The author reported no conflicts of interest.

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patients with static malperfusion. And if static obstruction remains after dynamic obstruction is resolved by TEVAR, endovascular fenestration/stenting would be necessary. However, because of the 2 concerns mentioned above, I believe that primary entry closure with TEVAR should be performed as first choice, especially in patients with dynamic obstruction. As pointed out by Formica and colleagues,[2] a distinction among patients with static or dynamic obstruction or both is not reported, so further research is needed to determine the optimal treatment strategy for ATBAD patients with dynamic obstruction.

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https://doi.org/10.1016/j.jtcvs.2020.12.052

REPLY: STENTING/FENESTRATION OR THORACIC ENDOVASCULAR AORTIC REPAIR IN COMPLICATED ACUTE TYPE B AORTIC DISSECTION: TO EACH IS OWN!

Reply to the Editor:

In complicated acute type B aortic dissection (ATBAD), urgent intervention is the crucial point to correct mesenteric and renal ischemia and to re-establish distal perfusion. Consequentially, the time between the diagnosis and the therapeutic choice, endovascular stenting versus fenestration, or both, are strongly related.

Despite the reasons given by Norton and colleagues[1] for the use of the fenestration technique, thoracic endovascular aortic repair (TEVAR) remains the main technical approach in many centers, even those with a high volume of interventions.

Therefore, what role can fenestration play in the TEVAR era? The rationale of fenestration is to restore the normal pressure in the false lumen, with easier branch vessel patency recovery, as long as there is a careful demonstration of the vessel anatomy and good technical skills.

The frequency with fenestration is required is still widely debated. The majority (>80%) of malperfusion syndrome occurrences are due to dynamic obstruction.[2] In the setting of acute dysfunction, distinguishing between dynamic and static obstruction is critical to successful treatment of malperfusion due to branch vessel compromise. Frequently the clinical scenario is more complex and nuances can exist.

We think that statements by Ueki[3] in his letter regarding the strategy of primary entry closure as first line therapy by TEVAR mainly in dynamic obstruction, and that stenting/fenestration does not close the entry tear and maintain a pressurized false lumen are absolute sharable. Unlike fenestration, TEVAR is a simple and reproducible procedure that requires a shorter learning curve. Stenting/fenestration is more demanding than TEVAR and may need to be performed in experienced referral centers.[4] Fenestration may be worthwhile when the placement of a stent or stent-graft close to the entry site is not possible, the aortic lumen is too large and appropriate stent-grafts are not readily available, the tear is too close to major branch vessels, or a high-flow endoleak leaves the false lumen pressurized.

Data from the International Registry of Acute Aortic Dissection reveal that descending aortic size, false lumen patency/thrombosis, as well as the size of entry tears are important predictors of adverse events in patients with ATBAD.[5] Moreover, clinical stability does not exclude the possibility of false lumen silent expansion and even rupture.[6] All of these risk factors mainly rely on static imaging rather than hemodynamic features.

Interesting data are emerging regarding the concept that hemodynamic stress may be the primary cause of false lumen enlargement. For example, studies propose analyzing the entry tear in ATBAD and the imbalance between false lumen inflow and outflow pathways by means of 4-dimensional technologies.[7,8]

This is the new direction to aim for to improve the characterization and risk-stratification of patients with ATBAD to correctly select those patients who may benefit from stenting/fenestration, which remains a procedure that should be employed by an experienced team.

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The authors reported no conflicts of interest.

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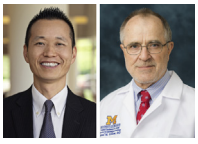

REPLY FROM AUTHORS: THORACIC ENDOVASCULAR AORTIC REPAIR VERSUS FENESTRATION/STENTING: BOTH EFFECTIVE WEAPONS FOR THE SAME DISEASE

Reply to the Editor:

Ueki[1] proposed thoracic endovascular aortic repair (TEVAR) as first-line treatment for dynamic malperfusion in acute type B aortic dissection (ATBAD) as opposed to aortic fenestration/stenting described in our previous study[2] for 2 reasons: TEVAR is quick, and TEVAR can protect against aortic rupture. We agree with Ueki's statements about TEVAR, but remind readers that we must always be ready to evaluate for and treat the static obstruction that can accompany dynamic obstruction and share our views of using fenestration/stenting as first-line treatment.

- Aortic fenestration/stenting is a percutaneous approach, with no need for cut-down at the groin, which is used for TEVAR. After access in the femoral artery, it takes 30 minutes to create a fenestration in the dissection flap and stent the aortic true lumen. We can quickly assess branch artery hemodynamic status and resolve the dynamic malperfusion without a skin incision.
- Our approach allows us to study every branch vessel to confirm or rule out residual or static malperfusion by measuring the blood pressure at each individual aortic branch. If there is residual or static malperfusion, we can stent the branch vessel in the same procedure. Whether one treats the aortic injury by TEVAR or fenestration/stenting, this same diagnostic survey and targeted treatment of vulnerable branches must be performed.
- Fenestration/stenting does not cause thrombosis in the false lumen of descending thoracic aorta or thrombosis of intercostal arteries; we had 0% postoperative paraplegia compared with 2% to 10% paraplegia rate after TEVAR.[3-5]
- Because we only place a wire in the arch instead of deploying a stent graft, the rate of retrograde type A aortic dissection was 0% in our series compared with 2% to 3% after TEVAR.[6]
- Fenestration/stenting does not require covering the left subclavian artery, whereas TEVAR frequently has to cover the left subclavian artery to achieve complete seal of primary intimal tear because the intimal tear is often very close to the left subclavian artery. Subsequently, a patient may need revascularization of the left subclavian artery either before or after TEVAR.
- Fenestration/stenting only leaves patients a bare stent in the aorta, which has very low risk of infection, even if patients have an active infection such as bacteremia. We have not had a stent infection in 30 years of treating dissections. TEVAR leaves a large piece of stent graft in the patient's aorta, and puts patients at lifelong risk of lethal graft infection. We have taken out infected stent grafts with pus around them in the descending thoracic aorta, which is horrific. In the setting of active infection such as bacteremia, TEVAR is contraindicated.

For some situations, we do use TEVAR for dynamic malperfusion in ATBAD.

- When patients have signs of rupture and pending rupture of the dissected aorta, we use TEVAR to treat the rupture and malperfusion at the same time. The ruptured cases in our series all happened before TEVAR was available.