Embolization Treatment For Splenic Artery Aneurysms: When, When Not, Technical Tips And Long-Term Results

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Historical Perspective/ Background

- 1770 – First Described by Beaussier
- 1954 – First Description of Surgical Technique by Williams, et al
- 1976 – Babb Establishes Treatment Guidelines
- 1997 – First Successful Laparoscopic Repair

Purpose

- Transcatheter coil embolization of splenic artery aneurysms
  - Minimally invasive treatment option
  - Prevents systemic pressurization and rupture

Disclosures:

In the past 12 months, my spouse or myself have engaged in financial relationships as follows:

- Consultant:
  - Boston Scientific, Medtronic, Abbott Vascular
- Advisory Board, Boston Scientific, Medtronic
- Clinical Events Committee: INTACT Vascular, Shockwave
- Speakers Bureau:
  - Boston Scientific, Penumbra, Medtronic, Cook, Endologix,
- Research Support
  - Philips Healthcare, Spectranetics, Terumo, BTG, Boston Scientific

Patients and Methods

- Patients
  - 17 yr experience (2002-2019)
  - n = 94 consecutive patients with true splenic aneurysms
  - 27 male, 67 female
  - Ages 24 – 89 years, mean 54 years

- Data
  - Imaging
  - Radiology reports
  - EMR
  - Office visits

- Surveillance Methods
  - CT Scan preferable – Artus
  - 3 months, 6 months, 12 months, then annually

- MR Preferred
  - Maximum Cisternal Transapical
  - No embolization, Artus

- Technique:
  - Embolization
  - Inflow and Outflow
  - Packing
  - Combination

- Technique
  - Isolation
  - Emboleze
  - Inflow and Outflow
  - Packing
  - Combination
Patients and Methods

- Retrospective review
- Patient history
- Aneurysm characteristics
- Technical success
- Re-intervention rate
- Complications
- Splenic infarct
- Aneurysm rupture

Results

- 110 SPLenic Artery Aneurysms

<table>
<thead>
<tr>
<th>Location</th>
<th>All</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximal</td>
<td>47</td>
<td>A2</td>
</tr>
<tr>
<td>Distal</td>
<td>38</td>
<td>B4</td>
</tr>
<tr>
<td>Hilar/Parenchymal</td>
<td>25</td>
<td>C4</td>
</tr>
</tbody>
</table>

- Size: 9–80mm, mean 24 mm
- 107 aneurysms coils alone
- 3 with coils and glue or gelfoam


Results

- Outcome
  - 100% technically successful
  - Follow up imaging available in 92/94 (98%) patients

- Reintervention was necessary in 4 (4%)
- Persistent aneurysmal perfusion
- No re-interventions since 2009
  - All re-interventions were successful
    - 1 with glue
    - 3 with additional coiling

Complications

- 47 (50%) patients had any splenic infarcts
- 3/92 had >50% splenic infarct
- 16/22 patients with severe portal hypertension with marked splenomegaly (p<0.05)

Preservation of collateral circulation
Results

- 100% freedom from aneurysm rupture at follow up
- (1-120 months, mean 28 months)

Conclusions

• Percutaneous transcatheter coil embolization of splenic artery aneurysms
  – Non-invasive
  – High technical success
  – Freedom from aneurysm rupture

  ▪ Major splenic infarcts rare
    • More often with portal hypertension

Thank You