Peripheral arterial disease for primary care

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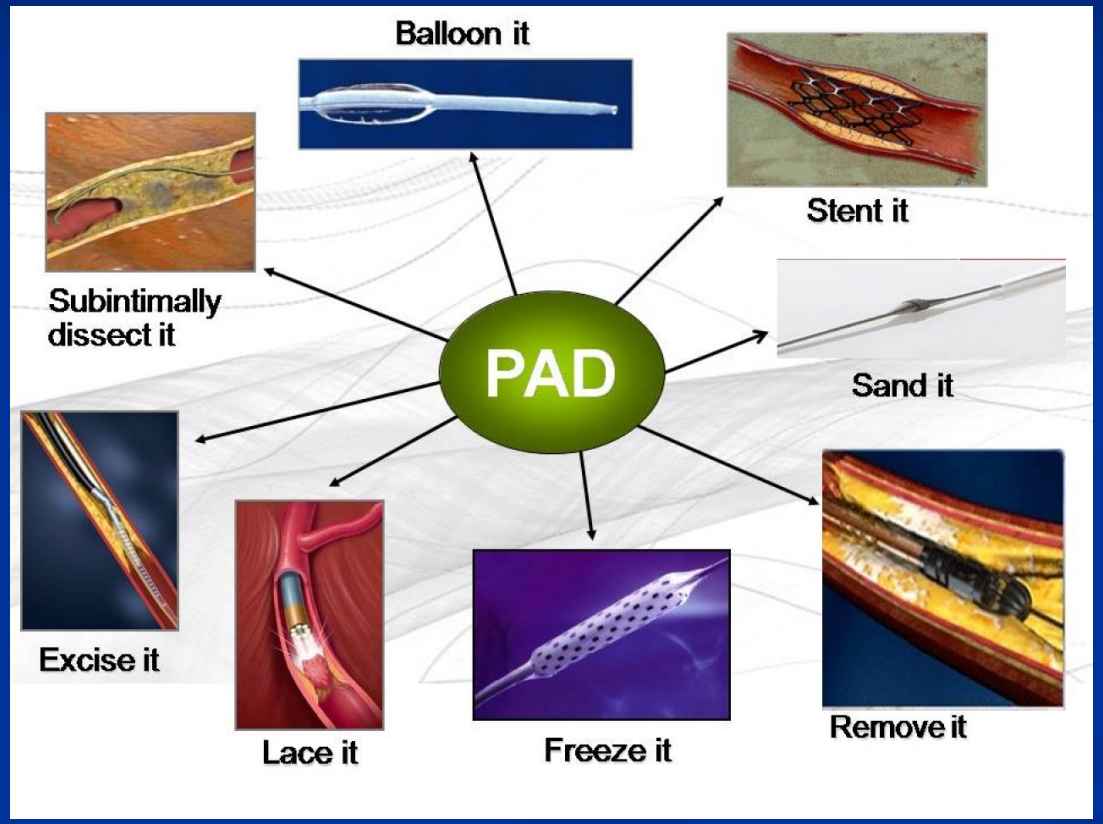


Disclosures

Nothing to disclose

Clinical presentation

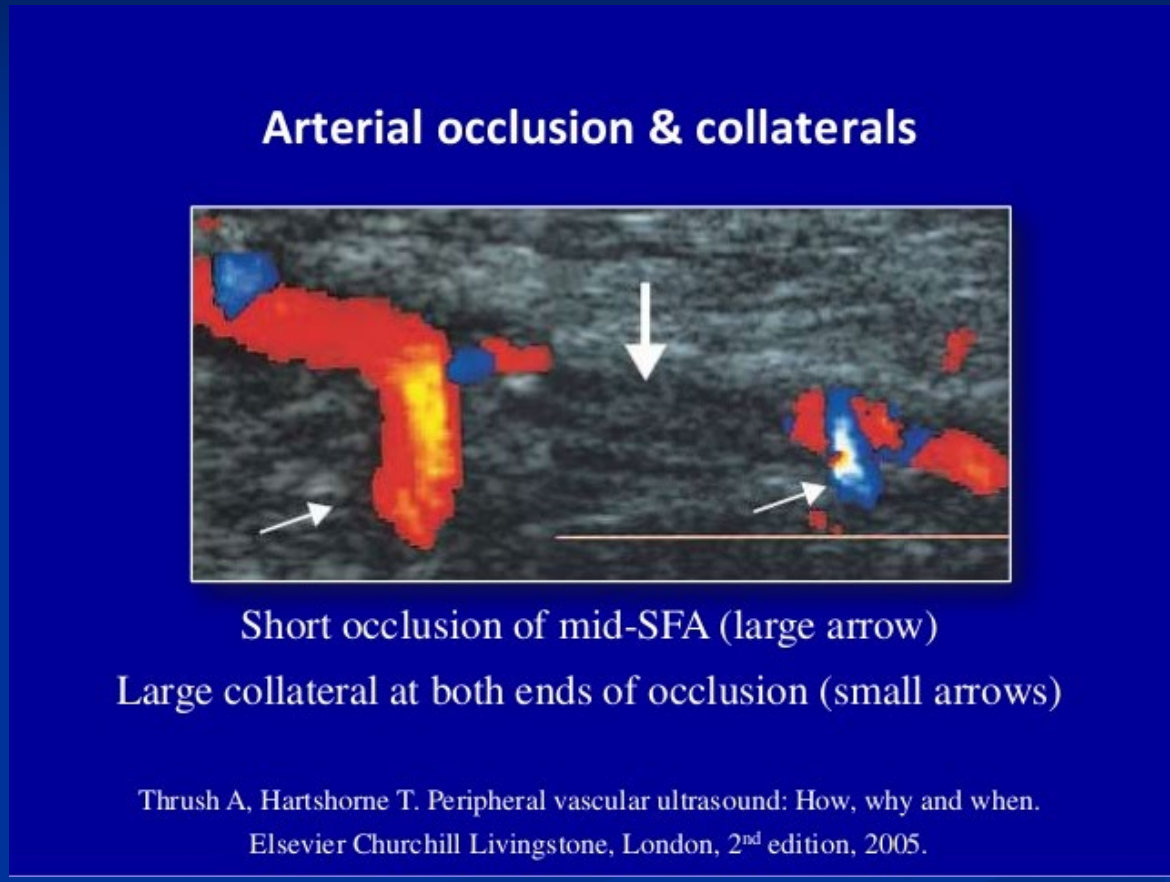
An 85 y.o. male with left leg pain
Pain with ambulation present for 1 month
No rest pain
No ulceration

Clinical presentation

Hyperlipidemia
HTN
TIA remote
Diverticulosis
Smoking 20 pack years, current smoker

