Hybrid revascularisation for complex arterial occlusions

Holger Staab, MD
University Hospital Leipzig, Germany
Clinic for Vascular Surgery
Disclosure

Speaker name:

H.H. Staab

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)

I do not have any potential conflict of interest
What`s the therapy of choice?
Therapy options

- Open surgery
- Endovascular
- Hybrid repair
Open surgery in CLI with multilevel POD

1995:
Morbidity rate  61 %
Mortality rate  19 %

Harward TR et al., Ann Surg 1995

2015:
Morbidity rate  11.9%
Mortality rate  5 %


Open surgery with simultaneous inflow and outflow bypasses is still associated with high morbidity and mortality
Hybrid Techniques

- CFA endarterectomy
- + inflow angioplasty
- + outflow angioplasty

Femoral-femoral Bypass
Femoro-popliteal Bypass
Distal origin Bypass
Why Hybrid procedures?

- Old patients with multiple comorbidities

- 25% of patients with CLI have multilevel arterial occlusive disease

- Overcome more complex vessel anatomies with less invasive procedures than open repair


Why Hybrid procedures?

- High initial technical success (up to 99%)
- Morbidity and Mortality seem to be better than in OR despite selection bias
- Shortened hospital stay, Cost reduction

What evidence for Hybrid revascularization do we have?

Surgical and endovascular hybrid approach in peripheral arterial disease of the lower limbs

Anouk Grandjean, Katia Iglesias, Céline Dubuis, Sébastien Déglise, Jean-Marc Corpataux, and François Saucy
Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland

Early and late outcomes of hybrid endovascular and open repair procedures in patients with peripheral arterial disease

Peter Balaz, Slavomir Rokosny, Peter Wohlfahrt, Milos Adamec, Libor Janousek, and Martin Björck

1Department of Transplant and Vascular Surgery, Institute for Clinical and Experimental Medicine, Prague, Czech Republic
2Center for Cardiovascular Prevention of the First Faculty of Medicine, Charles University and Thomayer Hospital, Prague, Czech Republic
3Department of Preventive Cardiology, Institute for Clinical and Experimental Medicine, Prague, Czech Republic
4International Clinical Research Center, St. Anne's University Hospital Brno, Brno, Czech Republic
5Department of Surgical Sciences, Vascular Surgery, Uppsala University, Uppsala, Sweden
What evidence for Hybrid revascularization do we have?

Open surgery versus Hybrid repair in iliac and common femoral artery disease

- Hybrid repair is similar to aorto-iliac bypass considering short term and long term patency and limb salvage rates (10 years, 164 limbs)

Hybrid repair should be considered for all patients with extensive iliac femoral occlusive disease regardless the severity of TASC classification, particularly in those with high surgical risk

What evidence for Hybrid revascularization do we have?

- Heterogenous patients
- Different treatment strategies
- Different disease severity
- Varying lesion morphology and complexity
What evidence for Hybrid revascularization do we have?

- Existing data shows good limb salvage rates and low morbidity and mortality.
- Absence of RCT.
- Limited systematic data for Hybrid revascularizations.
- Absence of general criterias for useful indications of Hybrid repair.
Own selection criteria for hybrid repair

- CLI Rutherford Stage 4-6 or ALI
- Multilevel atherosclerotic disease
- Cardiopulmonary high risk patients
- Independent from TASC lesions
CFA endarterectomy + Aorto-iliac angioplasty

- 79 y/o male Pt.
- CLI on the left side (non-healing calf ulcer), PAD Rutherford 5 on the right side
- High cardio-vascular risk factors
- COPD

- Flush aortic occlusion
- Occlusion of both CIA, EIA CFA and SFA
CFA endarterectomy + Aorto-iliac angioplasty

Antegrade brachial access

Retrograde approach via CFA and crossing the occlusion with double Balloon Technique
CFA endarterectomy + Aorto-iliac angioplasty

Predilatation of the aorta and iliac arteries under renal protection

Stenting of the aorta and iliac arteries with 4 covered stents (Advanta™ V12 9/59mm)
CFA endarterectomy + Aorto-iliac angioplasty
CFA endarterectomy + iliac angioplasty + SFA Angioplasty

- 72 y/o male Pt.
- PAOD Rutherford 5 on the right side
- Occlusion of the ilio-popliteal Bypass on the right side
CFA endarterectomy + iliac angioplasty + SFA Angioplasty

Cross-over access to the right EIA after CFA-TEA and pre-dilation

Final Result
Hybrid revascularization is a very useful tool in high risk patients with multilevel POD and extensive tissue loss, but might also be useful for minor Rutherford stages.

We need randomized controlled trials to define the status of hybrid revascularization.
Thank you!