Duplex – Guided Endovascular Repair of Popliteal Artery Aneurysms

Enrico Ascher, MD
Natalie Marks, MD

NYU Langone Hospital - Brooklyn & The Vascular Institute of New York®
No disclosures
Popliteal Aneurysm:

Duplex Diagnosis & Treatment

Lower Extremity Revascularization without Preoperative Contrast Arteriography: Experience with Duplex Ultrasound Arterial Mapping in 485 Cases

Ernest Ascher, MD; Axel Hägermann, MD; Neela Makhoul, MD; RVT; Tuffana Certa, MD; RVT; Brenda Kallanroo, MD, and Yuri Khairinoy, MD; Brooklyn, New York
Small popliteal artery aneurysms: Are they clinically significant?

Enrico Ascher, MD, Natalia Markevich, MD, RVT, Richard W. Schutzer, MD, Sreedhar Kallakuri, MD, Theresa Jacob, PhD, and Anil P. Hingorani, MD, Brooklyn, NY

- Mural thrombus (89%)
  - Small aneurysms 32 / 35 (91%)
  - Large aneurysms 25 / 29 (86%)

\[ p = 0.69 \]
Popliteal Aneurysm

- **Small aneurysm (50)**
  - Avg. # patent arts \( 1.4 \pm 1.1 \)

- **Large aneurysms (38)**
  - Avg. # patent arts \( 1.6 \pm 1.1 \)

\( p = 0.4 \)
Duplex-Guided Infrainguinal Arterial Procedures

"If you can see a lesion, you can treat it..."
Duplex-Guided Repair of Popliteal Artery Aneurysms

Advantages - I

- No radiation
- No nephrotoxic contrast
- Multi-planar, magnification
- Visualization of arterial wall
Advantages - II

- Selection & placement of:
  - Covered stent
- Treatment of complications
- Adequacy of the technique
  - Anatomical
  - Hemodynamic
• 38 patients (37 male : 1 female)
• Age 80 ± 6 (64 to 92 years)
• Aneurysm diameter
  ➔ 2.6 ± 11 mm (15 to 66 mm)
• Asymptomatic – 21 / 38 cases (54%)
• Symptomatic – 17 / 38 cases (46%)
82 year old male patient

- Rt Nephrectomy
- Cr = 2.2 mg/dL
- HTN, MI, Stroke
- EF: 25%

36 mm partially thrombosed PAA
Duplex - Guided Popliteal Aneurysm Repair
Duplex-Guided Popliteal Aneurysm Repair
Duplex - Guided Popliteal Aneurysm Repair: Endoleak
Landing Zone:
- AK: 3
- BH: 8
- BK: 27

Post-op PAVF: 137 ± 41 ml/min (80-210)

Low PAVF (<100 ml/min) - 2 patients
- Both had 0 run-off score
- Both thrombosed (2 and 5 months)
Complications

- No pseudo-aneurysms
- No embolizations
- No dissections
- One death from acute respiratory failure in 1 month
All but one (92%) remain thrombosed by duplex scan.

Mean follow-up: 28 months
Duplex – Guided Coil Embolization
Conclusions

➢ Popliteal artery aneurysms can be successfully treated with endovascular graft placement under duplex guidance.

➢ Poor run-off and low PAVF (<100 ml/min) correlate with early popliteal endograft thrombosis.
Thank you!
Duplex – Guided Endovascular Repair of Popliteal Artery Aneurysms

Enrico Ascher, MD
Natalie Marks, MD

NYU Langone Hospital - Brooklyn &
The Vascular Institute of New York®