Non invasive vascular studies

- ABI 0.45
- Arterial duplex
- Blunted monophasic wave forms
- Occlusion of SFA



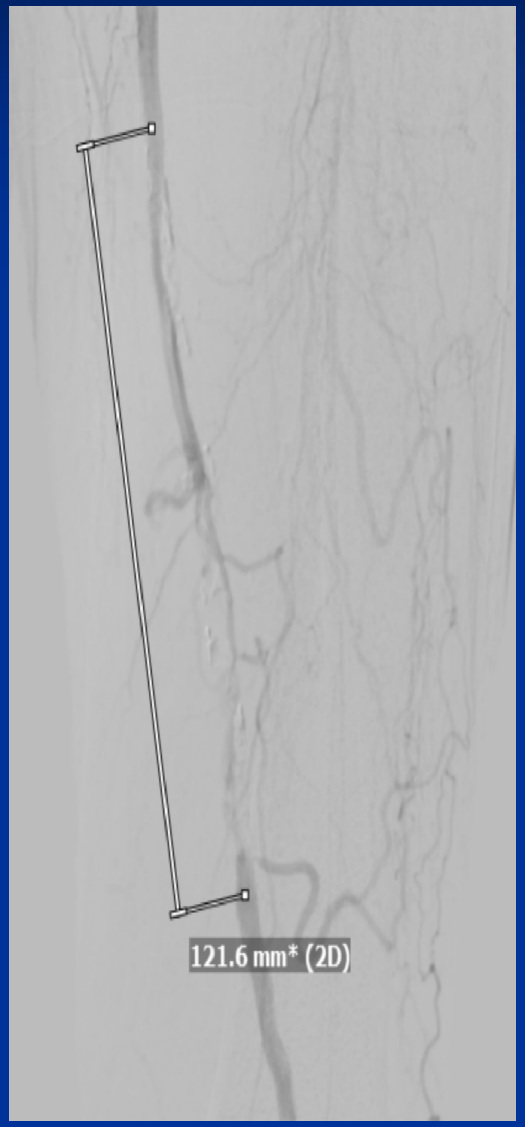
Treatment decision

Invasive therapy versus medical management

- Patient opted for non invasive therapy
  - Smoking cessation
  - Optimal medical therapy

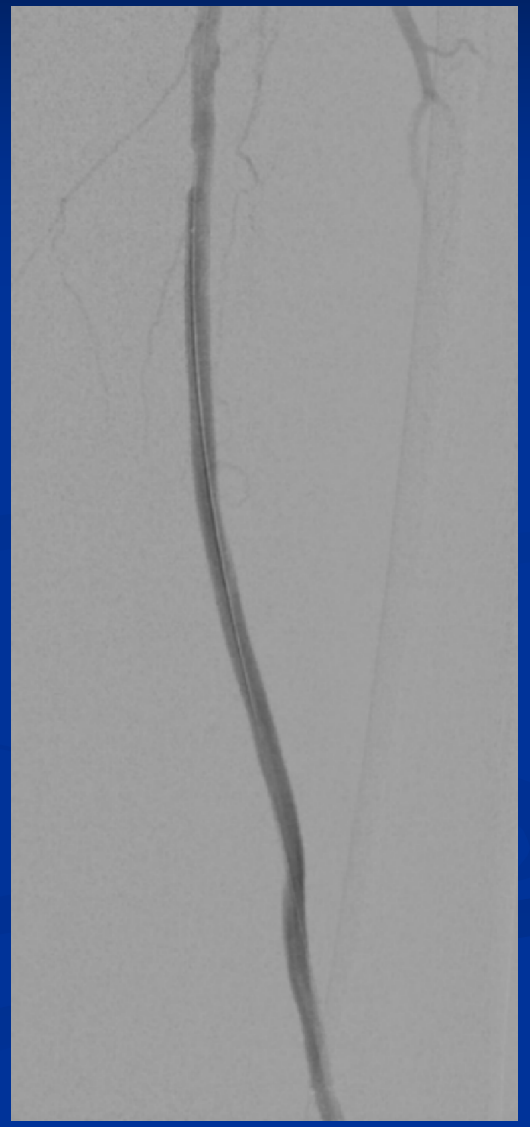
Returned back in 2 weeks to proceed with intervention

