



ADVANCES in ATHERECTOMY

HYBRID ATHERECTOMY: WHY, WHEN AND HOW?

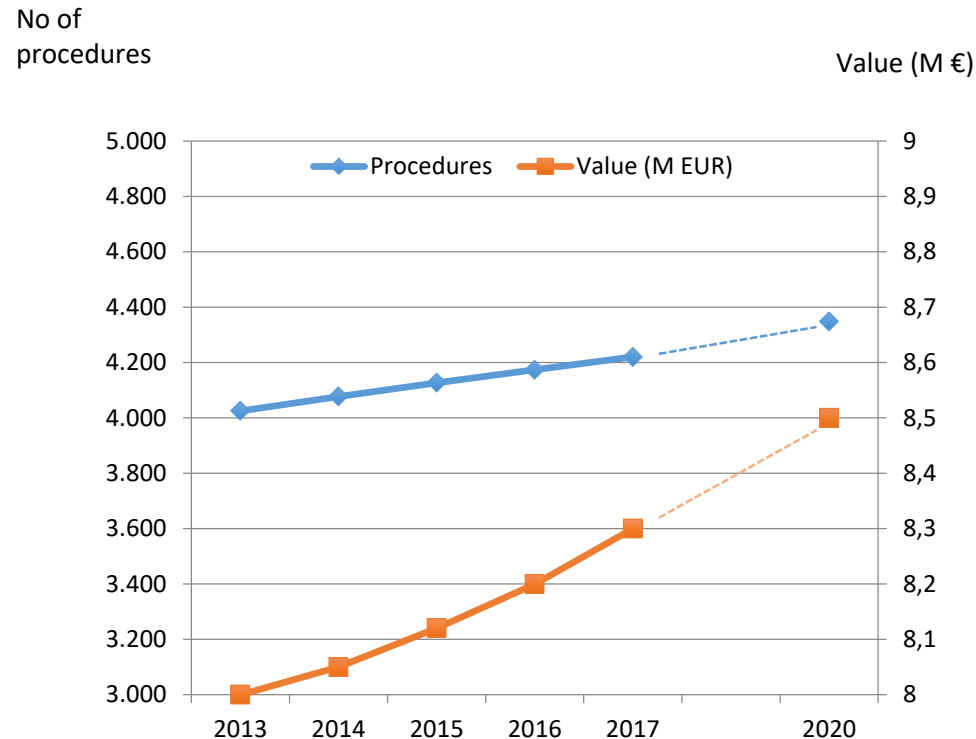
Dr. Theodosios Bisdas

Clinic for VASCULAR SURGERY

St. Franziskus Hospital, Muenster, GERMANY



Atherectomy market Europe



- Growth in the next years
- Demand primarily concentrated in **Germany** (favorable reimbursement)
- Second largest country for atherectomy is **Italy**
- Lack of reimbursement and clinical supportive data limit adoption in other countries
- Recent favorable DAART results may support atherectomy as a preparation step before PTA¹

¹Zeller et al. DEFINITIVE AR trial. Circ Cardiovasc Interv 2017;10:e004848

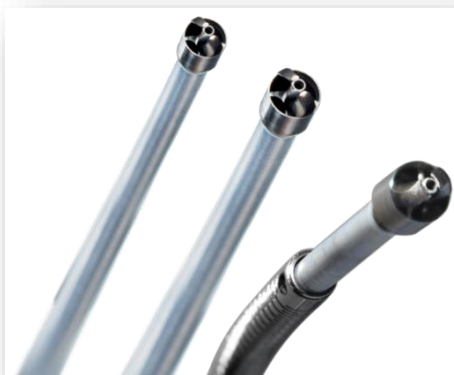
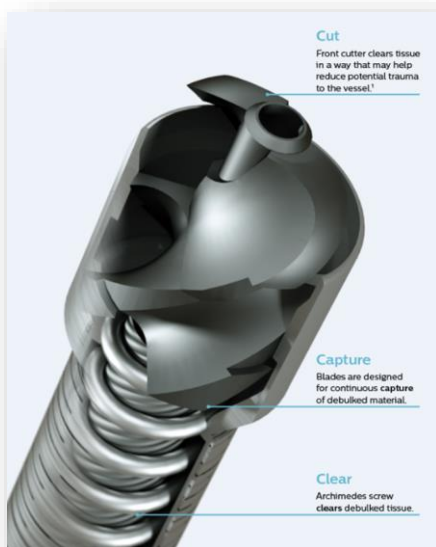
Phoenix Hybrid Atherectomy System

