Complicated Type B Dissection with Branch Vessel Malperfusion

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Disclosures

- Consultant: Spectranetics, Trivascular
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- Research Studies: Cook, Trivascular, Covidien, Bard, Gore, Abbott, Daiichi, Bayer, Bolton Medical, Endologix, Spectranetics
Relief of mesenteric ischemia in type III aortic dissection with percutaneous fenestration of the aortic septum

- Not a new concept
- Introduced in 1980s

Mechanisms of Branch Vessel Malperfusion:

- **Static**: Dissecting hematoma extends into and narrows lumen of branch artery
- **Dynamic**: Dissection flap prolapses into vessel origin or narrows true lumen above branch
- **Both**

Type B Acute Ischemic Dissection: Treatment Paradigm

Ischemic Dissection Syndromes (Acute)

- True Lumen Compromise Hemodynamic
  - Branch Vessel Dissection
    - TEVAR
    - Stent Branches into true lumen
  - Normal Branch Vessels
    - TEVAR
- True Lumen Adequate Hemodynamic
  - Branch Vessel Stent
TEVAR

- Advantages
  - Cover entry tear
  - Depressurize false lumen
    - Dynamic compromise
  - Exclude false lumen
  - Allow for aortic healing

- Disadvantages
  - Does not address branch dissection
Branch Vessel Stenting for Static Obstruction
Aortic flow normal
Renal Branch Vessel Ischemia

First stent does not cross into true lumen

Stenting into true lumen
self expanding or balloon expandible stents
SMA Dissection
Near total occlusion from false lumen compression

Distal flow is preserved
Post SMA Stenting
Type B Dissection & Mesenteric Ischemia

Entry tear at L SCA

Origin SMA

Origin SMA

Celiac

Mid SMA

Distal SMA no flow
Post Stent Graft
Improved SMA FLOW
But Perfused by both channels

True Lumen

False Lumen
Branch Vessel Obstruction

- **Choices**
  - Uncovered vs Covered stent
  - Self vs balloon expandable stents
  - Elimination of reentry vs tacking down intima

- **Risks**
  - Retearing of the intima
  - Floating stent
  - Distal reentry
A single-center experience treating renal malperfusion after aortic dissection with central aortic fenestration and renal artery stenting

- 165 pts Malperfusion
- Angiographic confirmation (67%)
- 71 endovascular therapy
  - Isolated renal artery stenting (31)
  - Proximal aortic fenestration ± aortic stenting (24)
  - Renal and aortic intervention (16)
- Residual pressure gradients 8.1 mm Hg
- Periprocedural mortality rate 21% (n = 15)
Renal Stenting

- Must extend into true lumen distally to restore flow
- May limit future treatment options

Conclusions

• First goal is identify entry tear and mechanism for malperfusion
• TEVAR to fix the aorta if hemodynamic compromise
• Reassess visceral vessels
• Stenting for hemodynamic collapse
• Covered stenting vs Uncovered stenting
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