Pre Angiogram

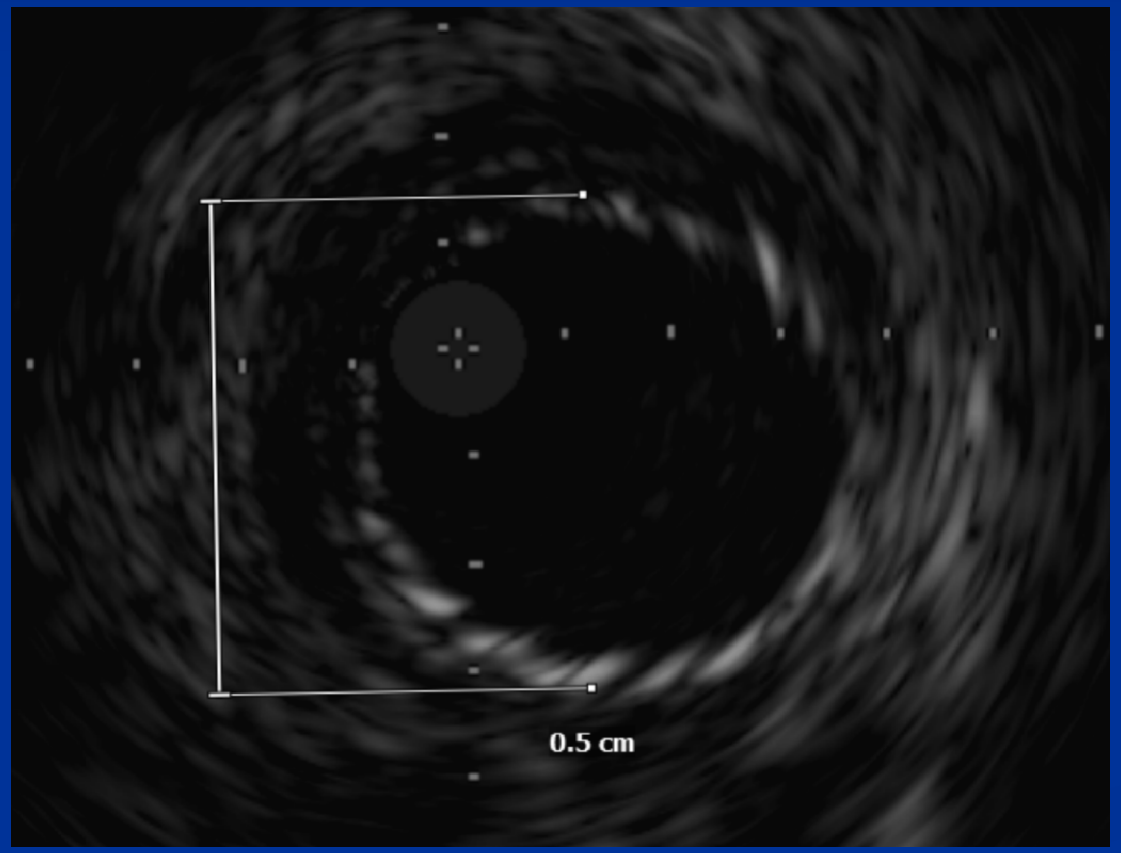


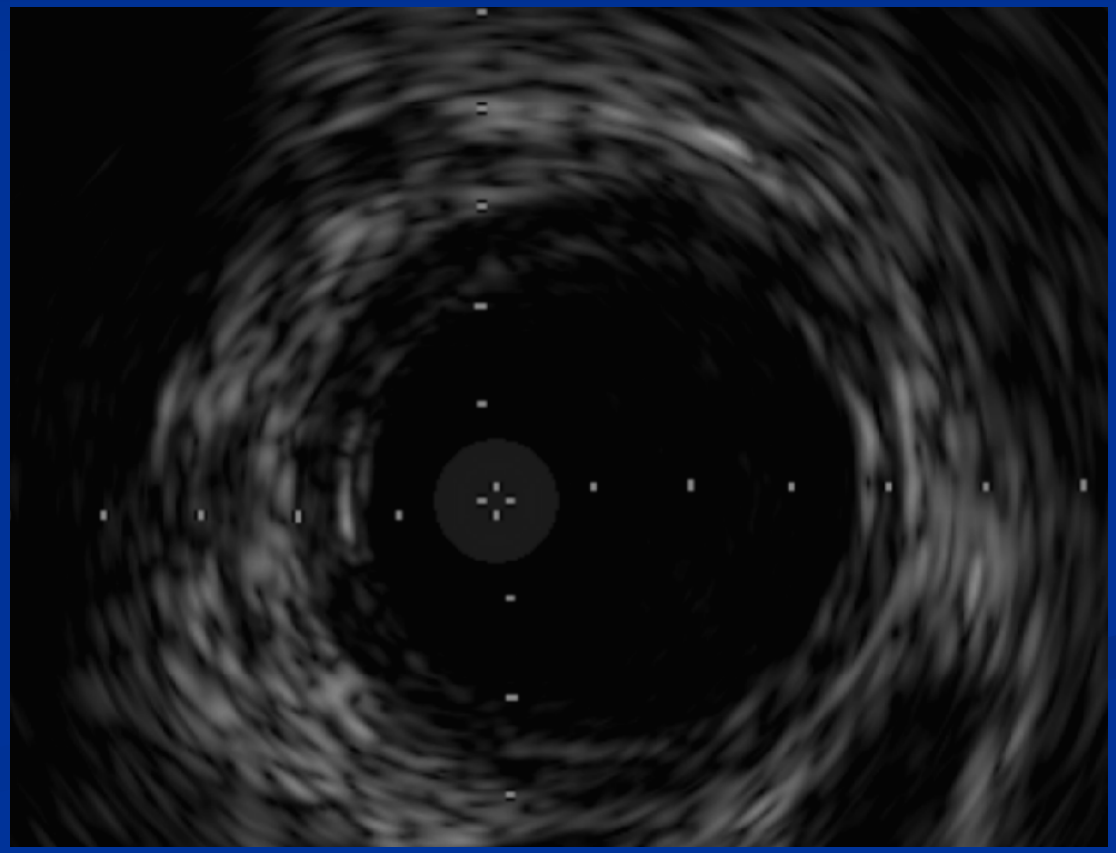
Stent graft angioplasty

Post Angiogram



Intraoperative endovascular ultrasound

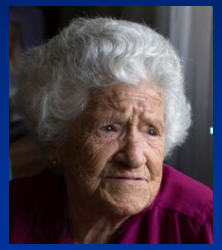




Outcome

Resolution of claudication
Improved quality of life
Independent living

PAD Risk Factors



Increased age
Hypercholesterolemia
Tobacco abuse
Diabetes Mellitus

PAD Risk Factors

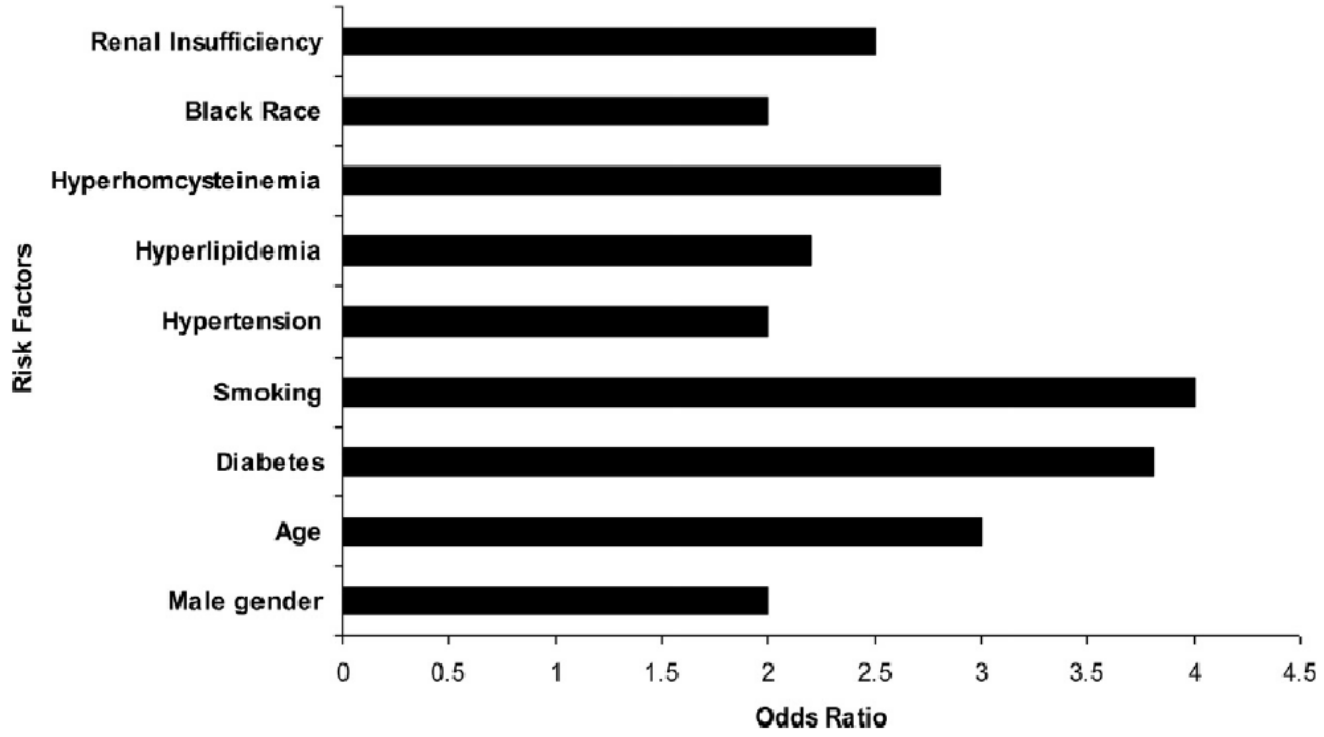


Fig 1. The approximate odds ratios (ORs) for risk factors associated with the development of peripheral arterial disease (PAD). Adapted from Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II).[9]

Peripheral arterial disease

- Asymptomatic
- Claudication
- Critical limb ischemia
  - Rest pain - pain (usually forefoot) occurring when supine, improved by dependency
  - Tissue loss - gangrene, ulcers

