Endovascular techniques for visceral artery treatment

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Disclosure

Speaker name:
.....Stefan Müller-Hülsbeck..........................................................

I have the following potential conflicts of interest to report:

☒ Consulting: Terumo, Boston Scientific, GE, Cordis Johnson&Johnson
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
☐ Other(s)

☐ I do not have any potential conflict of interest
Indication for treatment
- due to a higher risk of rupture

- elective repair is preferable in the appropriately chosen patient
  I. splenic artery aneurysms measuring 2 cm or larger and those found in women of childbearing age
  II. persons undergoing liver transplantation
  III. Hepatic artery aneurysms 2 cm or larger
  IV. those that are multiple or non-atherosclerotic in nature

- reperfusion is an important complication of endovascular management

Incidence 0.01% - 2%

Access – transbrachial, left

• proper stability of the vascular access platform
• triaxial system
  I. reinforced vascular sheath (65–70 cm)
  II. 6-F guiding or 5-F diagnostic angled catheter
  III. microcatheter
Aneurysms morphology – treatment options

- Saccular Aneurysm
- Fusiform Aneurysm
- Ruptured Aneurysm

Aneurysm Types
Endovascular treatment options

Stent-graft

- Atrium V12 (.035+.014), Viabahn (.035+0.018), Fluency, Wallgraft

Aneurysm with coils

- Numerous detachable: Concerto, Retracta, Azur, Ruby, ...

Blocking of inflow and outflow

- AVP, ...

= main branches, easily accessible, proximal

= narrow neck

= ruptured aneurysm
Endovascular treatment options

- **BMS (open-cell, SES) neck support**
  - Coiling through •Solitaire, Expert, ...
  = wide neck

- **Flow-diverter**
  = preservation of side branches

- **Glue**
  = peripheral locations

Aneurysm

Blood vessel
Narrow neck – dens packing technique (>24%) 

- Packing density >24% calculated coil length
  I. 800 cm for 20-mm aneurysm
  II. 3,000 cm for 30-mm aneurysm

Renal artery aneurysm


Figure 1. Measurement of the aneurysm and the parent artery size on 3D-CTA (A). Angiography shows the aneurysms and irregularity of the renal artery (B). The first framing coil was deployed under balloon protection (C). Tight packing of the aneurysm was achieved (D). The final angiogram demonstrates exclusion of the aneurysm, while preserving the renal artery (E).
Gastroduodenal artery aneurysm


Figure 2. Measurement of the aneurysm size on 3D-CTA (A). Angiography shows a large wide-neck aneurysm of the proximal gastroduodenal artery (GDA) (B). After embolization of the right gastric artery and the distal GDA, the first framing coil was deployed in the aneurysm (C). The aneurysm was packed as tightly as possible (D).
Splenic artery aneurysm – covered stent

49-year-old female, asymptomatic
Splenic artery aneurysm – covered stent

- Material
  - Sheath 90cm 6F
  - Cobra 4F
  - GW .018-inch
  - SES – covered

49-year-old female, asymptomatic
Splenic artery aneurysm – covered stent

49-year-old female, asymptomatic
Splenic artery aneurysm – covered stent

49-year-old female, asymptomatic

FU @ 24hrs
Splenic artery aneurysm – supporting stent

70-year-old female, asymptomatic
Splenic artery aneurysm – supporting stent

70-year-old female, asymptomatic

- Material
  - Guide 6F
  - Cobra 4F
  - GW .014-inch
  - BES 3.5x16
  - Microcatheter

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http://diako.de
Splenic artery aneurysm – supporting stent

70-year-old female, asymptomatic
Conclusion –
Endovascular techniques for visceral artery treatment

- Non-invasive imaging: CTA, MRA
- Indication evaluation - appropriate patient selection
- Safe access – tri axial
- Treatment options - aneurysms morphology
  - Stent grafts
  - Coils
  - Plugs
  - SES + Coils
  - Flow diverter
  - Glue/Onyx
- In case of coiling - dense packing technique (>24%) required to avoid early reperfusion!
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