The next generation of atherectomy

	Hybrid	Directional	Laser	Orbital	Rotational
Front cutting for direct lesion access	✓		✓	✓	✓
Plaque removal	✓	✓			
Directional cutting ability*	✓	✓			
Single insertion	✓		✓	✓	✓
No need for capital equipment	✓	✓			



Phoenix atherectomy device



Cut: Front cutter clears tissue in a way that may help reduce potential trauma to the vessel.

Capture: Unique cutter head design allows for continuous capture of debulked material.

Clear: The internal Archimedes screw allows you to clear plaque without having to remove the catheter and clean out debulked material. **NO NEED FOR DISTAL PROTECTION DEVICE**

Catheter Tip Diameter	Minimum Introducer Size	Crossing Profile	Working Length	Maximum Guide Wire Diameter	Minimum Vessel Diameter ¹	Anatomical Locations
1.8 mm	5F (1.8 mm) or larger	1.8 mm	130 cm	0.014" (0.36 mm)	2.5 mm	Femoral, popliteal, or distal arteries located below the knee
2.2 mm	6F (2.2 mm) or larger	2.2mm	130 cm	0.014" (0.36 mm)	3.0 mm	
1.8 mm	5F (1.8 mm) or larger	1.8 mm	149 cm	0.014" (0.36 mm)	2.5 mm	
2.2 mm	6F (2.2 mm) or larger	2.2mm	149 cm	0.014" (0.36 mm)	3.0 mm	

Catheter Tip Diameter	Minimum Introducer Size	Crossing Profile	Working Length	Minimum Vessel Diameter ¹	Anatomical Locations
2.4 mm	7F (2.5 mm) or larger	2.4 mm	125 cm Deflected 127 cm Straight	3.0 mm	Femoral and Popliteal Arteries

¹Warning: Do not use the Phoenix Atherectomy Catheter in vessels smaller than the indicated size or harm to patient (vessel perforation, dissection or injury) could occur.

Phoenix system components

- Atherectomy catheter
10000-12000 rpm
- Battery-powered handle
- Wire support clip
- Debris collection bag

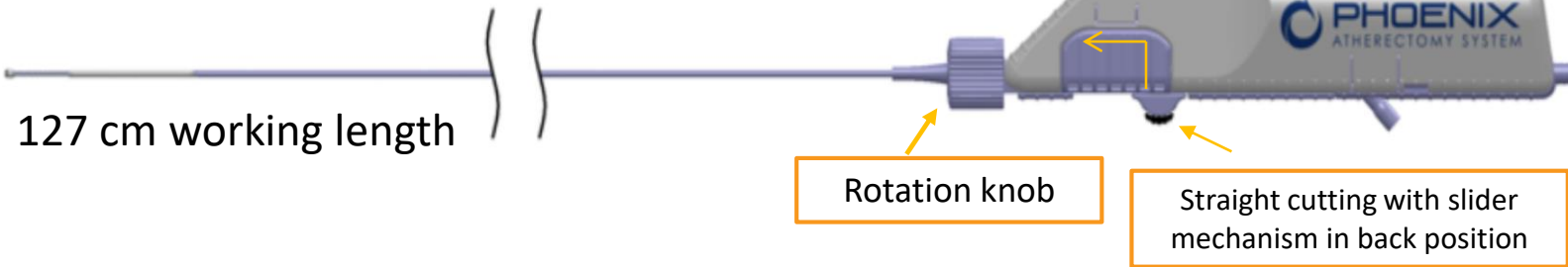


Phoenix 7F

2.4 mm deflecting catheter



Non-Deflected (Straight)