Screening for PAD

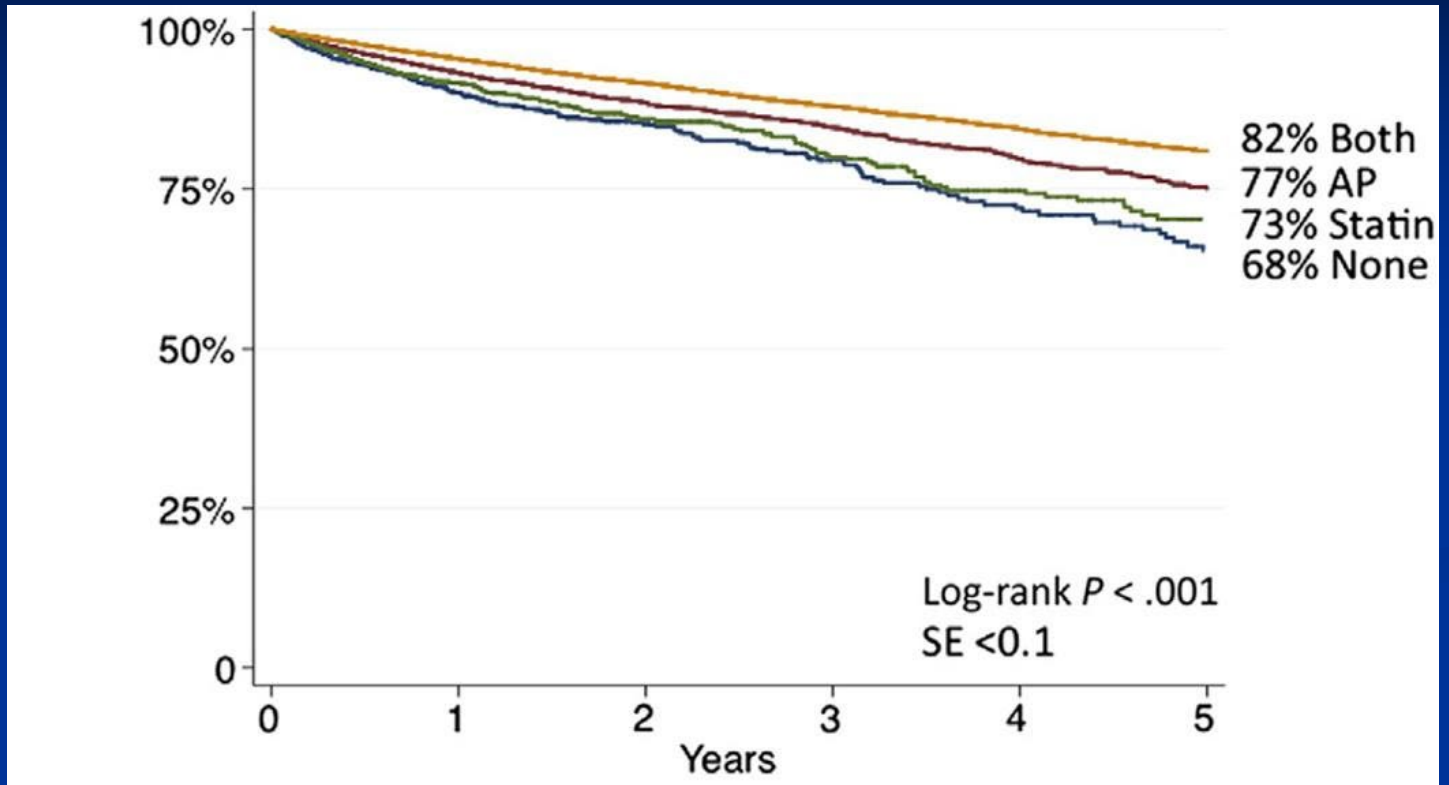
No indication for universal screening

High risk patients with no clinical symptoms may be screened for

- Risk stratification
- Preventive care
- Medical management

ABI testing at rest and with exrcise is indicated in symptomatic patients

Five year survival by discharge medications



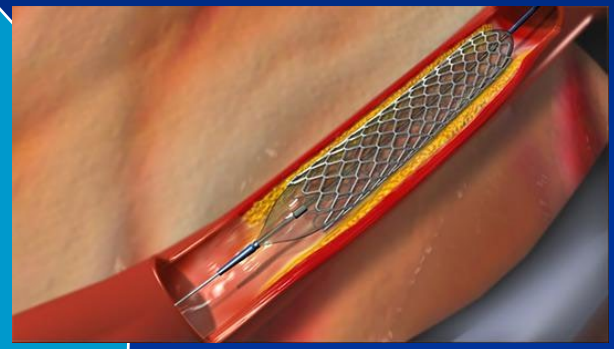
Both	53834	24374	10800	5342	3345	2142
AP	15042	6396	2686	1375	909	656
Statin	2819	1267	543	249	158	104
None	2617	1100	481	221	143	97

Participation in the Vascular Quality Initiative is associated with improved perioperative medication use, which is associated with longer patient survival
Randall R. DeMartino, MD, MS,a Andrew W. Hoel, MD,b Adam W. Beck, MD,c Jens Eldrup-Jorgensen, MD,d John W. Hallett, MD,e Gilbert R. Upchurch, MD,f Jack L. Cronenwett, MD,g Philip P. Goodney,

Modern Vascular Surgery

Open surgery

Endo



Medical Therapy

Claudication

- Life style modification
- Smoking cessation
- Medical Management
  - Cilostazol
  - Pentoxifylline
- Supervised exercise rehabilitation

