At What Diameter Do Internal Iliac (Hypogastric) Aneurysms Rupture: It Is Larger Than Commonly Thought: Inflow Occlusion Into The Hypogastric Aneurysm Alone Is Inadequate Treatment

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Disclosures

- PI (Finland) in Voyager-trial (Bayer), PI (Finland) InfoRAAA-trial (Faron), Consultant (Sanofi)

Internal Iliac Artery Aneurysm

- Uncommon and often found together with abdominal aortic aneurysms
- Almost always asymptomatic and found accidentally
- Threshold for elective repair is 3 cm => almost always when found elective repair in indicated => No data on natural history exist

At what size do hypogastric artery aneurysm rupture?
Vascunet Multicenter Study

63 patients from 7 countries and 22 hospitals:
- Hungary: 15
- Sweden: 14
- Australia: 14
- New Zealand: 7
- Finland: 6
- Norway: 6
- Germany: 2
- 2002-2015

Internal iliac artery aneurysms repaired due to rupture
Diameter measured from CT-images that were taken at the time of rupture

Vascunet multicenter study

63 patients with RIAA

Average diameter of ruptured IIAA
68 mm (25-116 mm)

One patient had diameter under 30 mm

Inflow Occlusion Into The Hypogastric Aneurysm Alone Is Inadequate Treatment

- Why to perform only inflow occlusion?
  - Easier procedure
  - Less fluoroscopy
  - Less buttock claudication, less ischemic complications or buttock necrosis
  - Less contrast media needed
  - Less expensive

- Why NOT to perform only inflow occlusion
  - Endoleak from distal branches
  - Eventually reprocedure which may be difficult
  - Sac expansion
  - Rupture
• 539 subjects among whom 284 underwent simple coverage and 255 had embolization to exclude the IIA.

• IIA coverage resulted in a significantly lower major complication rate (6% vs 29%; OR 2.97, 95% CI 1.46 to 6.04, p=0.003; I²=0%) and shorter hospitalization (MD 0.48 days, 95% CI 0.08 to 0.89, p=0.02; I²=0%)

• Differences in all other outcomes were not statistically significant.

• Conclusion: Simple coverage of the IIA may result in significantly fewer major complications compared to preemptive embolization; at the same time, the rates of endoleaks and/or reinterventions are similar between groups.

Generally patients had been treated due to AAA
ONLY 9 PATIENTS HAD HYPOGASTRIC ARTERY ANEURYSM!
Outcome of these 9 patients not reported separately!

Anatomy that allowed
10% to 15% graft oversizing in the
distal 5 mm of the CIA and the proximal
15 mm of the EIA

Critical for simple coverage instead of embolization:
• Anatomy that allowed 10% to 15% graft oversizing in the distal 5 mm of the CIA and the proximal 15 mm of the EIA
• Small IIA (diameter <5 mm)
• Severe iliac tortuosity
• Significant narrowing (>50%) at the origin of the IIA
• One study reported unintentional coverage in every subject
• In one study coverage was done only in case of failed embolization
• 2 studies did not provide any information.

Conclusion

There are several situations...as the presence of an internal iliac artery aneurysm or CIA aneurysm...the IIA embolization might be beneficial...However these cases have been either excluded or not thoroughly evaluated in most of the above-mentioned studies.
Anatomy in Vascunet multicenter study

37% both AAA and CIAA

“Own cases” n=6
- 3 patients: no options for occlusion of distal branches. 2 needed later occlusion of the distal branches due to sac expansion
- 1 patient had elective embolization with coils, late type II el and rupture
- 1 patient had RIAA and underwent only proximal coverage, died due to bleeding

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One patient had had earlier evar: coverage of inflow without embolisation of distal branches. Rupture occurred 4 years after the primary procedure.

Conclusions

- The median diameter of hypogastric artery aneurysm at the time of rupture 7 cm
- Rupture very rare when the diameter < 4cm (more rare that AAA-rupture <5.5 cm)
- Elective treatment is not complication-free (persistent buttock claudication to 25%, erectile dysfunction 13%, mortality 1-7%)
- Inflow occlusion into the hypogastric aneurysm alone is inadequate treatment
- Risk of type II endoleak and sac increase is very high
- Risk of rupture without secondary procedures

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