Chronic Aortic Dissection

Treatment of Chronic Aortic Dissection Is Evolving

- 40% of repairs of the descending thoracic aorta have chronic dissection
- Previous Ascending Repairs performed in 41%
- Endovascular treatment of chronic Type B dissections with aneurysmal degeneration is gaining traction
  - Mid Term Results are promising with over 90% aortic specific survival at 60 months
  - Endovascular repair is known to decrease aneurysms sac/false lumen pressure

The New Battle: Open vs. Endovascular Repair

Open and Endovascular Repair has demonstrated success

- Comparative analyses have demonstrated success with both techniques
- 30 day outcomes are similar and currently appear to be independent of surgical technique
  - Mortality 4%, stroke 2%, paraplegia 3%
- Predictors of adverse survival are concomitant treatment of the visceral segment and large aortic diameter
- Studies suggest that TEVAR may need careful patient selection

55M presented with 6 hour history of severe tearing back pain

- 15 years prior to presentation he had a Type A dissection that extended to the right common iliac
  - Aortic root replacement
  - Aortic valve replacement
- Asymptomatic since that presentation and had poor recent follow up with his cardiac surgeon
- CTA 6 months prior for similar symptoms demonstrated type B dissection with thoracic aortic degeneration to 5cm
Presentation

- His pain was different and now localized to the chest, back, and upper abdomen
  - PMHx: HTN, HLD, Renal cell carcinoma (treated 20 years prior, no recurrence)
  - PSHx: Left nephrectomy, Aortic valve and root replacement
  - Remote 10 pack year smoking history
  - No abdominal tenderness
  - Exam with palpable pulses (including radial and pedal pulses)
  - Cr 0.8; H/H 14/40

CT Angiogram
Chest/Abdomen/Pelvis

Type B Aortic Dissection Begins just distal to the left subclavian artery; normal proximal aorta measures 33mm

Thoracic Aorta
Dissection extends throughout the entire thoracic aorta with maximal diameter 5.8 cm

Abdominal Aorta
Aorta measures 2.8 cm at maximal diameter and all visceral vessels fed off the true lumen, except the right renal which has a large fenestration
How would you manage this patient?

A. Anti-impulse therapy and pain control
B. Stent-graft placement in the descending thoracic aorta
C. Open thoracic aortic repair
D. Thoracoabdominal aortic repair

After 72 hours, his pain persisted but HR and BP were well controlled. How would you manage this patient?

A. Continued anti-impulse control and repeat CTA in 1 week
B. TEVAR with coverage of the left subclavian and carotid/subclavian bypass
C. TEVAR with coverage of the left subclavian
D. Open thoracic aortic aneurysm repair
E. Continue anti-impulse therapy and repeat CTA in 1 month

Patient returns in 1 month with continued pain, requesting repair as he cannot function. What would be your operative approach (3cm landing zone if left subclavian covered, right vertebral dominant)

Size based on normal proximal aorta and covering left subclavian

A. Cover the entry tear only
B. Cover the thoracic aorta to the level of the celiac, subclavian revascularization if symptomatic
C. Cover the thoracic aorta to the level of the celiac; carotid-subclavian bypass
D. Coil embolize the false lumen, cover the thoracic aorta to the level of the celiac, carotid-subclavian bypass
E. Open thoracic aortic aneurysm repair

Open thoracotomy through 4th and 9th interspaces

34mm Dacron Tube graft from left subclavian to diaphragmatic aorta

- Left heart bypass
- Proximal clamp between left CCA and subclavian, dissection to that level but not involving the left subclavian
Recovery

- Pain resolved after repair and subsequent recovery
- False lumen in abdominal segment unchanged and false lumen not thrombosed
- Abdominal aortic aneurysmal changes may be treated with multibranched graft repair

Conclusion

- Endovascular repair of chronic dissections is evolving
  - Extent of coverage
  - Adjunctive procedures are emerging

- Young patients and those with poor follow up compliance may be best served with open surgical repair