Technique and Outcome of Endoluminal Aortoiliac reconstructions with Covered Stents: The Leipzig Experience

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Leriche = TASC D = Surgery!

Type D lesions
- Infra-renal aortoiliac occlusion
- Diffuse disease involving the aorta and both iliac arteries requiring treatment
- Diffuse multiple stenoses involving the unilateral CIA, EIA, and CFA
- Unilateral occlusions of both CIA and EIA
- Bilateral occlusions of EIA
- Iliac stenoses in patients with AAA requiring treatment and not amenable to endograft placement or other lesions requiring open aortic or iliac surgery

Endovascular vs Surgery for TASC D

• 1999* – bilateral ‘kissing’ stent techniques with Balloon expandable stents in 48 patients with aorto-iliac disease
  – Primary angiography patency at 24 months of 87%
  – Restenosis in 6.3% requiring repeat angioplasty

• Surgical aortoiliac reconstruction / axillo-bifemoral bypass
  – Long term patency of >60% at 3-5 years
  – Morbidity (5-20%) and mortality (3-5%)
  – Long recovery time – hospital stay 5-10 days

Scheinert D et al, Circulation 1999
Covered stents for Leriche

• Reconstruction with:
  – Atrium Advanta V12 stents
  – Gore Viabahn
  – Bard Fluency

• 26 patients:
  – 2008-2011: 8
  – 2012 to 2014: 18
52 year old Female – Rutherford 3

Renal arteries

Right common femoral

Left common femoral
Bilateral renal arteries and Superior mesenteric artery

- left axillary artery access

- antegrade wiring down to occluded external iliac arteries
Right renal chimney
Left renal chimney
SMA chimney
Discharged after 2 days – symptom free since procedure
No further claudication – 100m to > 1km

Axilla – preclosed – no haematoma
Both CFA sites closed – no haematoma

Procedure time: 201 minutes
The Leipzig Experience so far...

- 26 patients – 17 males, 9 females
- mean age – 58.5 years (43-87)
- mean Rutherford score per limb – 3.5, 28% = CLI
- All procedures done percutaneously except 3 (hybrid)
- mean procedure time: 120.5 minutes (63-216)

- mean follow up: 17.3 months (0-60)
• **Lesion Characteristics:**
  – Mean Aortic lesion length: 68.8mm
  – Mean right iliofemoral length: 93.5mm
  – Mean left iliofemoral length: 88.5mm

• **Concurrent stenting of renal arteries** – single or bilateral: 7/26

• **Access:**
  – 5/26 – boths CFAs
  – 15/26 – 1 x brachial, both CFAs
  – 5/26 – 2 x brachial, both CFAs
  – 1/26 – 1 x axillary, both CFAs

• **Femoral access sheaths:**
  – Mean – 8.1F (Right=7.8F, Left=8.3F)
• Wiring technique (52 sides)
  – Retrograde – 28/52
  – Antegrade – 13/52
  – Double balloon / CART – 11/52

• Covered stents used:
  – 22/26 – Advanta / Viabahn

• Extensions with Bare Metal Stents:
  – Right – 20/26 (16/20 for recoil / stenosis)
  – Left – 20/26 (17/20 for recoil / stenosis
Complications

• Major: 2/26 - periprocedural AMI and bleeding
• Minor: 5/26
  – Non-femoral access – 27 access sites
    • 1 x haematoma
    • 1 x brachial artery thrombosis 10/7 post-procedure
  – Femoral access:
    • 2 x haematoma
    • 1 x distal embolism
Patient demographics

Co-Morbidities

- Hypertension: 75%
- Diabetes: 21%
- Smokers: 71%
- Hyperlipidaemia: 33%
- Obesity: 33%
- Coronary artery disease: 33%
- Heart failure: 21%
- Renal impairment: 12.50%

Series 1
Follow up and outcome

- Mean follow up (all) – 17.3 months
- Non-survivors: 8
  - mean age 63.6 years
  - 1 peri-procedure mortality, 7 unrelated deaths
  - 5/8 – CLI compared to 2/18 for survivors
- Survivors: 18
  - mean age 56.2 years
  - mean follow up – 27.3 months
- Re-intervention: 4/26 patients – thrombectomy and/or stenting
- Symptom free: 12/26
- Lost to follow up: 2/26
Summary

• Challenging Intervention
• Good technical success – 100%
• Patients are potentially higher risk cf. to surgery
• Initial data appears promising
• Longer term follow up
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