Visceral Artery Aneurysms: When to Treat, When Endo; When Open

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SOCIETY FOR VASCULAR SURGERY DOCUMENT

The Society for Vascular Surgery clinical practice guidelines on the management of visceral aneurysms

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ABSTRACT

These Society for Vascular Surgery Clinical Practice Guidelines describe the care of patients with aneurysms of the visceral arteries. They include evidence-based size thresholds for repair of aneurysms of the renal arteries, splenic artery, celiac artery, and hepatic artery, among others. Specific open surgical and endovascular repair strategies are also discussed. They also describe specific circumstances in which aneurysms may be repaired at smaller sizes than these size thresholds, including in women of childbearing age and false aneurysms. These Guidelines offer important recommendations for the care of patients with aneurysms of the visceral arteries and long-awaited guidance for clinicians who treat these patients. (J Vasc Surg 2020;72:3S-39S.)

New Guidelines

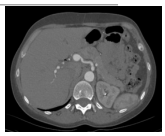
ESVS practice guidelines (2017):

Bjorck M et al. European Journal of Vascular and Endovascular Surgery, Volume 53, Issue 4, April 2017, Pages 460-510

SVS clinical practice guidelines (2020):

Chaer RA et al. The Society for Vascular Surgery clinical practice guidelines on the management of visceral aneurysms J Vasc Surg. 2020 Jul;72(1S):3S-39S.

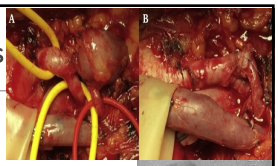
SVS Clinical Practice Guidelines



GRADE approach

Systematic review of multiple databases
- 80 observational studies, mostly non-comparative
- 2845 aneurysms
  - 1279 renal (45%)
  - 775 splenic (27.2%)
  - 359 hepatic (12.6%)
  - 226 PDA/GDA (7.9%)
  - 95 SMA (3.34%)
  - 87 celiac (3.06%)
  - 15 jejunal/ileal/colic (0.53%)
  - 9 gastric/gastroepiploic (0.32%)

Renal Artery Aneurysms



Indications
- Asymptomatic RAAs >3cm (2-C)
- Rapid growth
- Women in childbearing age (2-B)
- All PSAs
- Symptomatic RAAs including refractory HTN (2-C)

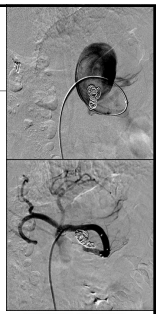
Rx:

Open reconstruction for the elective repair of most RAAs in patients with acceptable operative risk. (2-B)

Endovascular techniques for the elective repair of anatomically appropriate RAAs to include stent graft exclusion of main RAAs in patients with poor operative risk and embolization of distal and parenchymal aneurysms. 2 (B).

Splenic Artery Aneurysms

Most common VAA (40-60%)



Indications
- Symptomatic or rupture (1-A)
- All PSAs (1-B)
- >3cm (1-C)
- Significant interval rate of growth (1-C)
- All sizes in women of childbearing age (1-B)

Rx
- Endo first if feasible w/ coil embolization or stent (2-B)
- Open (or laparoscopic) surgery: splenectomy, ligation

Hepatic Artery Aneurysms

Indications

All hepatic artery PSAs should be repaired expeditiously (1-A)

All symptomatic HAAs should be repaired (1-A)

True HAA >2cm (1-A) or >0.5cm/y growth rate (1-B)

(5cm threshold in patients with severe comorbidities (1-B)

Rx

Endo first (1-A) (open surgery if necessary to maintain liver perfusion (1-A)

Covered stents typically too large for intrahepatic arteries; coil embolization recommended (1-B)

If intrahepatic HAA is large, lobe resection (1-C)

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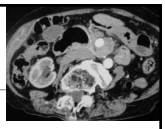
SMA Aneurysms



Indications

All true SMAAs and PSAs should be repaired regardless of size (1-A)

Rx

Endo-first approach if anatomically feasible (1-B)

Coil embolization, covered stents

Must be cognizant of distal collaterals and tributaries

Observation of SMAA because of dissection unless refractory symptoms develop. 2 (Weak), B (Moderate).

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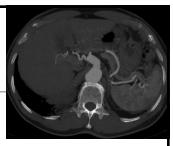
Celiac Artery Aneurysms

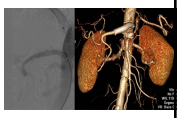


Indications

Emergent intervention for ruptured CAAs. 1-A

Non-ruptured celiac artery pseudoaneurysms of any size in patients of acceptable operative risk because of the possibility of rupture. 1-B

Non-ruptured celiac artery true aneurysms >2 cm, with a demonstrable increase in size, or with associated symptoms in patients of acceptable risk because of the risk of rupture. 1-C



Rx

Endo first approach if anatomically feasible (2-B)

coil embolization, stent graft, thrombin/gelfoam injection

Open repair: celiac aneurysmectomy, aortoceliac bypass or ligation/exclusion. Collateral flow via SMA, PDA/GDA

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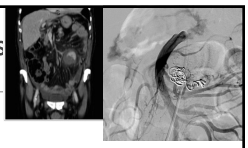
Jejunal/ileal/colic Aneurysms



Indications

Size criteria for intervention:

>2cm for jejunal and ileal artery aneurysms (1-B)

Any colic artery aneurysm or any PSA (1-B)

Rx

Endo first (embolization) (2-B)

Open surgical ligation or aneurysm excision when laparotomy is being considered for hematoma evacuation or bowel assessment for viability (2-B)

If associated w/ polyarteritis nodosa, recommend medical treatment w/ steroids or cytotoxic agents (2-B)

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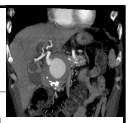
PDA/GDA Aneurysms



Indications

In patients w/ noncomplicated GDAA or PDAA, recommend treatment regardless of size (1-B)

Rx

Coil embolization as the treatment of choice for intact and ruptured aneurysms (1-B)

- Covered stent or stent assisted embolization as alternatives (2-C)
- Liquid embolic agents or multilayer flow diverting stents (2-C)

Open surgical reconstruction if needed to preserve flow in non-ruptured aneurysms (2-B)

In patients with concomitant stenosis or occlusion, we suggest celiac artery reconstruction. (2-B)

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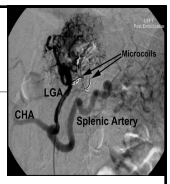
Gastric/gastroepiploic aneurysms



Indications

Treat all gastric and gastroepiploic artery aneurysms, regardless of size (1-B)

Rx

Endovascular embolization is first-line treatment (1-B)

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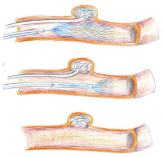
Summary

Most likely to rupture: hepatic, GDA/PDA

Endo first approach per SVS guidelines, if anatomically feasible, except for RAAs

Aneurysm related exceptions to endo repair
- Mycotic aneurysms
- Anatomic limitations (tortuosity, dissection, seal zone)
- End organ compromise

Individualized, patient-centered treatment is key



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