A Job Well Begun Is Half Done

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Acute type B aortic dissection is a medical emergency with an in-hospital mortality of 50% when complicated by rupture or impaired visceral flow and 10% when uncomplicated.[1] Survival of the initial dissection still portends 30–40% 5-year mortality.[2] There is no controversy that all patients presenting with acute type B dissection require appropriate medical therapy for blood pressure and impulse control.[3] The advent of stent grafting has substantially lowered the mortality for the treatment of complicated acute type B aortic dissection compared to open surgery. The approach to aortic dissection has often been to fix the part that is likely to kill the patient quickly and live to fight another day. With the improved technical safety of stent grafting, and randomized trials showing improved aortic remodeling, greater interest in the longer term risks associated with the development of thoracoabdominal aortic aneurysms of dissection etiology has occurred. Could a more complete initial repair lead to more complete aortic remodeling and thus decrease long-term mortality and morbidity?

In this issue of the *Journal*, Kim et al explore the concept of attempting complete aortic remodeling when treating type B dissection (reference JTCVS article). They studied 75 patients accrued from 2012 to 2017 with acute type B aortic dissection. Their aim was to induce complete thoracic aortic remodeling which they defined as false lumen thrombosis and a thoracic aortic false lumen diameter of less than 5 mm to the T-10 level. To achieve this, they used a variety of false lumen procedures that included plugs, coils, glue, visceral Viabahn stents, and other means to attempt to completely seal the false lumen in 41 of 75 patients. This was done simultaneous to the initial stent graft if the false lumen was not too large or the treating physician believed complete remodeling was unlikely due to multiple reentry tears. It was also done late for failure of false lumen thrombosis. They found that 19/75 (25.3%) of their patients experienced complete aortic remodeling and that these patients had no adverse events during follow-up. Not surprisingly, the number of visceral branches from the false lumen and remaining intimal tears were risk factors for not achieving complete remodeling. Also, not surprising was that female sex, shorter interval from dissection to intervention, and a smaller initial false lumen diameter favored complete thoracic remodeling. These results are not really unexpected nor are desiring to achieve complete remodeling a new concept. What is new is the length that their team went to in attempting to completely seal the false lumen particularly in the acute setting. The authors also highlighted the infrequently seen problem of false lumen recanalization, which occurred in 5 patients (8% of the cohort).

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Central Message

Type B aortic dissection continues to carry a long-term risk of aortic events. Complete aortic remodeling may help to mitigate this long-term risk. How far we should go to achieve this is still unknown.

In our center and most others, the current management of complicated type B aortic dissection revolves around the relief of malperfusion and or rupture with TEVAR coverage of the entire thoracic aorta from the left subclavian to the celiac artery in the vast majority of cases. In those with continued static obstruction of the visceral vessels or iliac arteries further adjunctive stenting or open bypass is performed to relieve the obstruction.

The controversy at present remains around the management of uncomplicated type B aortic dissection. Our practice has been influenced greatly by the results of the INSTEAD XL trial which showed that if you followed stented TBAD patients out to 5 years that aortic-specific mortality and aortic aneurysmal progression were significantly decreased compared to medical management alone. What is still debated is the optimal timing of intervention for uncomplicated TBAD such that the risk of retrograde type A dissection is minimized, but that there is still enough mobility of the dissection septum to promote false lumen thrombosis and the authors' concept of complete thoracic aortic remodeling.

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In the literature, the management of uncomplicated type B aortic dissection has evolved from initial medical therapy for decades to TEVAR coverage of the entry tear to relieve dynamic obstruction and promote false lumen thrombosis to the current era of coverage from the subclavian to just above the celiac artery. With the recent approval (February 4, 2019) of a dissection-specific device (Cook Medical) that includes bare metal, self-expanding stents used re-expand the true lumen across the visceral segment and abdominal aorta, further emphasis will be placed upon treating the entire thoracoabdominal aorta. The goal of such therapy is to induce false lumen thrombosis of the entire thoracoabdominal aorta and promote complete remodeling. The exact role that such a device, as well as the false lumen procedures described in the referenced article, will play remains to be seen.

We would agree with the authors' concept of complete thoracic aortic remodeling and that getting optimal false lumen closure at the initial procedure likely will lead to the best long-term outcomes for patients with aortic dissection and would represent a job well done. How far one goes to promote false lumen thrombosis likely represents further evolution in the current management of DeBakey 3B aortic dissection. The best start is important; a job well begun is half done.[4]

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