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Commentary: Rusty pipes, clever plumbing, and a quiet aorta

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We congratulate Stephens and colleagues,¹ who thoughtfully orchestrated the surgical management of a very challenging scenario. The use of a covered stent graft to salvage an old extra-anatomic bypass graft exemplifies wise judgment and innovative thinking. Thankfully, I (R.K.W.) haven't had the privilege of trying to dig out a 30-year old Dacron graft, but I can easily envision various scenarios that might ensue, most of which end with audible bleeding—audible bleeding (you can hear the blood issuing forth) is bad. The case further highlights the fact that in a reoperative setting, even without alarming imaging findings, grafts placed years ago demand respect and caution. While the preoperative imaging demonstrated some irregularity to the graft not involved in the pseudoaneurysm, intraoperative inspection revealed marked friability. The authors also highlight the limitations of artificial materials and the need for lifelong follow-up. We completely agree. Despite the fact that (1) current-generation electropolished nitinol may be less vulnerable to in vivo electrochemical degradation processes and (2) thicker struts and anatomic location of contemporary aortic grafts limit stent frame exposure to fatigue and fracture (compared with peripheral arterial grafts), the non-zero risk of these events mandates the need for ongoing imaging surveillance.²⁻⁶

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CENTRAL MESSAGE

A covered stent graft can be a good bail-out option in aortic surgery. Audible bleeding is bad.

We don't wish to downplay the important role of the authors' clever plumbing, but they did something else that is equally, if not more important. It is first-principle simple, nonsophisticated, yet crucial. They went on cardiopulmonary bypass with peripheral cannulation and dual arterial inflow and cooled before opening. It is this step that enabled clever plumbing and the survival of a neurologically intact patient. This arrangement provides all control options for all areas of the aorta and allows for full cardiopulmonary bypass, brief circulatory arrest, and antegrade cerebral perfusion. One potential addition would be an apical vent in the context of a regurgitant aortic valve should fibrillation occur while cooling.

In the authors' case, the preoperative imaging was compelling, but what degree of preemptive measures should be taken when the imaging is less concerning? I don't know the answer but can offer a personal opinion. In our specialty, a sample size of 1 to 3 may not pass for scientific rigor, but it can be more than sufficient for a surgeon to learn important, correct lessons. Compared with earlier in my career, I now practice with a much lower threshold for preemptive measures in a reoperative setting. Even with nonthreatening imaging and nonaortic surgery, I have a low threshold for establishing vessel exposure and purse strings at one peripheral site, particularly if access to that site is likely to be difficult. If given a choice, I will choose a groin seroma (even infection) over an ischemic stroke (or worse) secondary to a minute or two of significant bleeding and hypotension. It just takes one typically silent tear in the atrium fused to the sternum, or one very audible crack in the aorta. We salute the authors for a quiet aorta.

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