Sheared Intercostal/Lumbar Arteries in Patients with Acute Aortic Syndrome

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Disclosures

• No disclosures
Background

- Acute Aortic Syndrome
  - Aortic dissection
  - Penetrating aortic ulcer (PAU)
  - Intramural hematoma (IMH)
Pathophysiology

- **Dissection**
  - Separation within medial layer
  - Caused by intimal tear

- **IMH**
  - “Rupture of vasa vasorum”
  - Micro dissection with thrombosed false lumen

- **PAU**
  - Ulcer erodes through internal elastic lamina
  - Penetrates into media
Objectives

- Observational finding of intercostal/lumbar artery disruption in patients with acute aortic syndrome (AAS)
Observational Finding

- Localized radiographic finding
  - Sheared artery
    - Microaneurysmal segment
    - Relation to aortic lumen
    - Intercostal/lumbar artery
Methods

- Review of all radiographic images associated with AAS in patients who underwent Thoracic endovascular aortic repair (TEVAR)
Results

- TEVAR for AAS (N= 26/55)
- Five patients
- 14 “sheared arteries”
- Intercostal/lumbar arteries
- Average 2.8 arteries per patient
<table>
<thead>
<tr>
<th>Patient</th>
<th>Age/Sex</th>
<th>Medical Problems</th>
<th>Intercostal</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>JF</td>
<td>60 M</td>
<td>HTN, ESRD/HD, HIV/AIDS, HCV, DVT/PE</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>ML</td>
<td>66 M</td>
<td>HTN, ESRD, HCV, DVT</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>LB</td>
<td>66 F</td>
<td>HTN, DM, HLD</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>CM</td>
<td>48 M</td>
<td>HTN, ESRD, DVT, tertiary syphilis</td>
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<td>0</td>
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<tr>
<td>BD</td>
<td>40 M</td>
<td>HTN, CKD 4, DVT/PE</td>
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<td>4</td>
</tr>
</tbody>
</table>
Psuedoaneurysmal Segment: Intercostal
Intercostal Artery: Pre/Post
Pseudoaneurysmal Segments: Lumbar
Lumbar Artery: Pre/Post
Pre/Post
Results

• Most in descending aorta
• Seen in Dissection, IMH and PAU
• Not seen in aneurysmal TEVAR candidates
• Complete resolution after repair
• No recurrence on future scans
• No noticeable growth between studies
Cause or Effect?

- Hyper-dynamic aorta and fixed lumbar/intercostal vs focal area of weakness

- Their significance in association with AAS is uncertain

- Importance of high resolution imaging in diagnosis and treatment of AAS
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