Endovascular Strategies for Long-Term Management of Chronic Type B Aortic Dissection with Aneurysmal Degeneration

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Purpose

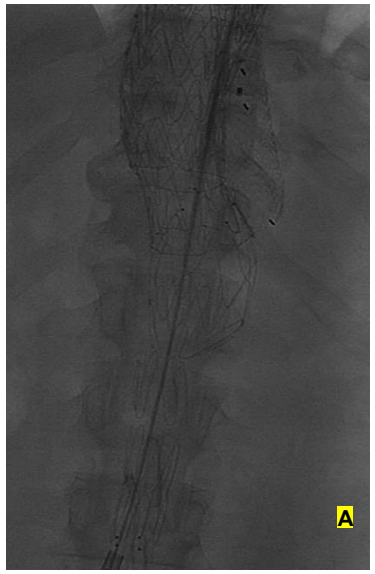
- **Distal pressurization** of an aortic dissection false lumen leads to aneurysmal degeneration.
- Endovascular techniques such as STABILISE, Knickerbocker, and CandyPlug have been described to:
  - Optimize seal
  - Achieve false lumen thrombosis
  - Facilitate aortic remodeling.
- This case demonstrates the 7-year course of a type B dissection leading to thoracic aorta aneurysmal degeneration
  - Various endovascular techniques utilized to achieve aneurysm exclusion.

Initial Presentation

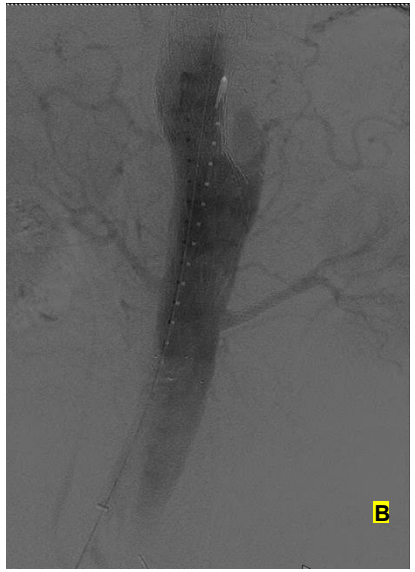
- 51-year-old male with history of type B aortic dissection who underwent **carotid-subclavian bypass** and zone 2 TEVAR 7 years ago.
- He was initially lost to follow up but represented with a rapidly expanding **zone 5 aneurysm** (37mm → 66mm).
- **Considerations for Management:**
  - habitus (182kg)
  - Rate of aneurysm progression
  - distal landing zone target proximal to the celiac artery (CA) of 40mm,
- Endovascular management was offered.

Materials and Methods

- **Thermal septotomy** was performed from distal TEVAR to CA.
- **TEVAR was extended**, with selective CA protection with **45mm GORE CTAG**. However, there was persistent distal false lumen perfusion.
- **Modified CandyPlug** (16x100 iliac limb with Amplatz plug) was used to achieve distal seal and false lumen obliteration.
- Completion angiogram successfully excluded the aneurysm, but there was now **delayed visceral perfusion** due to distal false lumen pressurization.
- **STABLIZE technique using a Zenith Cook** stent to the infrarenal aorta with a CODA balloon resulted in improved visceral perfusion.
- However, there was persistently delayed left renal artery perfusion. **Transseptal left renal artery stenting** was required .



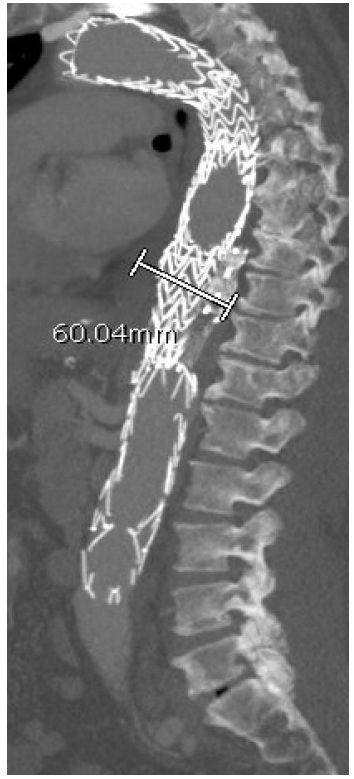
A. Distal TEVAR extension with modified CandyPlug and distal petticoat dissection stent before angioplasty demonstrating true lumen compression



B. Completion angiogram demonstrating obliteration of the false lumen, expanded distal true lumen with patent visceral perfusion and left renal stent.

Results

- Completion aortogram and bilateral lower extremity angiograms demonstrated **symmetric and excellent flow**.
- Postoperative course:
  - discharged on postoperative day 5; uneventful recovery
- **2-month post repair CT:**
  - complete exclusion of the descending thoracic aortic aneurysm
  - decreased maximum aortic diameter (66mm → 60mm)
  - widely patent paravisceral and aortoiliac segments.



Conclusions

- This case demonstrates the long-term management and careful surveillance required of repaired type B dissections.
- This case highlights the myriad of endovascular techniques to treat chronic type B dissections and rescue from both intraoperative and perioperative complications.