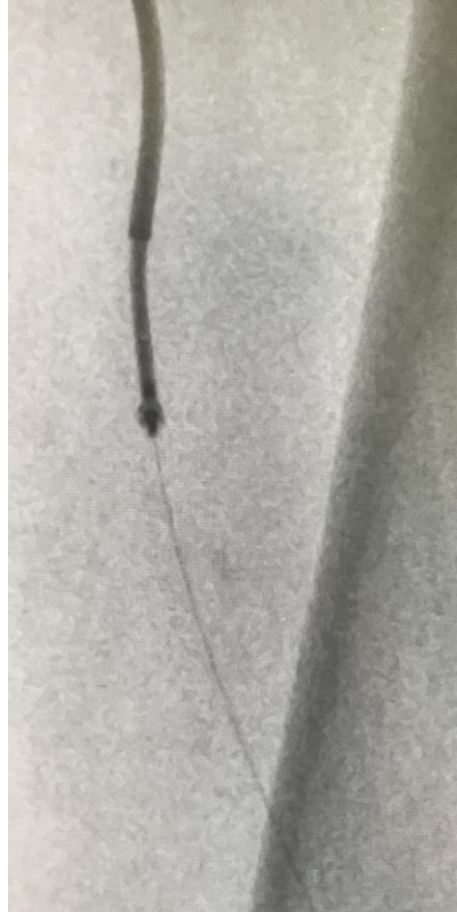


Deflected



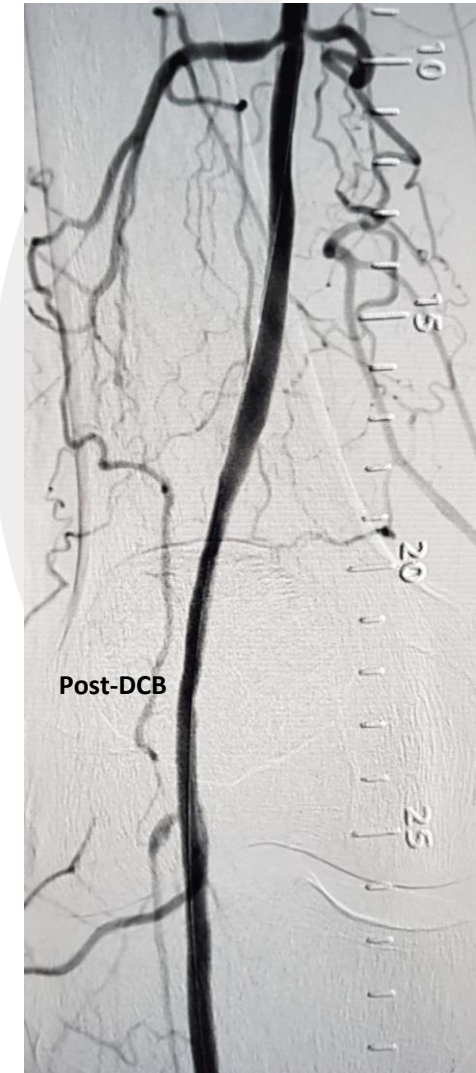
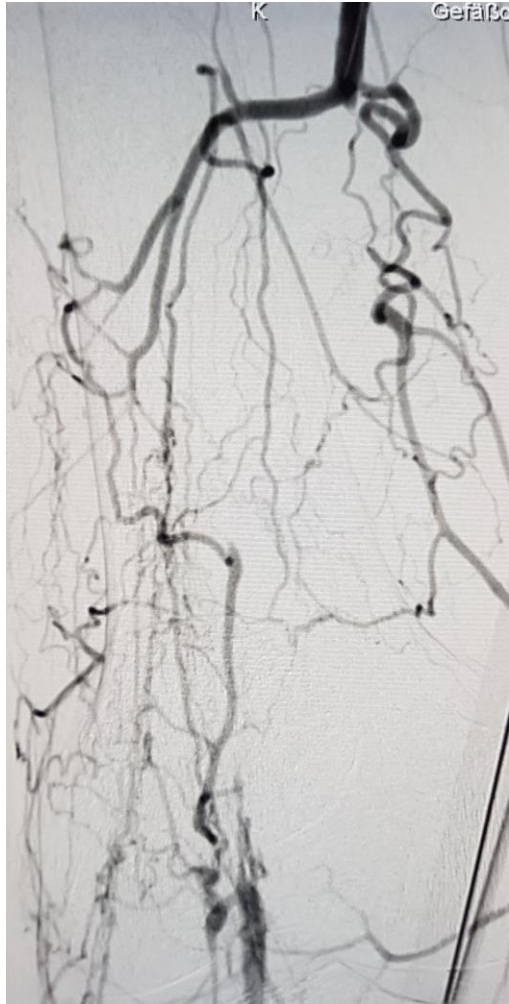
When to use it?

