Outcomes following profunda vascularisation using atherectomy and DCB angioplasty: technical tips and comparison with open surgery

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Disclosures

I have the following potential conflicts of interest to report:

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Gore

Medtronic

Cook

Boston

Bard

Cordis

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Therapy of profunda lesion

It is an important collateral pathway in patients with AFS occlusion.
Profundaplasty is a common surgical procedure in patients with DFA lesion and PAD.
Recently, endovascular techniques have been proposed as an alternative to open repair for high risk patients.

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Profunda multicenter registry -Study background-

However, the rate of reintervention after PTA of the DFA is quite high (15.8%)*.
Atherectomy followed by DCB angioplasty is a potential endovascular alternative removing the calcified part of the plaque and increasing the drug uptake in the vessel wall**.

*Qato K, et al Ann Vasc Surg. 2021;72:244-25
**Giusca S, et al EuroIntervention. 2022;18:e432-e442

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Profunda European Multicenter Registry

- ✓ To evaluate clinical outcomes in patients with symptomatic PAD who underwent endovascular and surgical repair of profunda lesions.
- ✓ Inclusion criteria: Symptomatic, isolated lesion of the DFA with or without SFA occlusion causing IC or CLTI.
- ✓ Exclusion criteria: Additional outflow vessel revascularization, acute limb ischemia, stenosis after bypass, or after vascular closure device.

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Profunda European Multicenter Registry

373 patients (2015-2021)
293 male (78.5%)
Mean age (70 ± 10 years)

Profundoplasty (301; 80.7%)
Atherectomy + DCB (72; 19.3%)

- Institute for Vascular Research, Münster
- Vascular Surgery, Universidade de Lisboa
- University Heart Center Freiburg-Bad Krozingen
- Cardiology, Vascular Medicine, Weinheim
- Vascular Surgery, CHU Ambroise Paré, Paris
- Department of Vascular Surgery, LMU, Munich
- Institute of Radiology, University of Göttingen
- Vascular Surgery, University of Brest

Torsello GB et al. Atherectomy Followed by DCB vs. Surgery for Symptomatic Deep Femoral Artery Arteriosclerotic Disease JEVT 2024 DOI: 10.1177/15266028241284443

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Demographics

Variable	SP N=301	AART N=72	P value
Age (median-IQR)	70 (65-76)	69 (63-75)	0.59
Male sex (N (%))	241 (80.1)	52 (72.2)	0.14
HTN (N (%))	251 (83.4)	64 (88.9)	0.25
Hyperlipidemia (N (%))	226 (58.8)	49 (68.1)	0.15
DM (N (%))	96 (31.9)	26 (36.1)	0.49
CAD (N (%))	128 (42.5)	40 (55.6)	0.046
CKD (N (%))	61 (20.3)	12 (16.7)	0.49
Stroke (N (%))	37 (12.3)	8 (11.1)	0.78
Tobacco use (N (%))	204 (67.8)	45 (62.5)	0.39
Previous treatment of the target vessel	46 (15.3)	22 (30.6)	0.003
CLTI (N (%))	127 (42.2)	16 (22.2)	0.002
ABI (N (%))	0.5 (0.34-0.60)	0.5 (0.38-0.64)	0.55
On AAS (N (%))	221 (73.4)	60 (83.3)	0.08
On Clopidogrel (N (%))	88 (29.2)	16 (22.2)	0.23
On DOAC (N (%))	37 (12.3)	12 (16.7)	0.32
On Statin (N (%))	175 (58.1)	55 (76.4)	0.004
On ACE inhibitors (N (%))	176 (58.5)	41 (56.9)	0.013

Lesion characteristics

Variable	SP N=301	AART N=72	P value
Occlusion (N (%))	98 (34.9)	14 (19.7)	0.014
PACCS score >3 (N (%))	181 (64.9)	34 (47.9)	0.009
Lesion length (N (%))	34 (26-51)	30 (20-40)	0.81
Lesion length ≥ 20mm (N (%))	267 (95.7)	63 (88.7)	0.024

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30-day outcomes (entire cohort)

Variable	SP N=301 N (%)	AART N=72 N (%)	OR (95%CI) and coef (95%CI), P value (univariable)
Technical failure	0 (0)	1 (1.4)	NA
Length of stay (days)	6 (5-8)	3 (2-3)	Coef=-2.66, <0.001
ABI post-op	0.85 (0.7-1.0)	0.79 (0.63-1.0)	Coef=-0.01, 0.73
Increase in ABI	0.44 (0.30-0.65)	0.21 (0.10-0.43)	Coef=-0.09, <0.013
In hospital SAE	59 (19.7)	5 (6.9)	0.30 (0.12-0.79), 0.014
30-day mortality	3 (1)	1 (1.4)	1.39 (0.14-13.6), 0.29
30-day amputation	2 (0.7)	1 (1.4)	2.11 (0.19-23.55), 0.55

