

Endovascular first or CLI



Dierk Scheinert, MD
Head of Medical Department V - Angiology
University of Leipzig Medical Center, Germany

Disclosure

Dierk Scheinert, MD

Advisory Board /Consultant:

Abbott, Biotronik, Boston Scientific, Cook Medical,
Cordis, CR Bard, Gardia Medical/Allium, Medtronic,
TriReme Medical, Trivascular, Upstream Peripheral
Technologies

Misconceptions about endovascular therapy in BTK arteries

Extremely dangerous – perforations, compartment syndrome, amputation

„Burns the last bridges“

destroys surgical landing zones

Very poor patency, not worth it

BTK Retrograde Approach: Literature Review

- 19 articles, 1905 retrograde interventions
- Access to the vessel successful in 94.4 %
- Technical success of the intervention 85.0 %
- Acute distal occlusion 0.4 %
- Compartment 0 %

Retrograde Tibioperoneal Access for Complex Infringuinal Occlusions

Short- and Long-Term Outcomes of 554 Endovascular Interventions

Andrej Schmidt, MD,^a Yvonne Bausback, MD,^a Michael Piorkowski, MD,^b Tim Wittig, MD,^a
Ursula Banning-Eichenseer, PhD,^a Holger Thiele, MD,^c Samer Aldmour, MD,^d Daniela Branzan, MD,^e
Dierk Scheinert, MD,^a Sabine Steiner, MD^a

JACC: CARDIOVASCULAR INTERVENTIONS VOL. 12, NO. 17, 2019

Crossing-success 95.1 %
(only CTOs with failed crossing-attempt from antegrade)

Complications at distal access:
periprocedural: 0.7% occlusions / stenosis

Complications at distal access during FU:
median FU-time (234d): 2.0 % occlusions / stenosis

Does prior EVT burn bridges for bypass-surgery ?

Single center retrospective comparison of patients undergoing pedal bypass after prior endovascular treatment (EVT) or no prior EVT

C. Uhl et al., *J Vasc Surg* 2014

	No prior PTA	Prior PTA
N patients	39	36
Limb salvage (@ 1y)	71.6 %	82.3 %
30-day graft-occlusion	17.9 %	19.4 %

Prior PTA does not effect the outcome of pedal bypass surgery

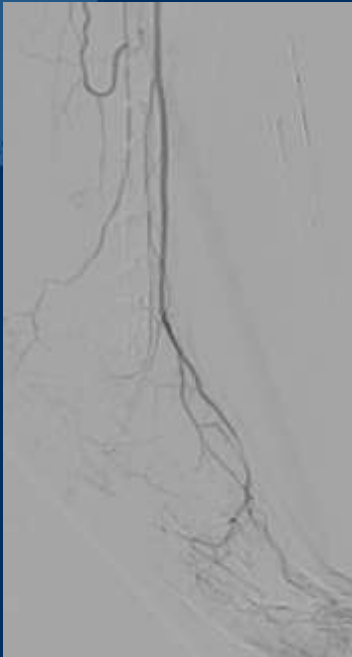
Prior Endovascular Intervention is Not Detrimental to Pedal Bypasses for Ischemic Wounds

Single center retrospective analysis 2006-2013
of patients with tissue-loss undergoing pedal-bypass surgery

Mohapatra A, et al., *J Vasc Surg* 2018

	No prior PTA	Prior PTA	p
N patients	95	27	
Wound-healing (@ 1y)	34.8 %	63.8 %	0.01
Amputation-free survival	76.2 %	72.1 %	0.68
Survival	87.6 %	78.3 %	0.50

EVT after failed bypass can be extremely complex



65 year female, CLI left RB 5
failed distal-fem-crural bypass left

Impossible to connect GWs
from antegrade and retrograde

EVT after failed bypass can be extremely complex



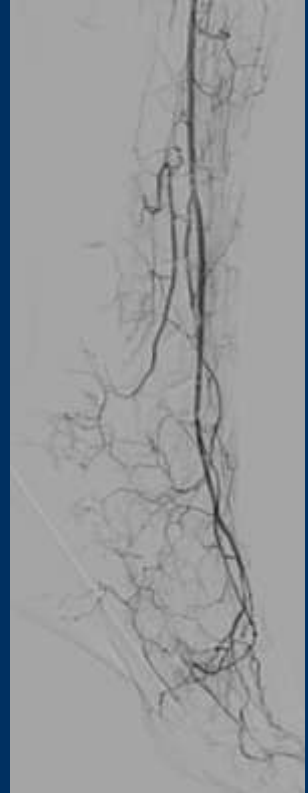
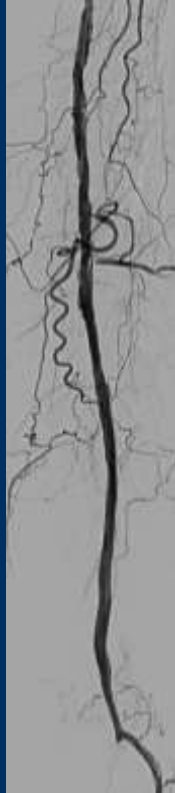
Brockenbrough needle



