Tips And Tricks For Optimal Iliac Stenting: How To Maximize Patency And Avoid Rupture: Image Fusion Can Help

Klaus Overbeck

Disclosures
Consulting for GE
Consulting for Gore

“One can only wonder if iliac stenting will stand the test of time”

Arterial Rupture Secondary to Placement of an Iliac Artery Stent

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So we need large covered (stent) grafts - Does that sound familiar?

Open surgery:
- Large diameter (8 – 10mm)
- “Covered” prosthetic grafts
- Treat outflow disease

Open surgery (is highly invasive) but has excellent long term patency

Large covered stent grafts
How insert such grafts endovascular?

Gore VIABAHN

BeGraft

Fluency

V12 Attain:
Gore elucidate
Sometimes there might no be not enough space intraluminally.

**Common iliac artery**
3 x 8 x 59 mm V12 Atrium dilated to 9 mm

**Partial retro–peritoneal graft**

**Ideal stent graft**
- Puncture resistant covering
- High radial force
- Balloon expandable but flexible
- Low profile (6 - 8 Fr)
- Precise deployment
- Little shortening during inflation
- Good marker visibility
- Variable length ideal 8 – 16 cm

**Delayed bleed 1 hour after stent insertion**

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**Complex aorto-iliac endo treatment is best done under GA in the hybrid OR**
- Allows pain free full expansion of the stent grafts in a controlled environment

- Patients with high risk profile if complication
- Patients with increased risk of rupture e.g. small diameter, heavy calcified Ileac and aortic CTO’s
- Patients with severe rest pain unable to lie flat, heel ulcers etc.
- Patient preference for GA

**Should we think more like in an EVAR - Aorto-iliac stents sealing between landing zones?**
- Infrarenal aorta safe zone (limited by renal and visceral vessels)
- Aortic bifurcation
- Common femoral artery or EIA just above epigastric artery/circumflex

**Sealing zones**

**Prae-op imaging**
CT angiography axial reconstructions

**External artery CTO**

**USS guided puncture**
- Longitudinal views
- In EIA CTO’s puncture site at CFA/PFA

**CFA USS guided puncture allows free access to distal landing zone and optimise the outflow**

**USS guided puncture**
- Femur head
- Puncture under USG
During overlapping stent graft insertion with the delivery sheath constrain the balloon protruding from the stent graft

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How to navigate through an aorto-iliac occlusion?

- Plain fluoroscopy and contrast do not show (non-calcified) occluded vessels
- Contrast imaging and road mapping are static

Fusion imaging makes occluded vessels visible

Fusion 3D centerline with GE Vision 2 workstation

Fusion roadmap

2D/3D fusion is enhanced by DSA of the inferior epigastric and deep circumflex iliac arteries

(Suitable for 2D/3D fusion with unilateral access)
• 81 year old
• Ex-smoker
• Claudication 20 – 40 yards
• PMH:
  - CABG
  - CVA
• Ankle pressure 50 mmHg

Retrograde wire passage through a aortic CTO with fusion

Performed retrograde without brachial imaging to support wire passage
Risk of wire perforation may be reduced
Subintimal wire passage may be avoided

65 year old female
3 years IC
5 weeks of rest
pain left foot sudden onset
PMH:
  - BMI 50
  - Ex-smoker
  - Hypertensive

Performed retrograde without brachial imaging to support wire passage
Risk of wire perforation may be reduced
Subintimal wire passage may be avoided
Renal protection:
- Two 5 Fr USS guided brachial punctures
- 0.018” V18 300 cm
- 6 mm Balloons during the first V12 inflation

Outback Elite Cordis:
6 Fr Re-entry catheter use in iliac CTO’s with contra-lateral imaging

Bilateral Outback re-entry no brachial imaging with fusion:
- 59 yo female
- 50 yards bilateral IC
- Ex-smoker
- COPD
- Heavily calcified
Outback wire re-entry distally into an occluded aortic lumen

**PMH:**
- smoker

Insertion of 8 mm Atriums and Viabahn stent grafts

**PMH:**
- smoker

Left successful transluminal wire crossing

**PMH:**
- smoker
Crossing through an occluded aorta from the bifurcation failed.

Alignment of Outback catheter in occluded aorta.

Peri-renal retrograde Outback re-entry with fusion is safer since the renal and visceral vessels are visible all the time.

Completion angio with two parallel kissing stents.

CERAB: Thought to improve flow and patency by mimicking the trouser configuration of a bifurcated graft (or aorta).

Viabahn VBX® Gore:
- Balloon expandable Viabahn
- Available in 79 mm length
- 8.8 mm VBX can be post dilated to 16 mm
The Jeans procedure

• Extends to the diameter of the normal aorta
• Has perfect funnel shape
• Does not require a stent compromising the IMA

Conclusions

• There is evidence that large diameter stent grafts improve patency but may pose an increased rupture risk

• In order to fully dilate stent grafts it may be necessary to accept a retroperitoneal graft position

• Crossing aorto-iliac CTO's using fusion allows precise wire passage and may reduce the risk of perforation of the iliac arteries and especially the aorta

Thank you