SFA lesions - Stenosis



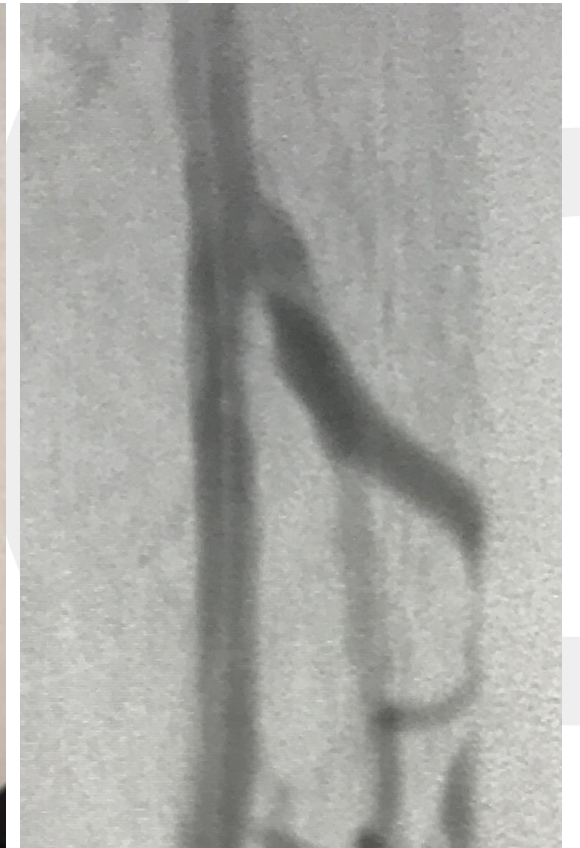
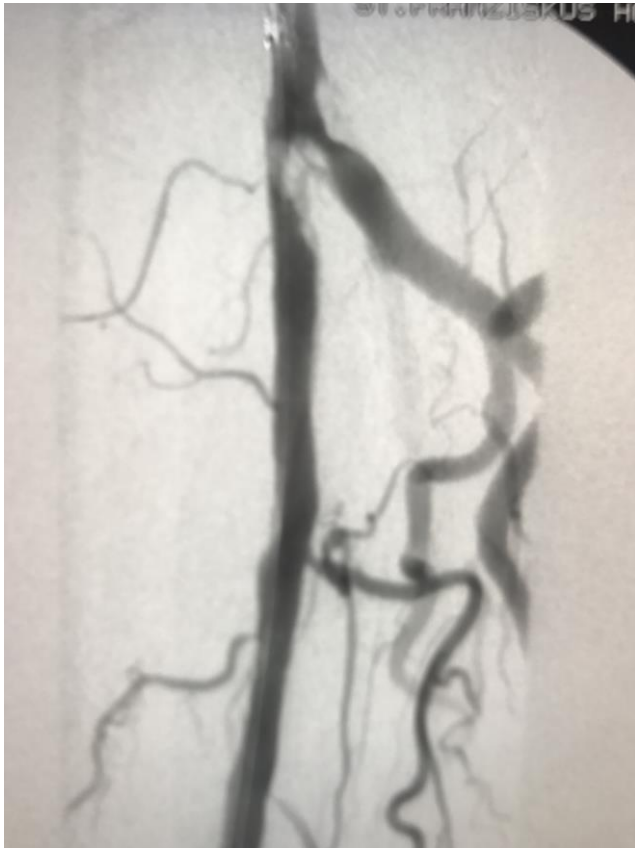
When to use it?