EVT after failed bypass can be extremely complex

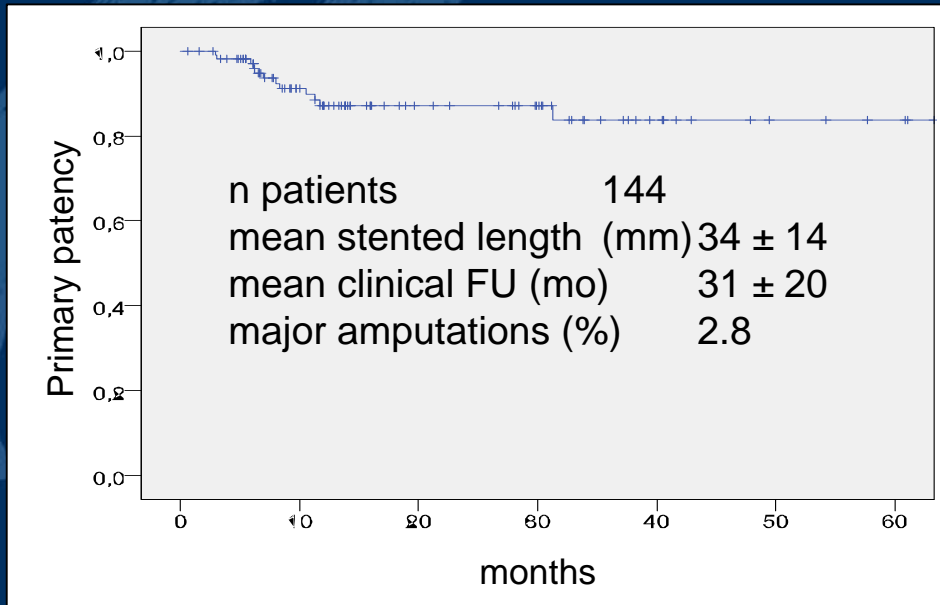


Pioneer-reentry-catheter



Patency of Endovascular Therapy BTK

is outstanding using drug-eluting stents for short lesions

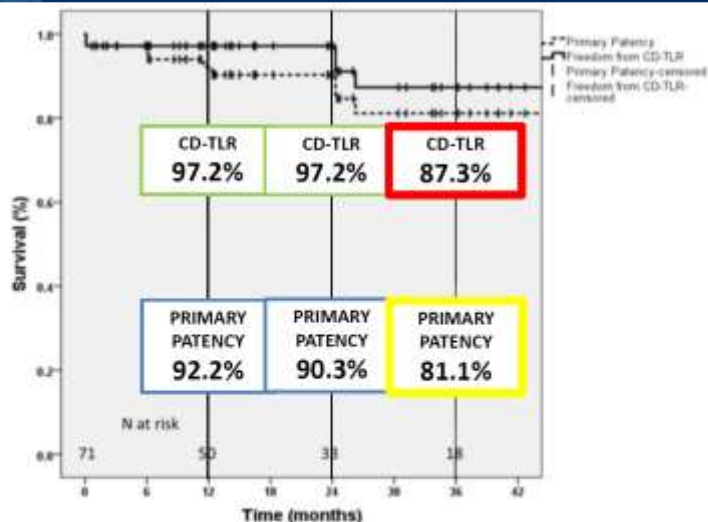


Months FU	Primary patency
6	97.0 %
12	87.0 %
60	83.8 %

Absorb BVS 36 Month Results

Monocentric, prospective registry

48 patients, 55 limbs, mean lesion-length 20.1 mm



CD-TLR (%)	100	97.2	97.2	87.3
SE (%)	0	2.0	2.0	5.7
Primary Patency (%)	100	92.2	90.3	81.1
SE (%)	0	3.4	3.8	6.1

