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Commentary: Type A aortic dissection with malperfusion syndrome—Staying true to true lumen perfusion

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CENTRAL MESSAGE

Establishing true lumen perfusion should remain the standard of care for acute type A aortic dissection with malperfusion syndrome except for very select patients.

In this issue of the *Journal*, Ahmed and colleagues[1] share their expert opinion on the reperfusion strategy for managing acute type A aortic dissection (TAAD) in patients presenting with malperfusion syndrome. Their technique involves deferring central aortic repair in hemodynamically stable patients and initially managing clinical malperfusion by fenestration and bare-metal stenting to decompress the false lumen. The approach described by the Michigan group and their previously reported outcomes are commendable.[2] Operative mortality was 33%, with one half of patients who died succumbing to aortic rupture waiting for proximal aortic surgery, whereas the other one half died from complications of the malperfusion syndrome.

Current data on TAAD management in the setting of malperfusion are retrospective and limited to single-center experiences. Ahmed and colleagues[1] support their strategy using retrospective data with a limited sample size of 70 patients, which may have been subject to known and unknown confounders, including operator and institutional experience, selection, and/or survival bias. Their cohort included more than 50% of patients with mesenteric malperfusion who may have benefitted more from such initial reperfusion and do not represent the majority of patients with acute TAAD and malperfusion syndrome.[3] Notably, similar algorithms for delayed repair have been espoused elsewhere, specifically for relief of mesenteric or renal malperfusion before delayed central aortic repair.[4]

The controversy regarding management of acute patients with TAAD and malperfusion syndrome stems from differences in institutional traditions, definition of malperfusion, and relative extents of organ malperfusion in patients encountered across centers.[2,3,5] Czerny and colleagues[6] recently attempted to simplify this by stratifying patients with TAAD based on the number of organs involved in malperfusion syndrome as "complicated" and "uncomplicated." While the approach by Ahmed and colleagues[1] is important in the armamentarium of any aortic surgeon confronted with complex patients with acute TAAD and malperfusion syndrome, the choice of technique must be individualized and based on careful assessment of patient anatomy and pathology. In most high-volume aortic referral centers, including ours, emergent surgical restoration of true lumen flow by central aortic repair remains the mainstay for TAAD management.[3,5] Emergent surgery not only biologically restores true antegrade luminal flow but also depressurizes the false lumen and alleviates dynamic flow obstruction in downstream branches with excellent outcomes.[3,5] While patients with visceral, renal, or peripheral malperfusion more frequently necessitate additional reperfusion interventions following surgery, their mid-term survival is similar to patients undergoing initial open or endovascular fenestration with delayed surgical repair.[3] On the contrary, delaying surgery to mitigate malperfusion can predispose patients to fatal aortic rupture and high mortality.[2] Anecdotally, in our experience patients with visceral

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malperfusion constitute a very small minority, and we are unsure how to categorize type A aortic dissection patients as stable, given the rapid dynamic nature of the disease.

Until more definitive evidence is available, surgeons encountering complex TAAD must consider in the context of the individual patient the extent of malperfusion, the approach in which they are experienced, as well as their centers' capacity to minimize time from presentation to operating room table and organ salvage. For majority of patients with TAAD and malperfusion syndrome, we advocate establishing immediate true lumen perfusion as the standard of care and delaying emergent proximal aortic repair only in select patients in whom devastating end-organ malperfusion precludes surgical benefit.

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