Long SFA occlusions



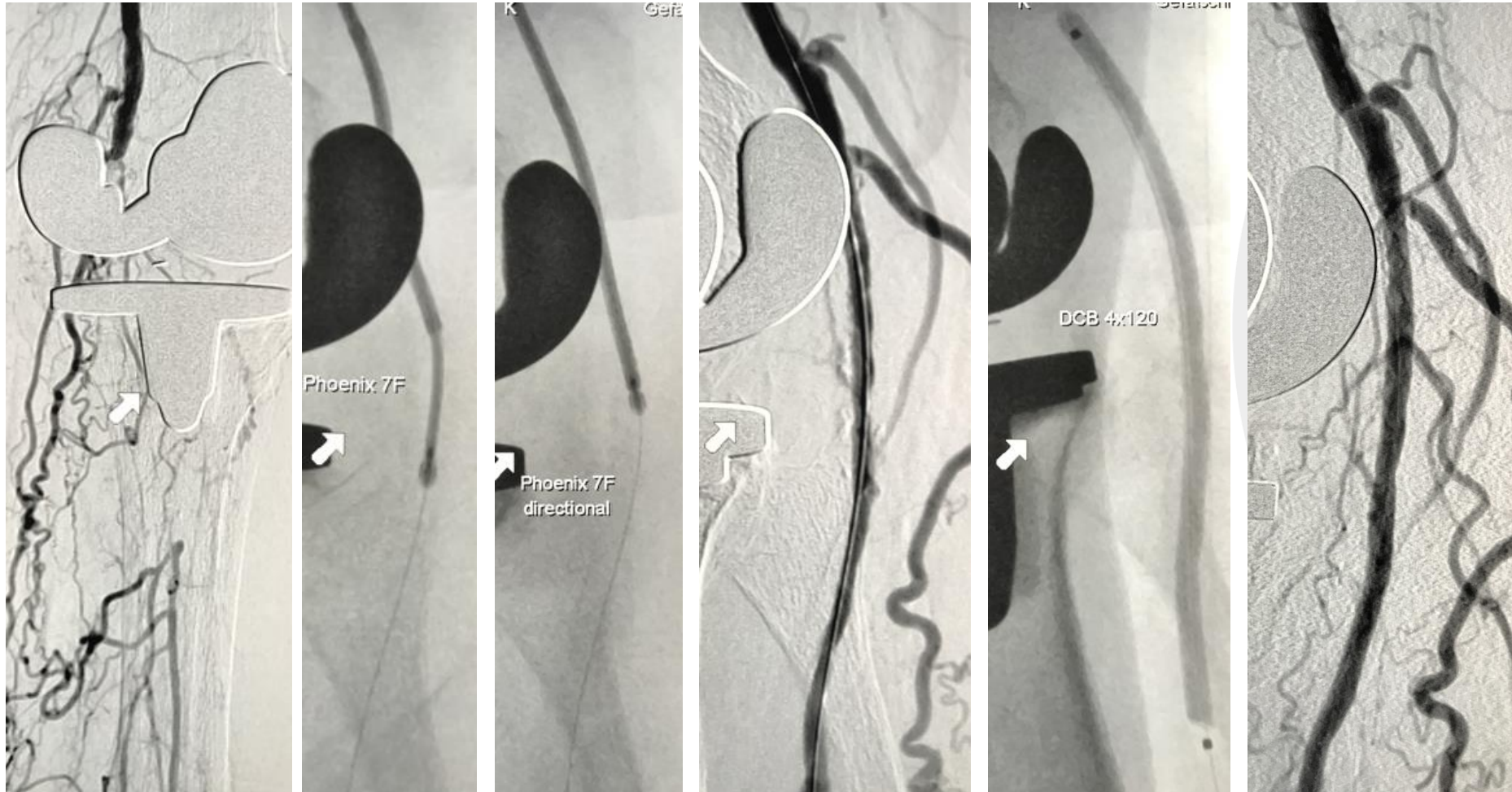
When to use it?

