When should acute uncomplicated TBADs be treated by TEVAR: How can imaging help

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WHAT IS ACUTE?

IRAD Classification

VIRTUE Registry Classification

Acute dissection: 14 days from dissection onset
Sub-acute dissection: 15-92 days
Chronic dissection: > 92 days
WHAT ARE COMPLICATIONS?

Acute type B dissection:
- Malperfusion resulting in end-organ ischaemia
- Hypertension despite full medical therapy
- Peri-aortic haematoma
- Haemorrhagic pleural effusion
- Aortic rupture

WHAT ARE COMPLICATIONS?

HOW CAN IMAGING HELP?
International Guidelines: Serial Imaging

Circulation. 2010;121:e266-369
Canadian J Cardiol. 2014;30:577-589
Eur J Vasc Endovasc Surg. 2017;53:4-52
Circ J. 2013;77:789-828

Improving Understanding

High risk features

- White race
- Female gender
- Age ≥70 years
- Connective tissue disease
- Renal failure
- Atherosclerosis
- Aortic diameter >40mm
- Status of the false lumen:
  - Patent false lumen
  - Partial thrombosis of the false lumen
- Position and size of the primary entry tear
Corrected versus axial measurements would have changed management decisions in up to half of the cases.

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**Effect of entry tears**
- Large entry tear:
  - Majority of flow in false lumen
  - High false lumen pulse pressure
  - High false lumen mean pressure
- Highest false lumen pressures seen with large proximal and small distal entry tear

**Modelling effect of entry tear**

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Status of the false lumen

Thrombus formation

Modelling thrombus formation

Conclusion

- Clear, universal definitions are required to guide the management of acute uncomplicated TBAD
- Imaging for surveillance and to improve our understanding of dissection