Femoropopliteal Above-Knee Bypass: The True Results

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Treatment options in the femoropopliteal segment

BMT + Stop smoking and keep walking

Bypass surgery
- Vein – in situ, reversed, arm vein etc.
- Umbilical vein
- Prosthetic graft – PTFE, dacron, Heparin bonded prosthetic graft
- …

Endovascular options in the SFA segment
Percutaneous infra-inguinal revascularization carries a low risk of morbidity and mortality, is well accepted by patients, does not prevent ultimate surgical revascularization if necessary and consequently should be considered the first-line therapy for chronic lower extremity ischemia.
Factors influencing indication for treating SFA lesions

- **Claudication that interferes with the patient’s life**
- **Rest pain**
- **Ulceration, gangrene**
Factors influencing choice of treatment

- Severity of disease
  - Clinical: Claudication vs CLI
  - Anatomical:
    - Lesion length; degree of obstruction; inflow/outflow; TASC

Increasingly complex disease can be managed using endovascular techniques

TASC A: endovascular treatment
TASC B & C: can be treated using either
TASC D: surgery, owing to endovascular treatment’s prohibitive failure rate

TASC II 2007

Type A lesions:
- Single stenosis ≤3 cm in length
- Single occlusion ≤3 cm in length

Type B lesions:
- Multiple lesions (stenoses or occlusions), each ≤3 cm
- Single stenosis or occlusion >3 cm not involving the infrapopliteal popliteal artery
- Single or multiple lesions in the absence of continuous distal vessels to improve inflow for a distal bypass
- Heavily calcified occlusions >3 cm in length
- Single popliteal stenosis

Type C lesions:
- Multiple stenoses or occlusions totaling >15 cm with or without heavy calcification
- Recurrent stenoses or occlusions that need treatment after two endovascular interventions

Type D lesions:
- Chronic total occlusion of CFA or SFA >20 cm, involving the popliteal artery
- Chronic total occlusion of popliteal artery and proximal trifurcation vessels

TASC classification of femoral-popliteal lesions. CFA = common femoral artery; SFA = superficial femoral artery
Factors influencing choice of treatment

• Severity of disease
  • Clinical: Claudication vs CLI
  • Anatomical:
    • Lesion length; degree of obstruction; inflow/outflow; TASC

• Risk factors and comorbidities
  • Age, Gender, Smoking, DM, CAD, Lungs, Renal ...

• Availability of vein
  • Autologous vein:
    Always first choice if available
  • Prosthetic grafts
    The secondary choice – above as well as below the knee
The immediate answer to “The true Fem-Pop results” is to look at which graft type produces the best results.

Searched relevant databases for results of fempop AK from published RCTs on:

- Vein grafts
  - In situ
  - Reversed GSV
- Prosthetic grafts
  - Human umbilical vein
  - PTFE
  - Dacron
- Trials on adjuvant procedures left for JB

13 trials were identified:

- 1987-99: 7
- 2000-09: 6
- 2010 or newer: 0
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In-situ graft technique vs. reversed greater saphenous vein (GSV)

2 RCT + Cochrane Database Syst Review (Twine et al 2010)

Conclusion: **no convincing difference**

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P = 76 vs 48 % at 5 years
Vein (GSV) vs. Prosthetic graft

4 RCT + Cochrane Database Syst Review (Twine et al 2010)

Conclusion: **Vein better than prosthetic (PTFE) graft**
### Prosthetic graft (PTFE) vs. Human umbilical vein (HUV)

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**3 RCT : Conclusion:** **Human umbilical vein** better than **PTFE**
Prosthetic grafts: PTFE vs. Dacron

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4 RCT + Cochrane Database Syst Review (Twine et al 2010)

Prosthetic grafts: PTFE vs. Dacron

Conclusion: **Dacron** is better than **PTFE** (at 24 and 60 months)

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### The graft material hierarchy in the femopop AK position:

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**GSV ~ in situ vein ? Human umbilical vein**

**Dacron**

**PTFE**
Factors influencing choice of treatment

• Severity of disease
  • Clinical: Claudication vs CLI
  • Anatomical:
    • Lesion length; degree of obstruction; inflow/outflow; TASC I-IV
• Risk factors and comorbidities
  • Age, Gender, Smoking, DM, CAD, Lungs, Renal ...
• Availability of vein

• Patients perception of disease severity
• Preference of the patient
• Preference of the phycisian
• Availability of endovascular technichnues
• Ongoing research projects
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- Patients perception of disease severity
- Preference of the patient
- Preference of the physician
- Availability of endovascular techniques
- Ongoing research projects
- MIP = Mild Industrial Pressure
- Economy
Which parameters/endpoints are most relevant to compare results obtained with different methods?

Seen from the perspective of
- The patient
- The physician
- The society
- The medical company
Which parameters/endpoints are most relevant to compare results obtained with different methods?

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- Patency (pp, sp ...)
- Haemodynamics (flow, ABI, TcPO2 ...)
- Restenosis rate
- Complications (m&m, stent fractures ...)
- Survival (life, limb, wound)
- Physical performance (walking distance...)
- Quality of Life (generic or disease specific ...)
- Economy (patient, society, physician, company...)
Remember

Risk factor modification for every patient.
- Stop Smoking, Decrease lipid levels, Reduce blood pressure
- Loose weight, Daily exercise, Better regulation of Diabetes

Relative 5-year PAD mortality rates versus other common pathologies

- Breast cancer
- Hodgkin's disease
- PAD
- Colon and rectal cancer
- CLI
- Lung cancer

Fig. A8. Survival of patients with peripheral arterial disease. IC – intermittent claudication; CLI – critical limb ischemia.

Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II)

Thank You