No stenting zones: CFA, deep femoral artery



When to use it?

No stenting zones: popliteal artery

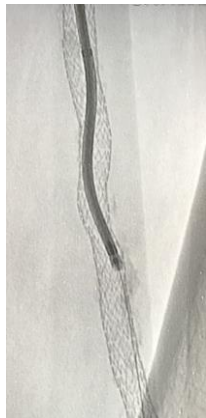
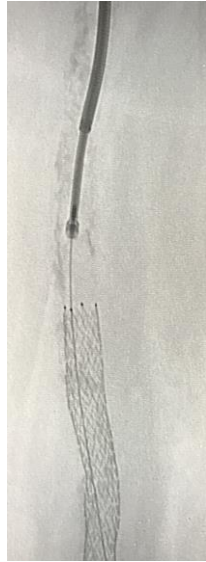
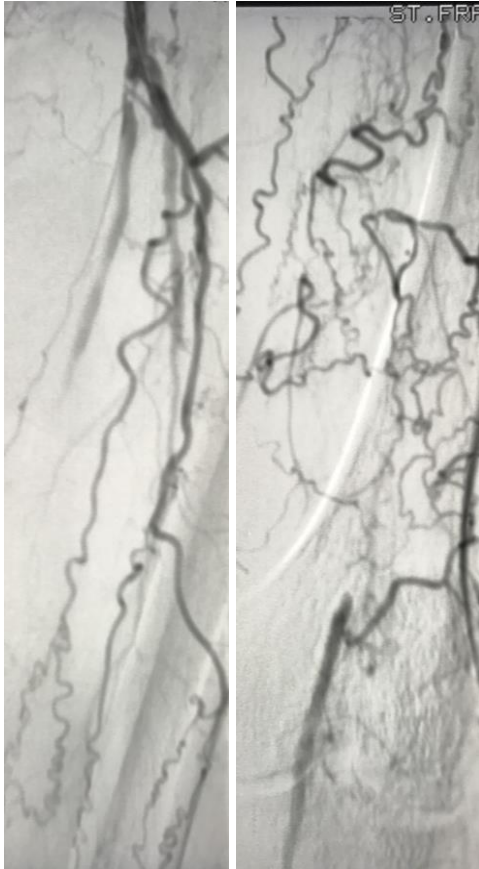


Post-atherectomy

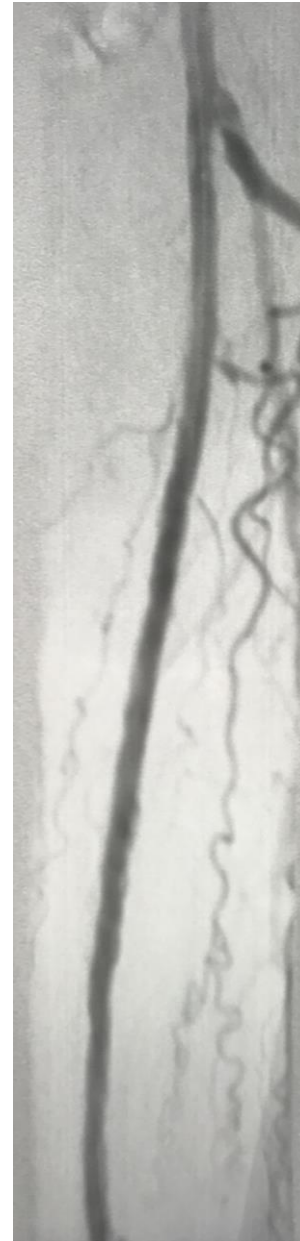
Final

When to use it?