R. Varcoe LINC 2018

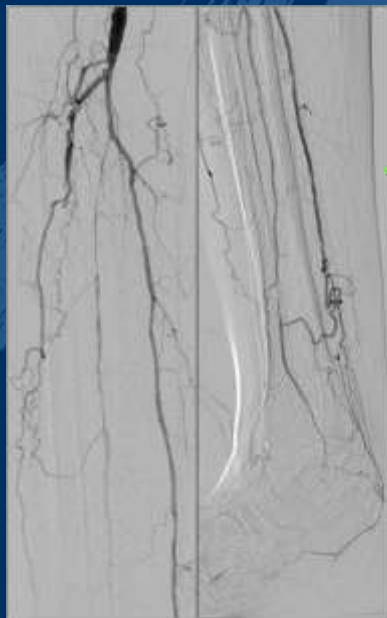
DES in short BTK-lesions



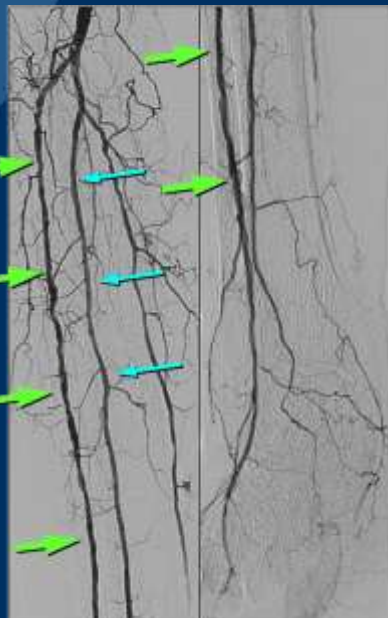
47 Y DM-Patient, Ruth 4

3.5/33mm Cypher

Restenosis-rate of long diffuse BTK-disease



ATA-occlusion, PA-stenosis



POBA of both arteries



3-mo re-occlusion

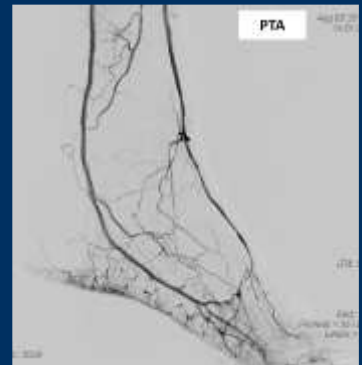
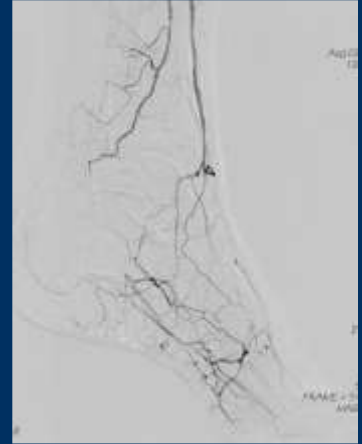
PTA of 77 BTK-arteries, lesion-length 184 mm, restenosis @ 3 mo 69%

Disease-pattern in CLI ‘real-world’ today

Disease pattern in CLI „real world“

- 1449 patients with RB 5 / 6 (2010 – 2013)
- Below-the-knee-disease in 95 %

	Below-the-ankle (arch excluded)	Arch disease
DM-pts.	52 %	23 %
DM + ESRD-pts.	73 %	50 %



Angioplasty or Bypass BTK, Literature

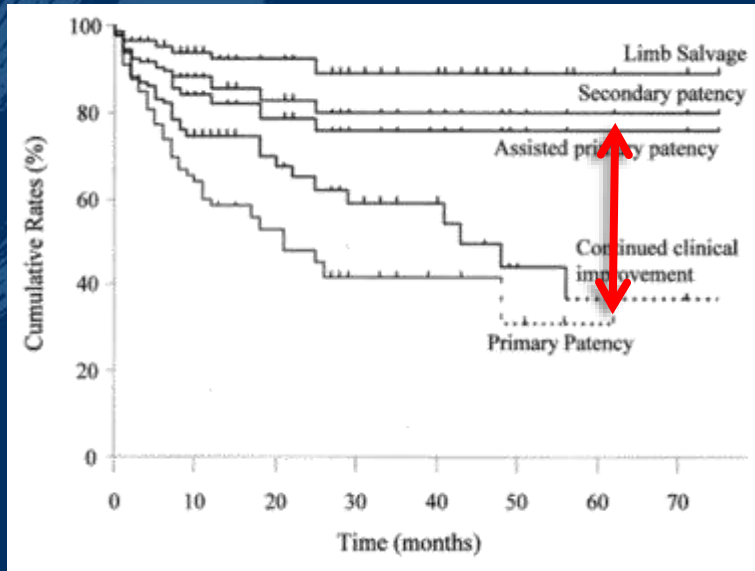
Metaanalysis of crural angioplasty and comparison to popliteal-to-distal vein bypass surgery

Romiti et al. J Vasc Surg 2008

	PTA / Bypass	3 years FU
Patency	PTA	48 %
	Bypass	72 %
Limb-salvage	PTA	82 %
	Bypass	82 %

,Although technical success and durability of PTA was inferior to bypass, the limb-salvage rate was the same.'

