When to consider TEVAR in uncomplicated TBAD

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CHICAGO, Illinois, January 2018 – A new study suggests thoracic endovascular aortic repair (TEVAR) may be appropriate in uncomplicated Type B aortic dissection (TBAD) based on several anatomic criteria determined by computerized tomography (CT) imaging.

Historically, the standard of care for uncomplicated patients with TBAD has been medical management because of favorable 1-year survival rates compared with open replacement of the descending thoracic aorta.

But medical management alone is associated with a 40% incidence of aneurysmal dilation of the outer wall of the false lumen in the first five years. There has been little data on which patients benefit from early TEVAR.

Aortic dissection is the most common catastrophic event affecting the aorta with an incidence of 3.5 per 100,000 person-years. Stanford Type A dissection, involving the ascending aorta and arch, is treated by emergent replacement of the ascending aorta to protect from coronary artery obstruction and/or cardiac tamponade.

Conversely, Stanford Type B dissection, involving the aorta distal to the left subclavian artery, has been traditionally treated with aggressive anti-hypertensive medication as prior study has revealed no significant survival advantage of surgery over medical therapy.

More recent data suggest that TEVAR coverage of the proximal entry tear in acute TBAD complicated by persistent pain, impending aortic rupture and/or distal aortic branch malperfusion, results in superior 30-day mortality over medical therapy. Further, it appears that aortic remodeling occurs along the stented segment of the aorta preventing aneurysmal degeneration.

As reported in the January 2018 edition of the Journal of Vascular Surgery, researchers from the Massachusetts General Hospital, led by vascular surgeon Dr. Mark F. Conrad, retrospectively reviewed their experience treating 254 patients presenting with uncomplicated TBAD from 2000-2013 and followed with serial CT imaging. The goal of the study was to identify clinical and anatomic factors associated with the need for late (defined as greater than 180 days from presentation) aortic intervention in patients presenting with uncomplicated TBAD.

At a mean follow up of 6.8 years, they found that 38.2% of patients underwent aortic intervention, mainly for
aneurysmal degeneration, with a 6.2% 30-day operative mortality. Two-thirds involved open surgical intervention and the remainder endovascular therapy. After dividing their series into those who required intervention versus those who did not, they found no difference in the groups based on demographics (age, gender, race, presence of co-morbidities).

Four anatomic predictors for intervention included:

- An entry tear > 10mm
- Total aortic diameter >40mm at presentation
- False lumen diameter >20mm
- An increase in total aortic diameter >5mm between serial imaging studies.

The researchers did note that complete thrombosis of the false lumen was protective against late operative intervention.

“It is clear from the literature that TEVAR is effective in managing patients with acute complicated TBAD by improving aortic remodeling,” notes Dr. Conrad. “It is intuitive that this therapy may be beneficial for uncomplicated cases if we can understand who is at high risk for future aortic-related complications. This study suggests that patients whose aortas meet these anatomic criteria may benefit from elective TEVAR 14 to 90 days after presentation.”

While this retrospective study cannot fully define the role of TEVAR in uncomplicated acute TBAD, it provides evidence for use of anatomic criteria in decision making in these complicated cases.

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Regarding endovascular treatment of aortic dissection:
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Regarding open surgical treatment of aortic dissection:
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