When Should Open Surgery Be The First Option For Popliteal Aneurysm Repair: What Approach Is Best – Medial Or Posterior?

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POPLITEAL ARTERY ANEURYSMS
INDICATIONS FOR TREATMENT

• ASYMPTOMATIC: > 2.0-2.5cm
• INTRASACCULAR THROMBUS (SMALL ANEURYSM)
• SYMPTOMATIC:
  - PAIN
  - NERVE/VENOUS COMPRESSION
  - SEVERE ISCHEMIA
• DISTAL EMBOLIZATION
• RUPTURE

POPLITEAL ARTERY ANEURYSMS
TREATMENT

OPEN SURGERY
• HUNTERIAN LIGATION / RESECTION
• POPLITEAL LN DISTAL BYPASS (MEDIAL APPROACH)

• RESSECTION + GRAFT INTERPOSITION (POSTERIOR APPROACH)

ENDOVASCULAR TREATMENT

PATIENT – TAILORED INTERVENTION

GOLD STANDARD

LATE COMPLICATIONS
• GRAFT-RELATED
• SAC EXPANSION

CONCLUSION: Stent graft: appropriate for anatomically suitable PAAs
• Patent distal popliteal artery / adequate run-off
• Appropriate landing zones
• Compatibility endograft / artery

DISCLOSURES:

Travel grants from Cook, Medtronic, Gore, Bayes Servier

Consultant Fees from Sanofi and BMS (1995 - 98)

Shareholder: Lisbon Cardiovascular Institute (ICVL) from 1998 - 2015
POPLITEAL ARTERY ANEURYSMS
OPEN SURGICAL REPAIR

- 73 PATIENTS / 111 ANEURYSMS 79.2%

Mean Age - 64 anos (42-78).

Clinical Presentation:
- Asymptomatic 50 (49.5%)
- Claudication 10 (9.9%)
- Acute/Critical Ischemia 39 (38.6%)
- Edema (foot/leg) 5 (4.9%)
- Rupture 7 (6.9%)

Run-off crural:
- 3/3 42
- 2/3 18
- 1/3 41
- 0/3 10

RESSECTION / GRAFT INTERPOSITION 11
(hemispheric approach) / cutout 19 / 22

HUNTERIAN LIGATION / BYPASS (medial approach) 24 / 28

79.2%

POPLITEAL ARTERY ANEURYSMS
ENDOVASCULAR TREATMENT

24 patients / 29 aneurysms 20.7%

Age - 76 yrs (53-95)

- Symptomatic 11 / 29 (38%)
- Asymptomatic 18 / 29 (62%)
- Claudication 8 (27.6%)
- Acute ischemia 6 (20.7%)
- Compress 5 (15.5%)

Association with AAA - 5/24 (19,5%)

False aneurysms - 4/29 (13.7%)

POPLITEAL ARTERY ANEURYSMS
ENDOVASCULAR TREATMENT

A.A.M., male, 77 yrs

- 27 yrs ago:
  - PAA resection + vein graft (posterior approach)

9/2016 – Routine visit
  - Asymptomatic proximal PAA: 5.0cm

ER: 2 Vịshuban endografts – uneventful
  - Discharge at 3rd day
  - Dual anti-platelet therapy

4/11/2016:
  - Acute ischemia – thrombosed endograft
  - Hybrid approach:
    - Popliteal/crural thrombectomy + popliteal
      patch angioplasty
    - Proximal/distal stent relining
    - Oral anticoagulation

POPLITEAL ARTERY ANEURYSMS
ENDOVASCULAR TREATMENT

EARLY RESULTS

Endo - PAA OR - PAA

- Technical success 100% 100%
- Hospital mortality 0% 1.3%
- Hospital morbidity 0% 4.9%
- Amputations (major) 0% 4.7%

POPLITEAL ARTERY ANEURYSMS
LATE RESULTS

Follow-up Endo-R OR - PAA

1st Patency 63.8% 72.1%
2nd Patency 94.1% 82.2%
Reinterventions 6.8% 4.2%
Limb Preservation 97% 90.1%
Survival 99.7% 70.1%

Treatment of Popliteal Aneurysm by Open and Endovascular Surgery: A Contemporary Study of 592 Procedures in Sweden
A. Cervin a, b, J. Tjärnström a, b, H. Ravn a, c, S. Acosta d, R. Hultgren e, M. Welander f, M. Björck a, *
Eur J Vasc Endovasc Surg (2015) 50, 342-350

ENDO REPAIR - 16.7%
OPEN REPAIR - 83.3%
RESULTS (I)

• OUTCOME FAVOURS OPEN REPAIR - ACUTE / SEVERE ISCHEMIA
• LS V GRAFT KEY TO SUCCESSFUL AND DURABILITY OF OR
• NO COMPARISON BETWEEN ENDO VS OPEN WITH PROSTHETIC GRANTS

POPLITEAL ARTERY ANEURYSMS

CONCLUSIONS (I)

OPEN CONVENTIONAL SURGERY IS STILL FIRST CHOICE IN PATIENTS WITH:
ACUTE / SEVERE LOWER LIMB ISCHEMIA
DISTAL EMBOLIZATION
CONCOMITANT OCCLUSION OF CRURAL VESSELS
PRESENCE OF ADEQUATE VEN CONDUIT

ENDOVASCULAR REPAIR SHOULD BE INDICATED IN PATIENTS WITH:
FAVORABLE ANATOMY
PATENT DISTAL POPLITEAL ARTERY + GOOD RUN-OFF
ELECTIVE CONDITIONS
NO ADEQUATE VEN CONDUIT (?)

DUAL ANTI – PLATELET vs ANTI - COAGULATION

POPLITEAL ARTERY ANEURYSMS

CONCLUSIONS (II)

MEDIAL APPROACH INDICATED FOR:
Extensive aneurysms
Presence of occlusive disease / distal revascularization

POSTERIOR APPROACH INDICATED FOR:
PAAs involving the middle 1/3 of the artery
Entrapment syndrome

OUTCOMES: COMPARABLE W/ SUITABLE VEN IS USED
LATE SAC EXPANSION
Medial approach – 18% (?)