Introduction

- Complicated type B dissections: TEVAR: First Line therapy
- Reintervention rate: 31.6% at 5 years


Distal SINE

- Systematic review
  - PRISMA guidelines
  - EMBASE, MEDLINE, COCHRANE databases
- A literature search was undertaken to identify all studies published
  - In the past 23 years that reported on risk factors for distal SINE tear after TEVAR for thoracic aortic dissection
  - Candidate studies were sought through a computerized search of the Embase, Medline, and Cochrane databases for the period of
  - Key words entered in this search were “SINE” and or “distal stent graft-induced new entry” or “new entry” or “stent graft-induced new entry”.

Distal SINE

- 1415 patients:
  - Type B: 1329
  - Type A: 86
- Incidence: 7.9% (112)
- Mean time to discover: 19 +/- 7 months
- Symptomatic: 0.4% (back or chest pain)
- Treatment: success 100%
  - Medical 90%
  - Stent-graft: 11%
  - Surgery: 1%
Risk factors Distal SINE:

time of intervention

- The incidence relative to the time of intervention
  - Chronic: 12.9% (43/331)
  - Acute: 4.3% (12/273)

- "spring-back" force of the stent graft could injure the stiff intimal membrane

- Physiopathology:
  - Acute: the aortic wall is more elastic, and it can adapt better to a stent graft
  - Chronic: fibrotic, calcified, and inelastic aortic membrane

Risk factors Distal SINE:

- Distal stent-graft oversizing

  - The incidence relative to Distal stent-graft oversizing
    - Significantly (p<0.001) higher rate of SINE in patients with distal stent-graft oversizing greater than 20%

  - Taper ratio of the thoracic aorta:
    - Mismatch between the size of the stent graft determined by the proximal landing zone, and the small diameter of the compressed distal true lumen
    - (proximal landing diameter - distal landing diameter)/proximal landing diameter
    - Significantly higher rate of SINE with high taper ratio of the thoracic aorta

Risk factors Distal SINE:

- Angulation of the distal neck/stent-graft length

  - Angulation of the distal neck and distal SINE
    - Difference between the two groups was not significant (p=0.24)

  - Stent-graft length
    - Difference between the two groups was not significant (p=0.283)

Risk factors Distal SINE:

- Marfan syndrome

  - Association SINE-Marfan was inconsistent

  - There was no statistical difference in 3 studies
  - Weng et al. reported an incidence of distal SINE of 63% in Marfan patients vs 27% for all dissections

Risk factors Distal SINE:

- Stent-graft oversizing and aortic dissection

  - Proximal stent-graft oversizing significant risk factor for RTAD

  - Distal stent-graft oversizing significant risk factor for Distal SINE

Moderate distal Stent-graft oversizing
Distal stent-graft oversizing

- Oversizing 5-10% of the maximum diameter of the true lumen
- Tapered stent-graft
- Ascending endovascular repair: distal stent-graft first
- No balloon dilatation

Other approaches

- Petticoat:
  - To reduce the mismatch between the size of the stent graft
  - TEVAR vs TEVAR with supplemental distal bare stent: 0% vs 2.9%; p=0.03

- Physician modified stent-graft
  - To lower the distal radial force of a thoracic stent-graft
  - The most distal Z-stent is removed

Conclusion


Conclusion

- The incidence of distal SINE is not insignificant
- Chronic dissection
- Can be efficiently treated with distal extension of the TEVAR.
- **Specific complications**: Fragility of the aortic wall: new entry tears
  - Proximal: retrograde type A aortic dissection
  - Ditale: SINE
- Oversizing: because of the mismatch between the distal diameter of the stent graft and the diameter of the compressed true lumen.
- The results underscore:
  - The importance of accurate sizing
  - Tapered stent grafts