AAD during or following nonaortic surgery in the present report is 0.15%, which is consistent with other reports, although the true incidence of this entity is difficult to determine. Although this incidence is low—the development of AAD following nonaortic surgery is analogous to an airliner crash in today’s era, infrequent, but catastrophic. Indeed, deserving of emphasis, AAD following nonaortic surgery instantly converts a low-risk elective operation into a high-risk salvage situation. Thus, the entity of AAD after nonaortic surgery is a highly complex and dangerous situation that demands skillful judgments to successfully navigate a good outcome. Two recent single-center experiences with AAD illustrate that even experienced aortic surgical centers find this operation challenging.

The highlights and important messages of Stanger’s report include the fact that 100% of the operative reports for the procedure to address the AAD were available. Nearly three-fourths of the index procedure operative notes were available, and many of these reports (>50%) had a surgeon’s description of the ascending aorta. These details are critical, because nearly all the aortas that ultimately dissected were reported to have a diameter of >40 mm at the index operation. All but 1 aorta were noted to appear qualitatively abnormal to the surgeons at the primary operation. A recommendation to replace a thinned, enlarged aorta cannot be made based on this report; however, this strategy of presumptive ascending aortic replacement cannot be dismissed outright, either. Special consideration should be given to the group with aortic regurgitation, hypertension, and a thinned aorta measuring >40 mm. Perhaps patients meeting these 3 criteria should be considered candidates for ascending aortic replacement at the time of the index procedure.

The overall operative mortality observed in this report is 27%. The centers and surgeons who contributed patients to this report are experienced, and they used standard, contemporary techniques to diagnose and treat AAD. Thus, how can this high mortality rate be lowered? A keen insight gleaned from this report is that the management of patients whose primary operation was coronary artery bypass grafting with subsequent AAD required different management. In the group of patients with previous coronary artery bypass grafting, preoperative angiography and appropriate management of native and graft coronary artery disease with planned intraoperative grafting dramatically improved outcomes. This point must be emphasized, because preoperative angiography for the management of patients with AAD who present without previous cardiac surgery is no longer performed based on 2 studies that independently demonstrated no change in mortality with preoperative angiography. Clearly, in the present report, a large number of deaths secondary to low cardiac output or myocardial infarction occurred in the previous coronary artery bypass grafting cohort. These deaths likely could have been prevented by preoperative angiography with planned grafting of significant coronary artery stenoses. This recommendation to obtain preoperative angiography in patients with previous coronary artery bypass grafting also stems from an earlier sentinel article dealing with this difficult situation.

The present report from Stanger and colleagues will likely serve as an important resource for all cardiovascular professionals who must face AAD after nonaortic surgery. These patients still merit emergent operative intervention. Although it is fortunately uncommon, AAD after nonaortic surgery occurs. Appropriate, timely, accurate diagnosis and surgical management of this complex situation still offers a reasonable chance at a good outcome.

Disclosures

None.

References


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