Claudication

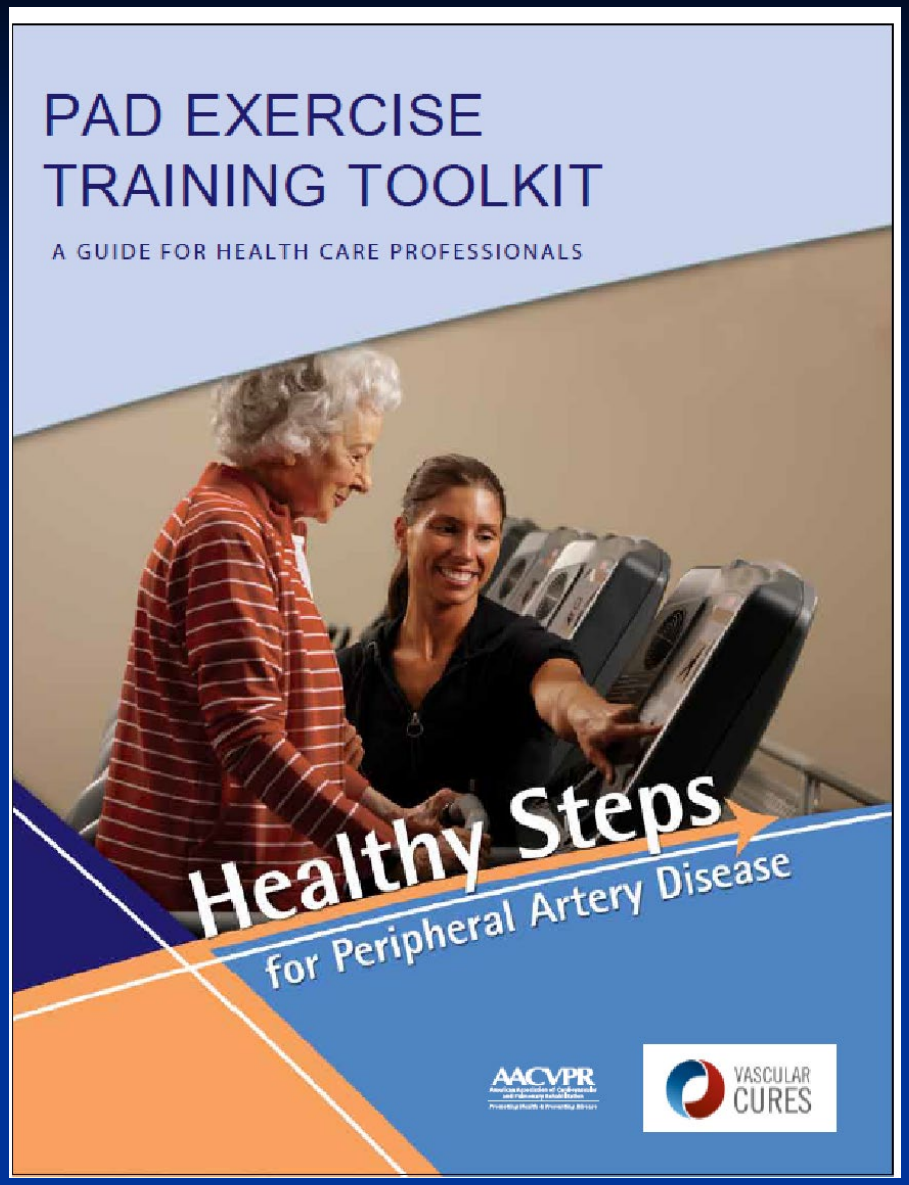
Medical Management

Cilostazol 3 month trial in patients without CHF to improve pain free walking

Pentoxifylline trial in patients with contraindications for cilostazol

Claudication

- Supervised Exercise Therapy
- Covered by Medicare up to 36 sessions
- Sessions lasting 30-60 min
- Superior to unsupervised/unstructured programs



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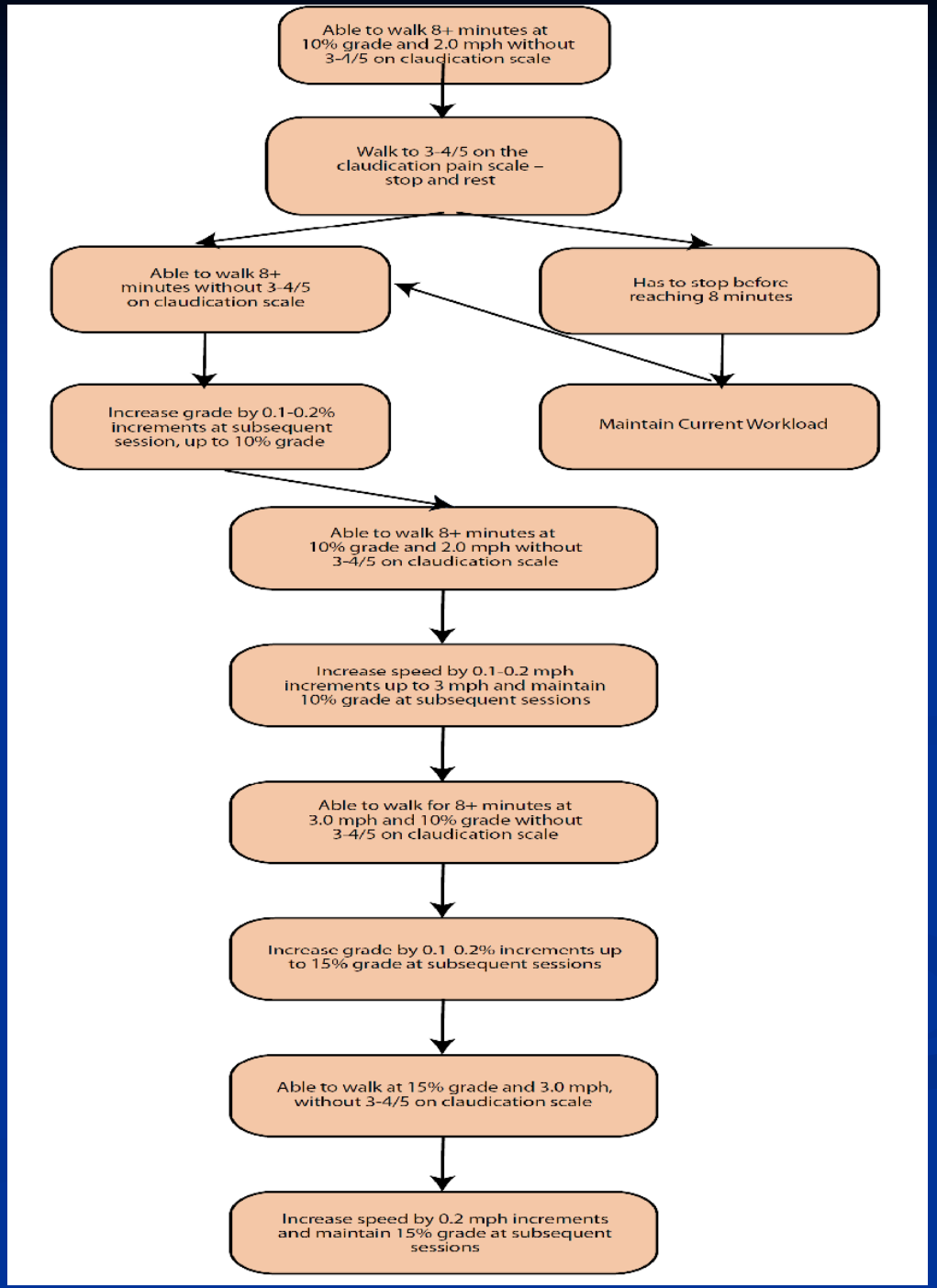


Critical Limb Ischemia

>70%

AMPUTATION RATE AT *12 months*

without revascularization

(Wolfe, et al…)