In-stent stenosis*



Post-atherectomy



Post-DCB

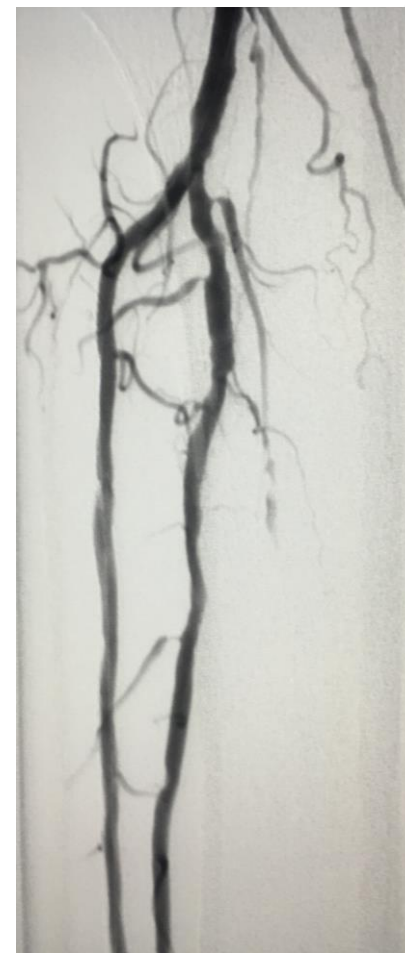
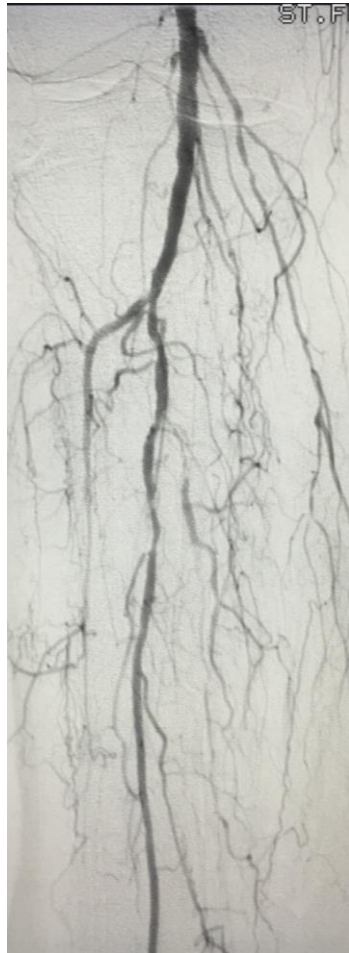


*outside IFU – Personal opinion



When to use it?

Infrapopliteal/crural arteries



How to use it?

Important technical tips

- Advancement speed: 1cm/sec
- Pay attention to audible and tactile feedback
- The system should stay properly lubricated
 - Treat 5-10cm and pull catheter back to allow flow
- Pay attention to aspirant flow
- Choose appropriate guidewire
 - Flexible wire for ATK- and stiffer wire for BTK arteries
 - EV3 Nitrex, Abbott HiTorque Xtra Support, Abbott Iron Man

Conclusions

- The Phoenix catheter has been designed to treat a wide variety of plaque morphologies and all types of lesions of the infrainguinal arteries (except acute clot)
- The device can be a first-line atherectomy solution due to its versatility
- Several features of the device are very comfortable for the user and effective for the patient, but a learning curve is still required