Endovascular Revascularization of Femoropopliteal Arteries after Bypass Graft Failure for Limb Salvage

Daniel Raskin\textsuperscript{1,3} MD, Boris Khaitovich\textsuperscript{1,3} MD, Daniel Silverberg\textsuperscript{2,3} MD, Moshe Halak\textsuperscript{2,3} MD, Uri Rimon\textsuperscript{1,3} MD

Department of Diagnostic Imaging\textsuperscript{1}, Department of Vascular Surgery\textsuperscript{2}
Sheba Medical Center
Sackler School of Medicine\textsuperscript{3}
Tel Aviv University, Israel
Disclosure

Speaker name: Daniel Raskin

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
VD 55 y/o M, SFA CTO Rt

Translumbar Aortography, 13.3.2000
VD 58 y/o M, Composite FEM POP Rt

Angiography, post bypass, 7.9.2003
VD 72 y/o M, SFA and graft occlusion

Occluded composite bypass graft

Occluded native SFA

CTA, 03.01.2017
Management of Critical Limb Ischemia (CLI)

- Endovascular - revascularization
- Surgical - bypass
- Surgical - amputation

Treatment Options

Amputation
- limited survival
- significant morbidity and mortality

Additional graft surgery
- extremely high risk for anesthesia/surgery

Aulivola B et al, Archives of Surgery 2004
Amputation?

WAIT A MINUTE!

Endovascular revascularization?
Objective

To evaluate the feasibility of revascularization of infra-inguinal native arteries in critical limb ischemia patients with failing bypass for limb salvage.
Materials and Methods

Retrospective review, endovascular procedures, 2014 - 2017

Inclusion criteria:

- CLI patients
- CTO of native vasculature
- Chronic occlusion of bypass graft / grafts
- Unsuitable for additional bypass
- Considered for amputation
- Revascularization of native vasculature
Patients

N=15 (limbs); in 14 patients
All male, mean age 72 ± 6.2 years

Rutherford
- Rest pain: N=6/15
- Ischemic ulceration: N=9/15

TASC II
- C: N=2/15
- D: N=13/15
Bypass Grafts

Type

- Great Saphenous Vein: N=11/15
- Polytetrafluoroethylene (PTFE): N=3/15
- Composite: N=1

Number

- 3 bypasses - 1 patient
- 2 bypasses - 3 patients
- 1 bypass - 10 patients
Native Vessels Occlusion Location

N=15

- 5 SFA + POP
- 4 SFA
- 2 proximal SFA
- 4 Distal SFA + POP

CFA - Common Femoral Artery
SFA - Superficial Femoral Artery
POP - Popliteal Artery
Technique

PTR with 0.018” and/or 0.014” systems

Subintimal Arterial Flossing with Antegrade-Retrograde Intervention (SAFARI): N=6/15

Reentry device (Outback): N=3/15

Stenting: N=14/15
Native vessels occlusion

Length (cm)

- 3 patients: 40-50 cm
- 4 patients: 10-20 cm
- 3 patients: 30-40 cm
- 5 patients: 20-30 cm

Average length: 29.2 cm (range 15-47 cm)

Time

- 2 patients: < 1 year
- 2 patients: 1-2 years
- 2 patients: 2-5 years
- 7 patients: > 8 years
- 2 patients: 5-8 years

Average time: 7.5 years (range 0.8-18 years)
Revascularization

• Technical success: 15/15 (100%)

• Clinical improvement in all cases

• Average ABI:
  Before the procedure 0.48
  After the procedure 0.97
Revascularization

- Complications:
  - acute thrombosis - 1 patient

- Clinical follow up:
  - bellow knee amputation at 8 months - 1 patient
VD 72 y/o M, 36 cm occlusion of SFA

Angiography, pre revascularization, 13.04.2017
VD 72 y/o M, open SFA

Angiography, post revascularization, 13.04.2017
VD 72 y/o M, ABI

Preprocedural

Postprocedural
Conclusions

• Native arteries revascularization after long standing occlusion is feasible

• Revascularization should be considered as a treatment option before amputation

• Duration and length of CTO did not affect procedural success in these cases

• A personalized approach and meticulous techniques are imperative for procedure success
Thank you

Daniel Raskin
raskind@gmail.com
Endovascular Revascularization of Femoropopliteal Arteries after Bypass Graft Failure for Limb Salvage

Daniel Raskin¹,³ MD, Boris Khaitovich¹,³ MD,
Daniel Silverberg²,³ MD, Moshe Halak²,³ MD, Uri Rimon¹,³ MD

Department of Diagnostic Imaging¹, Department of Vascular Surgery²
Sheba Medical Center
Sackler School of Medicine³
Tel Aviv University, Israel