220,000-240,000

amputations **per year**

USA / EUROPE

>10,000 amputations/month

Critical Limb Ischemia

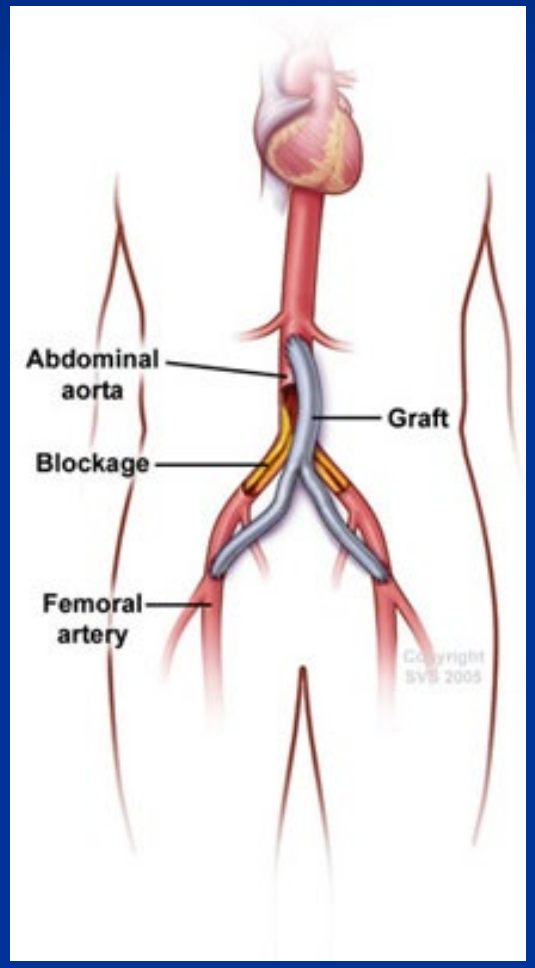
Within one year of CLI diagnosis

25% *major* **amputation**

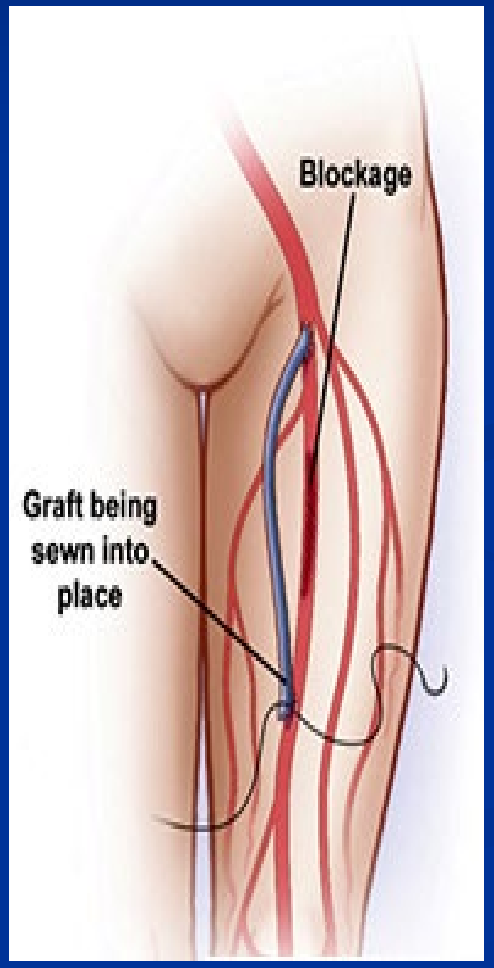
25% DEAD

Open bypass surgery

Suprainguinal



Infrainguinal



Expected 5-Year Patency Rates for Various Infrainguinal Revascularization Procedures

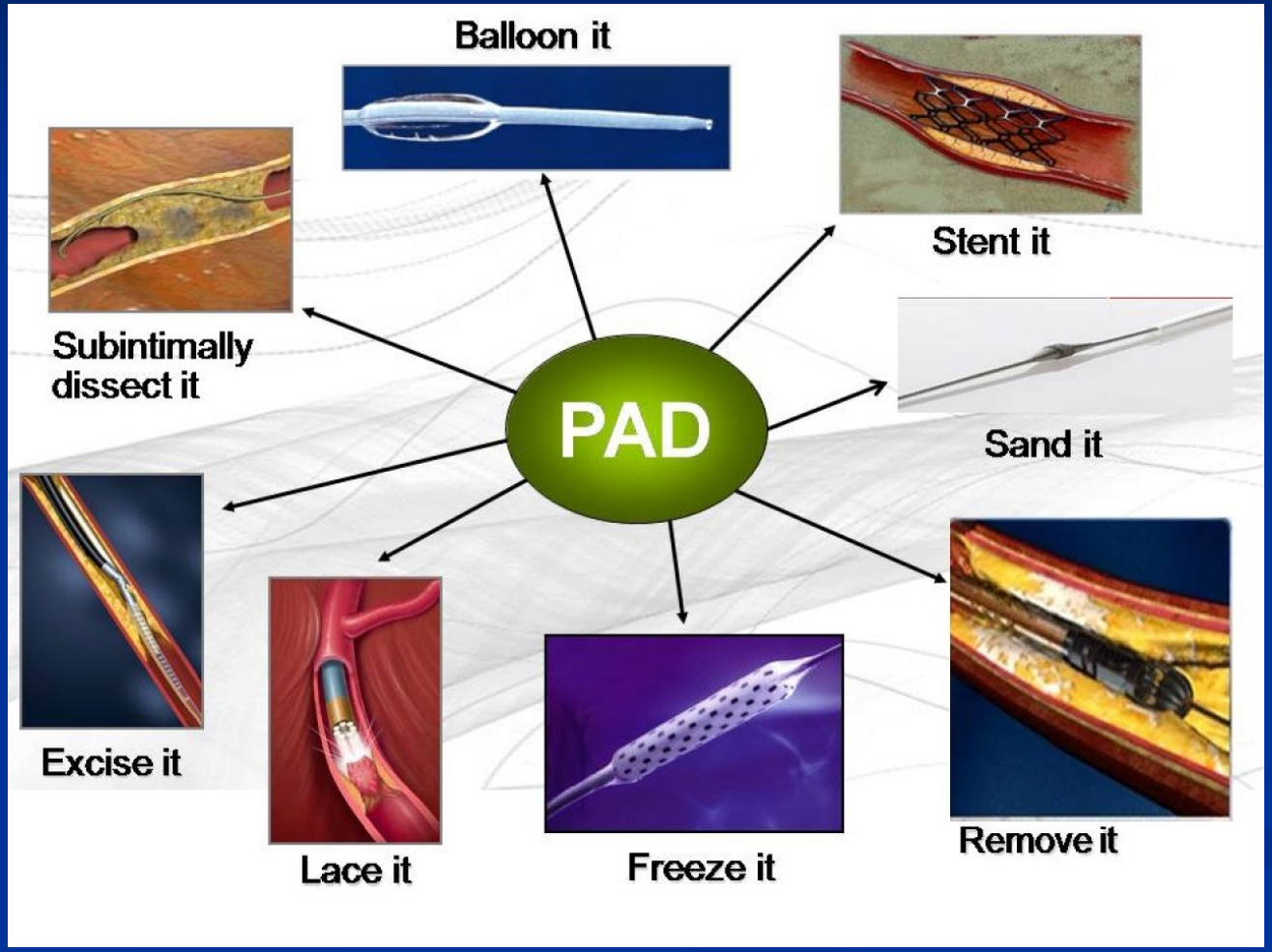
Intervention	**5-y Patency**
Femoral endarterectomy	90%
Femoral-popliteal bypass with vein	70%–75%
Femoral-tibial bypass with vein	60%–70%
Femoral-popliteal bypass with prosthetic	40%–60%
Femoral-tibial bypass with prosthetic	10%
Pedal bypass with vein	60%–70%

Expected 5-Year Patency Rates for Suprainguinal bypass

Intervention	**5-y Patency**
Aortofemoral bypass	80%–95%
Iliofemoral bypass	80%–90%
Femorofemoral bypass	55%–85%
Axillobifemoral bypass	50%–75%

