Visceral and Renal Artery Aneurysms
Lessons learned and Pitfalls

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Disclosures

• None

Visceral Vessels Aneurysms

Rare, estimated prevalence:

0.1% à 2% total population
0.1% to 10% autopsy

Multiple features: Location, Shape, Aetiologies,

Location

Hepatic 10 %
Splenic: 30 %
Renal: 30 %
SMA: 5 %
Coeliac Trunk 4%
Duodeno Pancreatic: 2 %
IMA: 0.1 %

Many Features

• Unique / multiple
• Fusiform or saccular
• Truncular or distal
• Degenerative, post traumatic, mycotic
Unique, saccular, distal

Multiple, Fusiform

**True Aneurysms**

- Atherosclerosis
- Fibro-muscular Dysplasia
- Collagen Diseases (Ehlers-Danlos)
- Von Recklinghausen
- Periarterite Nodosa

**False aneurysms**

- Trauma, Including iatrogen (catheterism)
- Post Liver transplantation
- Infections (Osler, pancreatitis)

**Risks**

- Rupture ➔ Hemorrhage
- Thrombosis ➔ Infarction

Natural History is poorly known

**Splenic Artery Aneurysm**

- 35 cases
- None during pregnancy
- Mean age 63 year old
- Mean diameter: 1.3 cm
- 8 aneurysms > 2 cm
- 3 were treated
- 19 patients FU for 32 months: no growth
Presumed Increased Risk of Rupture

- **False** vs **True** aneurysm
- **Saccular** vs **Fusiform**
- **Diameter > 2cm** vs **< 2 cm**
- **Evolution / symptôms**
  - Calcification
  - Pregnancy ?

ESVS Mesenteric Vessels Guidelines for Intervention

Symptomatic aneurysm (I C)

Asymptomatic

- True aneurysm > 2.5 cm (IIa, C)
- False aneurysm (II b C)
- Pancreatico duodenal arcad (II b C)
- Woman in child bearing age (II b C)

ESVS 2017, 53,4 p 461-510

Which Treatments ?

- **Endovascular**: Coils, Onyx, Covered Stent
- **Surgery**: Ligation, Bypass Endo-aneuvrysmorraphy

ESVS Mesenteric Vessels Guidelines

Endovascular Repair or Surgery

- Surgery if technically feasible and good risk patient (I C)
- Endovascular repair if technically feasible because of lower morbidity (IIa, C)

ESVS 2017, 53,4 p 461-510

Treatments

- **Endovascular**: Coils, Onyx, Covered Stent
- **Surgery**: Ligation, Bypass, Endo-aneuvrysmorraphy

Access

- **Groin**: routine cases
- **Left arm:**
  - Acute downward angulation of the feeding artery with the aorta
When should Coils be used?

• 1) No or limited expected harm to the target organ
• 2) Distal location
• 3) Appending Saccular aneurysm

Splenic Aneurysm: 61.5 mm

Splenic Aneurysm 3.5 cm

Rupture of collateral of hepatic artery
When should Covered Stent be used?

- Preservation of target organ (main trunk)
- Fusiform aneurysm
- Appending Saccular aneurysm
Difficulties and Pitfalls

Tortuosity

Organ injuries: liver, spleen, pancreas, kidney ...

Endovascular: Coils, Covered Stent, Onyx

Surgery: Ligation, Bypass

Endo-aneurysmorrhaphy
Contemporary management of splenic and renal artery aneurysms: results of endovascular compared with open surgery from two European vascular centers.

Objective: The authors aimed to compare the results of open and endovascular repair in two European institutions over a 10-year period. They retrospectively reviewed the available literature published over the 10 last years.

Patients and Methods: A total of 59 patients with 50 aneurysms were treated. Preoperative clinical data are shown in Table 1. The mean age of patients was 72 ± 10 years. The aneurysm diameter varied from 1 cm to 4 cm. The treatment modalities were surgical in 31 patients (62%) and endovascular in 14 patients (28%).

In Hospital Mortality

<table>
<thead>
<tr>
<th>Treatment</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery</td>
<td>17 (44)</td>
</tr>
<tr>
<td>Endovascular</td>
<td>14 (36)</td>
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</tbody>
</table>

Ruptured Mycotic Aneurysm

Complications

<table>
<thead>
<tr>
<th></th>
<th>Surgery (4/17)</th>
<th>Endovascular (1/14)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23 %</td>
<td>7 %</td>
</tr>
<tr>
<td>Haematoma</td>
<td>spleen, liver</td>
<td>Splenic Infarct</td>
</tr>
<tr>
<td>Pancreatic fistula</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

The majority in ruptured cases

In Summary

- Compliance with the ESVS guidelines are worthwhile
- Endovascular approach is a very attractive option even in large aneurysm
- They are some pitfalls
- Experience and knowledge of materials and endovascular navigation is mandatory