Advanced techniques for recanalization of TASC C/D aortoiliac lesions

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Disclosure

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I have the following potential conflicts of interest to report:
Consulting: Abbott, Biotronik, Cook Medical, Cordis, Covidien, CR Bard, Medtronic, Straub Medical
TASC 2007 recommendations for aortoiliac lesions

TASC A
- ≤ 3 cm
- CIA-occlusion unilateral
- 3 – 10 cm No extension into CFA
- Involvement of IIA

PTA 1. choice

TASC B
- ≤ 3 cm
- 3 – 10 cm bilateral
- No extension into CFA
- Involvement of IIA

TASC C
- Diffuse disease aorta or CFA involved

Surgery 1. choice

TASC D
- No extension into CFA
- aorta or CFA involved
The answer for this... is NOT this...
Endovascular Treatment of Aorto-Iliac Occlusions

Imaging – DSA

Early

Late

Preconditions for endo approach:

- Patent proximal aorta
- Patent CFA
Technique for Aorto-Iliac Occlusion PTA

Start with brachial access

- Allows for imaging
- Ideal coaxial alignment of the sheath
- Direct orthograde access to the occlusion
- Much easier recanalization than femoral
Why crossing from brachial?

Problem of retrograde iliac recanalization:

- Inability to re-enter the true lumen in the area of the aortic bifurcation
Why crossing from brachial?

Often less calcified
Endovascular Treatment of Aorto-Iliac Occlusions
Endovascular reconstruction of the aortic bifurcation in patients with Leriche-syndrome

Prospective Study, n=11 (8 male, 2003 - 2007),
- ABI 0.4 ± 0.08
- Impotence 4/8

Bilateral reconstruction: 8 / 11 (72.7 %)
Unilateral reconstruction: 3 / 11 (27.3 %)

• 1 fem-fem crossover bypass
• 1 acute stent occlusion managed by thrombolysis

Krankenberg et al, Clin Res Cardiol 2009
Endovascular reconstruction of the aortic bifurcation in patients with Leriche-syndrome

Clinical follow-up after 1 year:
• ABI: 0.79 ± 0.20 (vs. 0.48 ± 0.08 at baseline, p=0.0004)
• Rutherford 1  7/11
• Rutherford 2  4/11

Primary Patency (n=7), CT  100%
Long-term data of endovascular treatment of complex aorto-iliac occlusions

- Prospective registry, n=20 (2003 - 2012),

- Bilateral reconstruction: 17/20 (85 %)
- Unilateral reconstruction: 3/20 (15 %)

- 1 fem-fem. crossover bypass after acute stent occlusion
Follow-up after 3 years (Median 37 months):

- ABI (n= 18) 0.48 -> 0.86
- Clinical presentation: Rutherford class 1: 13
  Rutherford class 2: 4
  Rutherford class 5: 1
- TLR (Target lesion revascularisation) 10%
  1 Bypass (after unilateral reconstruction)
  1 Bypass (after acute stent occlusion)

Endovascular Recanalization of an Aortic Occlusion

64 years, male

- Ultra short walking distance
- Rest pain at night

Medical history:
- CAD, CABG
- EF 40%
- COPD
Complication:
Acute stent thrombosis:
Elective angiography after 6 weeks
Implantation of covered stents
Protection of visceral arteries
Leipzig Experience of Endovascular Therapy of Aorto-Iliac Occlusions with Covered Stents

- 25 Patients with aortoiliac occlusions
- January 2010 – August 2014
- Technical success rate 100 %
- Mean Age 58.8 years
- Claudicatio intermittens 35 /50
- Critical ischemia 15 /50

- Follow-up 10.2 Months (1-49)
- Repeat Revascularization 3 Patients (12%)
Potential causes of restenosis after stent-reconstruction of the aortic bifurcation

Formation of
- Thrombus
- Mesenchymal tissue
- Hyperplasia around and within the stents

Saker et al. Early failure of kissing stents. JVIR 2000
COBEST-Trial: Covered vs. non-covered stents

Randomized multicentric,
- 83 patients Advanta V12 (covered)
- 84 patients BMS (balloon-, selfexpanding)

Primary endpoint:
- Restenosis after 12, 18 months (Duplex, CTA, DSA)

Freedom from binary restenosis of Iliac TASC C and D lesions

Log Rank (Mantel-Cox) $P < .002$

V-12 (covered)

Non-covered

Coral Reef Syndrome: better surgery?

Massive aortic calcification
Endovascular Therapy of Infrarenal Aortic Occlusions

- Technically feasible, minimally invasive
- Covered stents are required
- So far only limited long-term data available
Endovascular Therapy of Infrarenal Aortic Occlusions

- Thank you!
Stentgrafts for reconstruction of aorto-iliac occlusions?
Stentgrafts for reconstruction of aorto-iliac occlusions?
Covered stents for reconstruction of the aorto-iliac bifurcation

Goverde et al. LINC 2011