Endovascular options

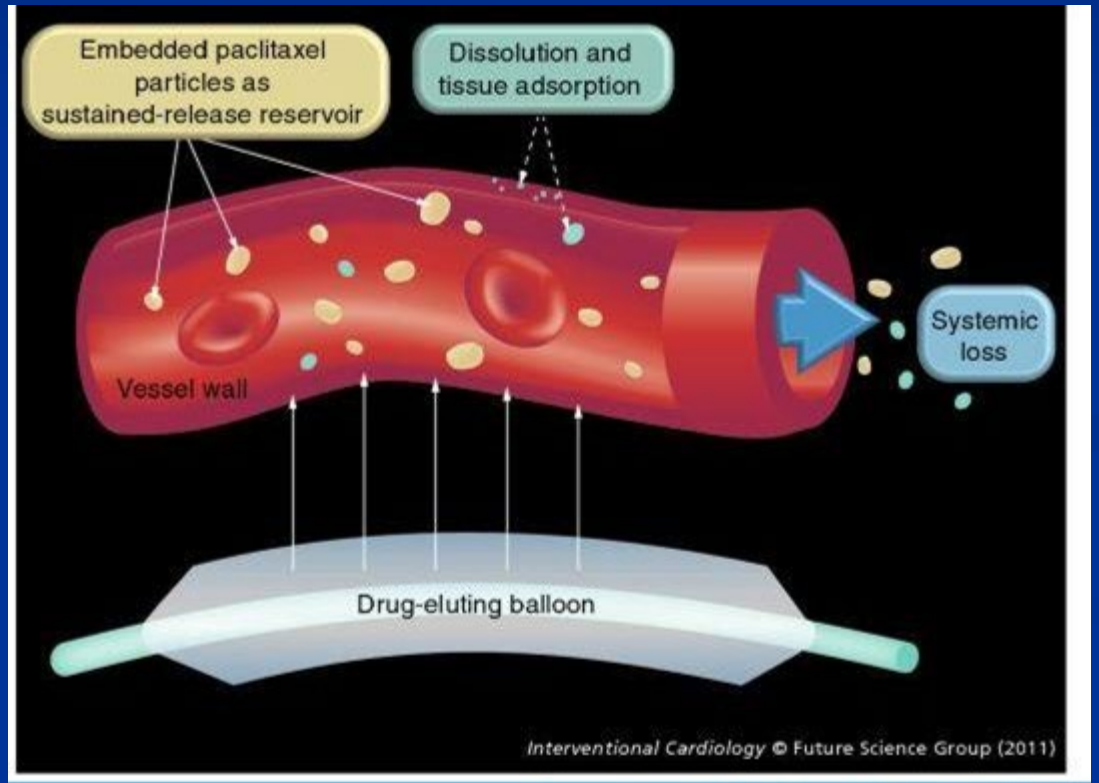
Gain vessel lumen
Overcome
Neontimal hyperplasia



Endovascular options

Drug coated balloon

- In Pact Admiral
- Lutonix
- Stellarex



Source: Interv Cardiol © 2011 Future Medicine Ltd

Endovascular options

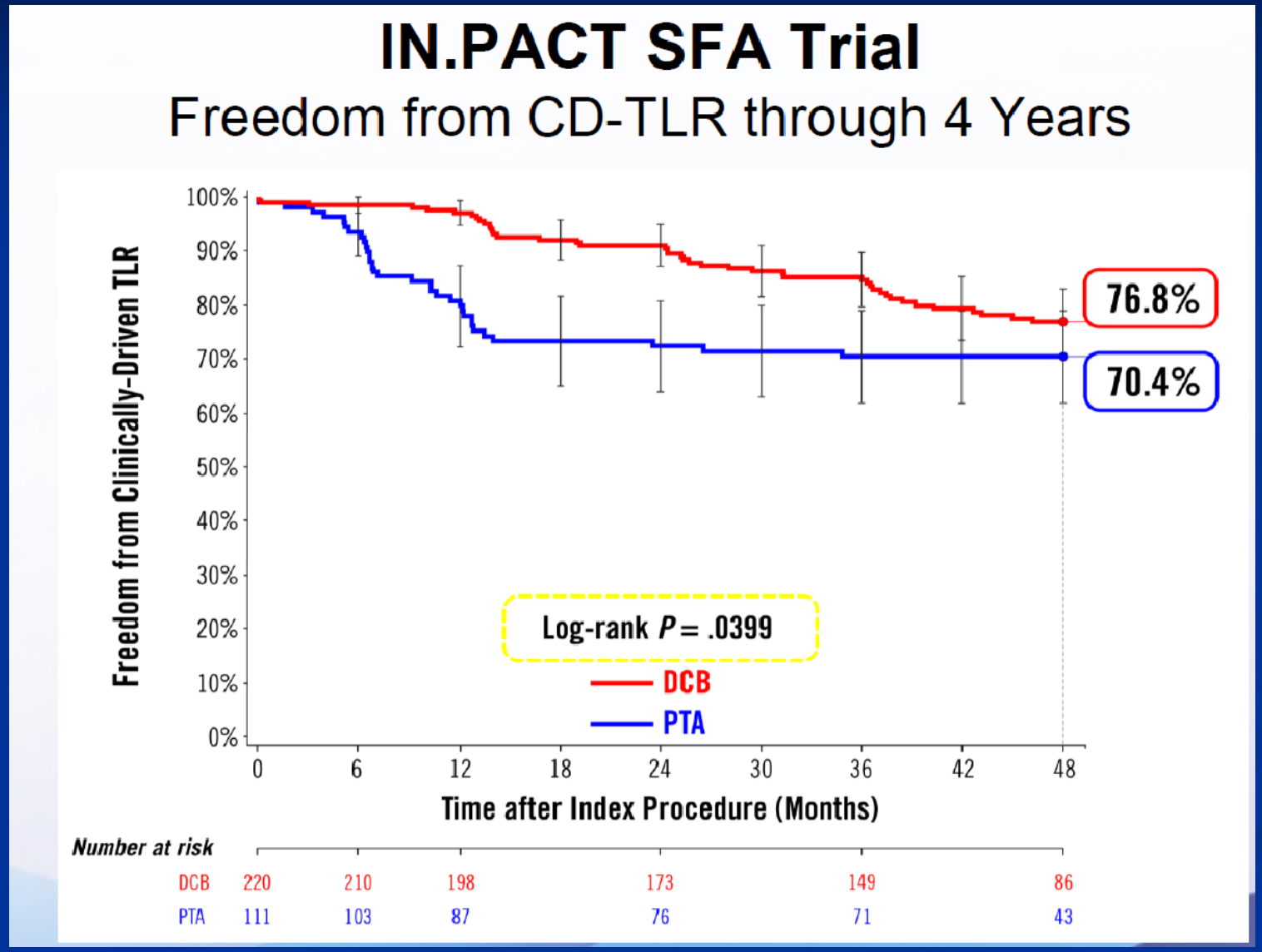
Drug coated balloon

TABLE 1. UNITED STATES CLINICAL TRIAL OVERVIEW

Trial Name	Target	Lesion	Rutherford Category	Outflow	Exclusion Criteria
LEVANT 2	• Femoropopliteal artery • 4–6 mm in diameter	• De novo or nonstented restenotic • ≤ 15 cm	2–4	One patent native outflow artery	• Severe calcium • Renal failure or CKD • No adjunctive treatment modality
IN.PACT	• SFA • 4–7 mm in diameter	• De novo or nonstented restenotic lesions • 70%–99% stenosis ≥ 4 cm and ≤ 18 cm • 100% ≤ 10 cm	2–4	Adequate outflow	• Severe calcium • CKD • No adjunctive treatment modality
Lutonix ISR	• Femoropopliteal artery • 4–6 mm in diameter	• ≥ 50% bare-nitinol stent restenosis • 4–18 cm	2–4	One patent native outflow artery	• Grade 4–5 stent fracture • No adjunctive treatment modality
Lutonix BTK	• Above-the-ankle tibial lesions • 2–4 mm in diameter	De novo or nonstented restenotic	4–5	NA	CKD

Abbreviations: CKD, chronic kidney disease; N/A, not applicable.