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Mid-term outcomes (entire cohort)

Variable	SP N=301 N (%)	AART N=72 N (%)	OR (95%CI) and coef (95%CI), P value
Decrease in Rutherford Class	2 (2-3)	2 (0-2)	Coef=-0.72 (-1.07; -0.38), <0.001
Any re-intervention	25 (8.5)	16 (22.2)	3.07 (1.54-6.13), 0.001
CD-TLR	16 (5.4)	5 (6.9)	1-30 (0.46-3.66), 0.62
Major amputation	3 (1.0)	1 (1.4)	1.37 (0.14; 13.33), 0.79
Overall mortality	24 (8.1)	2 (2.8)	0.32 (0.07-1.39), 0.13
MALE	17 (5.8)	6 (8.3)	1.47 (0.56-3.89), 0.43
Death or MALE	39 (13.3)	8 (11.1)	0.82 (0.36-1.83), 0.62
Death or major amputation	26 (8.8)	3 (4.2)	0.45 (0.13-1.53), 0.20

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Propensity score cohort

Variable	SP N=69	AART N=69	P value
Age (median-IQR)	71 (65-75)	70 (63-76)	0.76
Male sex (N (%))	52 (75.4)	50 (72.5)	0.70
HTN (N (%))	63 (91.3)	61 (88.4)	0.57
Hyperlipidemia (N (%)	42 (60.9)	46 (66.7)	0.48
DM (N (%))	25 (36.2)	24 (34.8)	0.86
CAD (N (%))	39 (56.5)	38 (55.1)	0.86
CKD (N (%))	12 (17.4)	12 (17.4)	>0.99
Stroke (N (%))	6 (8.7)	7 (10.1)	0.77
Tobacco use (N (%))	46 (66.7)	44 (63.8)	0.72
Previous treatment of TV	18 (26.1)	20 (29.0)	0.70
CLTI (N (%))	17 (24.6)	16 (23.2)	0.84
On ASS (N (%))	53 (76.8)	58 (84.1)	0.28
On Clopidogrel (N (%)	22 (31.9)	15 (21.7)	0.18
On DOAC (N (%))	10 (14.5)	12 (17.4)	0.64
On Statin (N (%))	43 (62.3)	53 (76.8)	0.06
On ACE inhibitors (%)	42 (60.9)	39 (56.5)	0.60
Occlusion (N (%))	15 (21.7)	14 (20.3)	0.83
PACCS score >3 (%)	31 (44.9)	34 (49.3)	0.61
ABI	0.5 (0.4-0.6)	0.5 (0.38-0.62)	0.89
Lesion length (N (%))	30 (23-36)	30 (20-40)	0.61

Outcomes of the propensity score matched cohort

Variable	SP N=69 N (%)	AART N=69 N (%)	OR (95%CI) and coef (95%CI), P value
Technical failure	0 (0)	1 (1.4)	NA
Length of stay (days)	5 (4-6)	3 (2-3)	Coef=-2 (-3;-1), <0.001
ABI post-op	0.80 (0.7-1.0)	0.78 (0.6-0.9)	Coef=-0.01 (-0.1;0.1), 0.86
Increase in ABI	0.4 (0.16-0.5)	0.22 (0.1-0.4)	Coef=-0.05 (-.14;-.04), 0.3
In hospital SAE	9 (13.0)	5 (7.2)	0.52 (0.16-1.64), 0.27
30-day mortality	0 (0)	1 (1.4)	NA
30-day amputation	0 (0)	1 (1.4)	NA
Decrease in Ruth Class	2 (1-2)	2 (0-2)	Coef=-0.29 (-0.7; 0.17), 0.2
Any re-intervention	6 (8.7)	15 (21.7)	2.92 (1.06-8.04), 0.039
CD-TLR	2 (2.9)	4 (5.8)	2.06 (0.36-11.64), 0.41
Major amputation	0 (0)	1 (1.4)	NA
Overall mortality	4 (5.8)	2 (2.9)	0.48 (0.09-2.74), 0.41
MALE	2 (2.9)	5 (7.2)	2.62 (0.49-13.98), 0.26
Death or MALE	6 (8.7)	7 (10.1)	1.18 (0.38-3.72), 0.77

Summary

- Atherectomy with anti-restenotic therapy of symptomatic DFA is safe and effective
- In patients with comparable clinical and lesion characteristics CD TLR rate after endo is comparable with surgery
- However, the risk of reintervention at the index leg is higher after endovascular treatment

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Endovascular treatment of the profunda femoris: nonsense or useful tool in selected cases?

Endo is not superior compared with surgery but it can be useful in:

- Re-do treatment
- Groin at risk for infection
- After radiation
- High surgical risk (cardiac insufficiency, frailty, short life expectancy, before TAVI)

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Thank you !

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