Role of Secondary Interventions for CLI-Patients Treated Endo



T. Kudo et al. The effectiveness of PTA for the treatment of CLI: A 10-year experience. JVS 2005;41:423-35.)

„Repeat angioplasty plays a significant role, assisted primary and secondary patency rates correlate to limb salvage rate.“

PTA vs bypass CLI-patients with BTK- disease

Singel center comparison, propensity matched limb pairs

1 year results	Bypass (n=125)	Angioplasty (n=125)	P
Primary patency	54.4 %	51.4 %	0.014
Secondary patency	84.4 %	65.8 %	< 0.001
Freedom from reintervention	64.4 %	71.2 %	ns
Limb salvage	90.4 %	94.2 %	ns

PTA for infrainguinal vessels with CLI: OLIVE prospective multicenter Registry

- Isolated BTK-lesions or BTK involved: **83% (259/312)**
- Only fem-pop-lesions: **17% (53/312)**

1-year results

- Major amputation-rate **7.8 %**

Repeat endovascular treatment **31.7 %**

Bypass surgery **2.6 %**

3-year major amputation-rate **12.1 %**

Below-knee endovascular interventions have better outcomes compared to open bypass for patients with critical limb ischemia

Caitlin W Hicks¹, Alireza Najafian², Alik Farber³,
Matthew T Menard⁴, Mahmoud B Malas¹, James H Black III¹
and Christopher J Abularrage¹

Vascular Medicine
2017, Vol. 22(1) 28–34

Data from the 2008-2014 Vascular Quality Initiative (VQI)

1 year FU results	Bypass	EVT	p
N patients	500	2066	
primary patency	73 %	81 %	< 0.001
secondary patency	86 %	92 %	< 0.001
major amputation	14 %	12 %	0.18
mortality	4 %	6 %	0.15

How is Primary Patency defined ?

Surgical:

Assessing flow through the bypass: open or closed ?

Endovascular:

Absence of binary restenosis (PSV \geq 2.0; 2.4; 2.5)

Center based evaluation by duplex and / or assessment of pulse in both groups.

Hicks et al. *Vascular Medicine* 2017



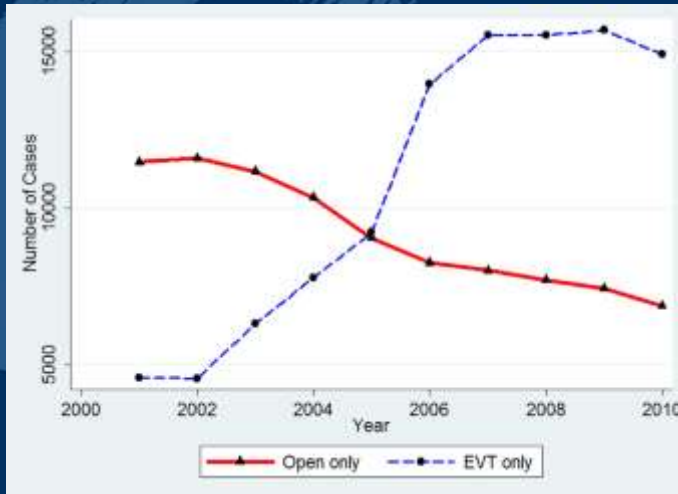
What shall we believe ?

let's wait for
BASIL- 2 and BEST-CLI

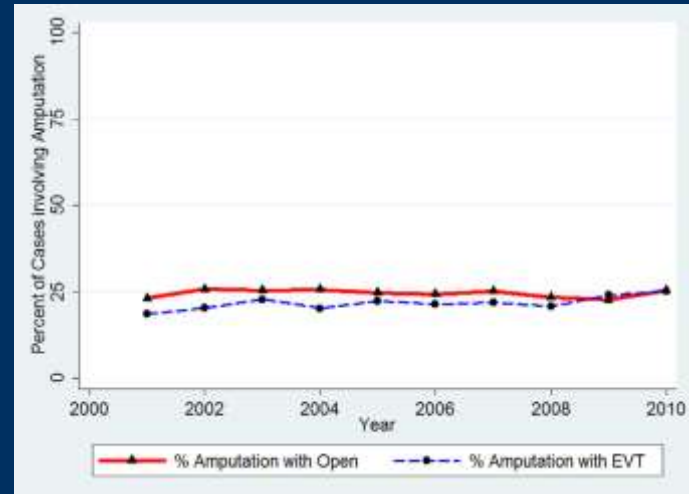
Open bypass and endovascular procedures among diabetic foot ulcer cases in the US from 2001-2010

G.H.Skrepnek., et al. *JVS* 2014

211534 cases undergoing revascularization



Open vs. endovascular procedures



Amputation-rates



Long and difficult or..



a quick and most often
easy procedure

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Head of Medical Department V - Angiology
University of Leipzig Medical Center, Germany