Sustaining hypogastric flow - preserving pelvic functionality

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(Aorto-) Iliac Artery Aneurysms
Basic Measurements

Country: Germany
City: Osnabrück
Hospital: Marienhospital
Doctor: Prof. Heckenkamp
Initials: P.H.
Birthday: 17.09.1928

Angiographie Winkel: Cranial 35°
Aortenwinkel: 55°
LRA: 85°

JOTEC GmbH, E-xtra Design Engineering,
Lotzenacker 23, 72379 Hechingen, Tel. 07471922301, Fax 07471922101
Aorto-Iliac Artery Aneurysm Management

Open Surgical Repair

• Complications include: 1,2
  – Higher early (30 day) morbidity / mortality
  – Increased surgical time
  – Increased blood loss
  – Longer hospital stay
  – Longer Intensive Care Unit stay

Hay-day for open aortic surgery is over, Charing Cross, 2015

Aorto-Iliac Artery Aneurysm Management

First Experiences with Coil-and-Cover

- Occlude internal iliac artery and cover with endograft sealing in the external iliac artery
- Complications include:
  - Severe morbidity (including colonic ischemia) and even mortality \(^1\)
  - Buttock claudication rates of 50% with persistence rates of 33\% \(^2,3\)
  - Sexual dysfunction rates of 20\% \(^2,3\)


Sandwich, Chimney, Periscope Technique

Novel chimney-graft technique for preserving hypogastric flow in complex aortoiliac aneurysms
Heckenkamp J. ¹, Brunkwall J. ², Luebke T. ², Aleksic M. ³, Schöndube F. ⁴, Stojanovic T. ⁴
J Cardiovasc Surg, 2012

¹ Department of Vascular Surgery, Niels-Stensen-Hospital, Osnabrueck, Germany;
Off Label Endovascular Techniques

- Endovascular repair using parallel stent-grafting
- Complications include: ¹,²
  - No specific testing / long-term follow up
  - Potential compression of parallel grafts, Endoleak
  - Requires brachial / axillary access

Useful after Aorto-biiliac Endograft

² Lobato AC. The sandwich technique to treat complex aortoiliac or isolated iliac aneurysms: results of midterm follow-up. Journal of Vascular Surgery 2013;57(2)Supplement:26S-34S.
Bell Bottom, Flare Technique

- Increased sec. Interventions\(^1\)
  - Aneurysm Progression
  - Type Ib Endoleak

_EVAR with Flared Iliac Limbs has a High Risk of Late Type 1b Endoleak_

D. Gray, R. Shahverdyan \(^1\), V. Reifferscheid \(^2\), M. Gawenda, J.S. Brunkwall \(^*\)
Clinic of Vascular and Endovascular Surgery, University Hospital of Cologne, Kerpener Str. 62, 50937 Cologne, Germany

\(^1\): Torsello G et al. Endovascular treatment of common iliac artery aneurysms using the bell-bottom technique. _J Endovasc Ther_, 2008;14, 625
EVAS (Common Iliac Aneurysms)

**J Vasc Surg.** 2016 Nov;64:1262-1269

Preservation of hypogastric flow and control of iliac aneurysm size in the treatment of aortoiliac aneurysms using the Nellix EndoVascular Aneurysm Sealing endograft.


**EVAS was effective with preservation of internal iliac patency in most cases. Complete CIA exclusion prevented aneurysm enlargement over time, whereas partial exclusion did not prevent continued CIA enlargement, particularly in larger aneurysms. Distal sealing up to 35 mm**
Side Branch Technology e-liac

Authorized for:
Aorto-Iliac Aneurysms
Isolated Iliac Aneurysms
Design E-liac
Implant Design

- Maximum 6 tips on one plane
- Bending planes
- Increased flexibility
- 3D bending without kinking
Symmetric stent design  Asymmetric stent design
Implant Design  E-liac

- Asymmetric spring design
  → High flexibility
- Increase of radial force
- Deployment of side branch by the use of a special shaped bifurcation spring
- Spring within Side Branch → Compression spring for a better anchoring of covered stent
Implant Design

Positioning of radiopaque marker:

- Tubes indicate endings of prosthesis
- Tubes on Branch indicate distal positioning
- E (3)-Marker shows the orientation and beginning of side branch
Implant Design

Positioning of radiopaque marker:

- E-Marker indicates branch orientation → Depending on implantation side the E-Marker appears as an E or as a 3
Instructions for use E-iliac

- Unilateral or bilateral aorto-iliac or iliac aneurysm
- Access vessel morphology compatible with the 18F (6mm OD) delivery system
- Non-aneurysmal CIA landing area in case of iliac artery aneurysm ≥ 20mm
- Diameter of the CIA in the proximal landing area: 12mm to 17mm
- Non-aneurysmal EIA segment distal to the aneurysm ≥ 15mm
- Diameter of the EIA in the distal landing area: 8mm to 13mm
- Non-aneurysmal IIA segment distal to the aneurysm ≥ 15mm
- Angel between EIA and IIA ≤ 50°
- Thrombus free iliac lumen in the area of iliac bifurcation ≥ 18mm
Patient:

Male
Age: 77
Right Iliac Aneurysm, Diameter 44mm
TAA, Therapy with NOAK
Asymptomatic
17.09.2014: Exclusion: E-iliac (72IB1814L53L44)
Eventus (91BX3710L)
Follow-up 10/14: No endoleak, Diameter: 37mm
Follow-up 10/16: No endoleak, Diameter: 33mm
Follow-up 10/17: No endoleak, Diameter: 30mm
Diameter: 37mm

CONCLUSIONS:
This first ever 1-year study reports the results with the new E-liac device and shows that it can be safely applied for the treatment of aortoiliac aneurysmatic disease with low reintervention rates and high patency rates. Long-term data are needed to confirm the durability of the device.
Own Data

- N=7 (Male)
- Follow up: 26.8 Months (8-36 Months)
- Age: 76±10.4
- Technical Success: 100%

Follow Up:
- No significant Endoleak
- No significant Migration
- No Occlusion
- No Deaths
Summary

• Pelvic Flow should be sustained
• Attractive alternative to open surgery
  – Is or will become Goldstandard
• E-liac fits for most anatomies
  • High 3D flexibility without kinking
  • Easy to use
  • Promising data
• Custom made solutions possible
  • Promising Data (Small Series)