Endovascular options



Covered stent

Four-year randomized prospective comparison of percutaneous ePTFE/nitinol self-expanding stent graft versus prosthetic femoral-popliteal bypass in the treatment of superficial femoral artery occlusive disease

Karen McQuade, MD,[a] Dennis Gable, MD,[a] Greg Pearl, MD,[a] Brian Theune, MD,[b] and **Steve Black, MSPH,[a]** *Dallas, Tex; and Fort Bragg, NC*

Study conclusion

- Stent graft is comparable with surgical revascularization with conventional femoral-to-AK popliteal artery bypass using synthetic material
- Primary patency rate is similar in both groups at 4 years

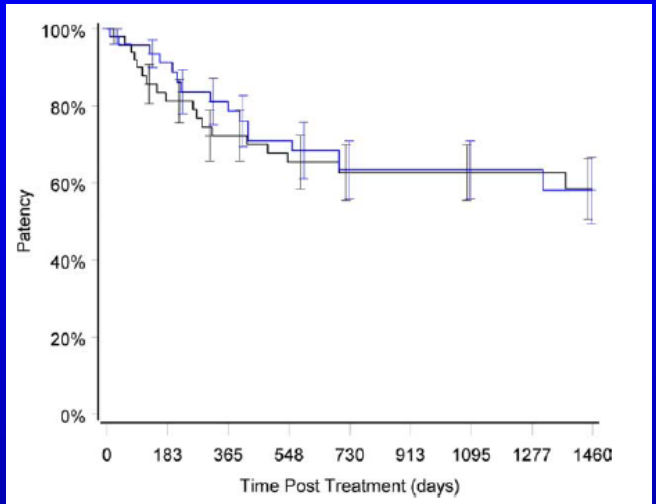


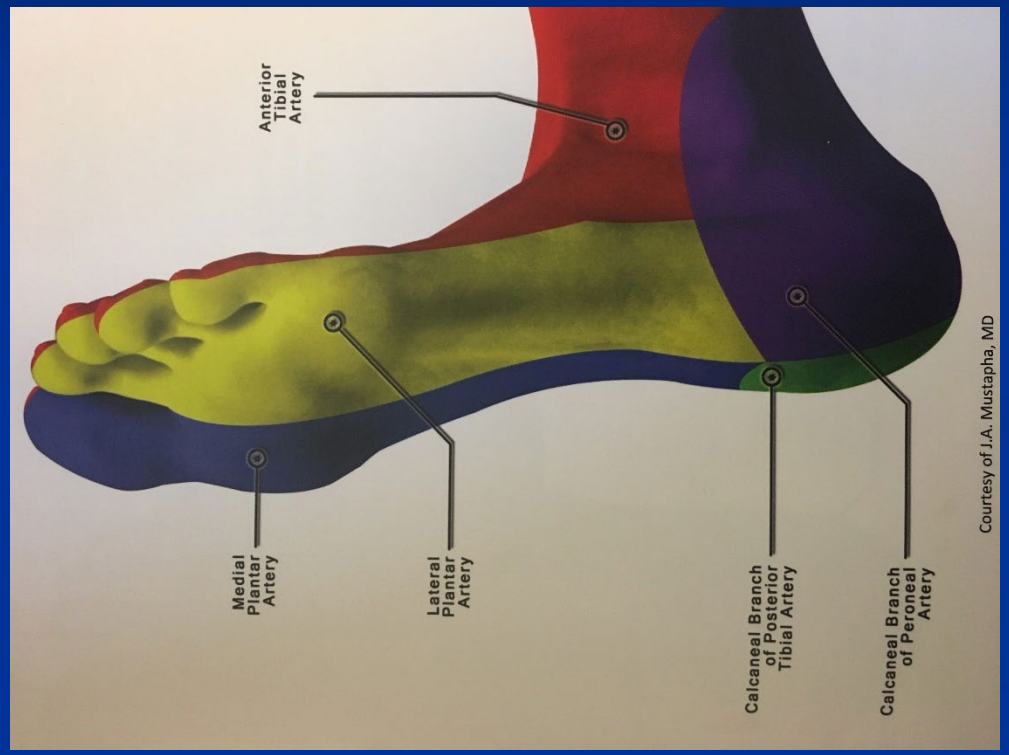
Fig 1. Primary patency by treatment group.

Log-rank *P* value: $P = .807$.

Days	0	31	137	228	320	410	593	730	1095	1460
Stent graft	50	50	49	39	36	32	32	26	22	15
Femoral-popliteal bypass	50	50	45	41	33	32	30	27	25	12

Diabetic foot ulcer
Importance of angiosomal perfusion

Segmental foot perfusion
Chronic non healing ulcer



Endovascular options

Retrograde pedal access

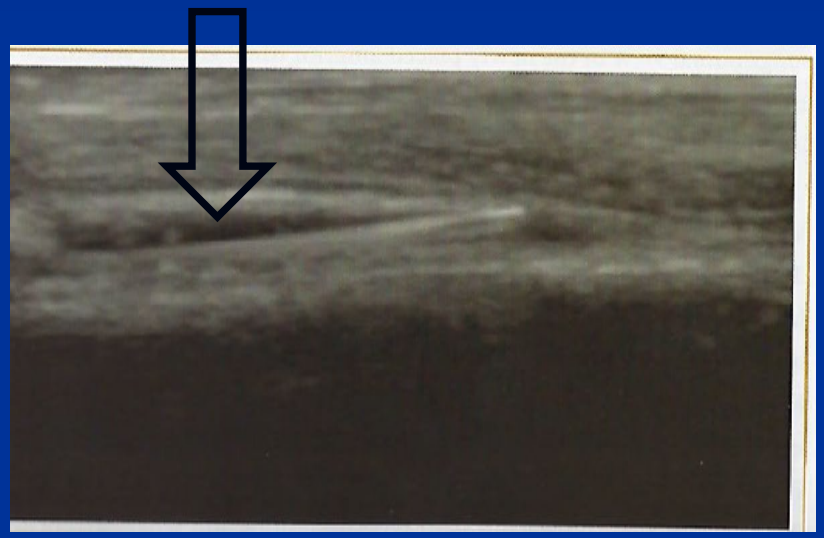
- Identify hibernating vessel lumen
- Retrograde tibial CTO crossing
- Delineate pedal anatomy

US guided access AT

Endovascular options

Retrograde pedal access

Wire inside AT longitudinal view



4Fr sheath in place

J.A Mustafa Advanced tibial pedal access

Conclusion

- Modern management of peripheral arterial disease is complex
  - Medical therapy improves survival
  - Endovascular therapy
  - Open surgery
- Appropriate PAD treatment improves survival and limb salvage

- Time is tissue in management of critical limb ischemia