

MEET 2008

Speaker lessons and perspectives :

Place of debulking devices for below the knee revascularisation

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Disclosure statement of financial interest

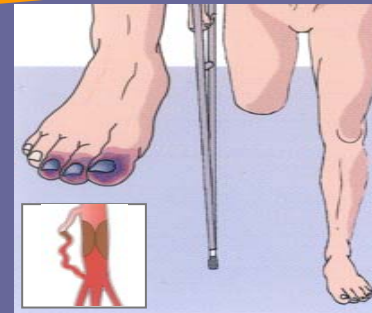
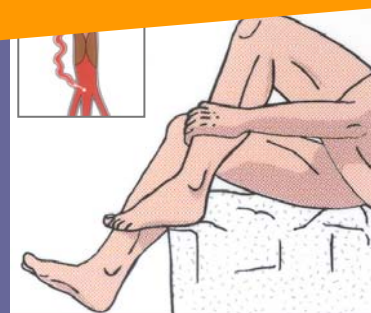
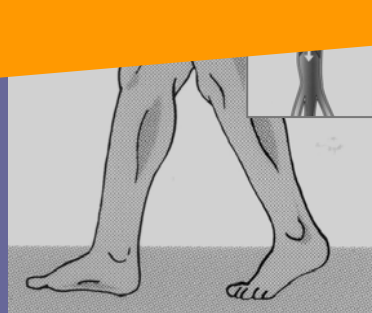
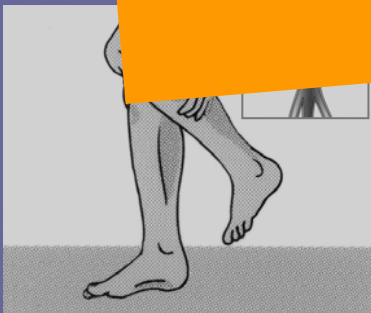
- I have the following potential conflicts of interest to report:
 - Consulting
 - Employment in industry
 - Stockholder of a healthcare company
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 - Other(s)
 - I do not have any potential conflict of interest

Definition of critical limb ischemia (CLI)

	Fontaine class	Rutherford category	ABI	Symptoms
Asymptomatic	I	0	0.85-1	none
Mild claudication	Ila	1	0.5-0.85	< 100m
Moderate claudication	Ilb	2	0.3-0.5	100-200m
Severe claudication	IIa	3	< 0.3	> 200m
Ischemic rest pain	IIb	4	< 0.3	at rest (no elevation)
Minor tissue loss	IIIa	5	< 0.3	minor (ulceration)
Major tissue loss	IIIb	6	< 0.3	major (gangrene)

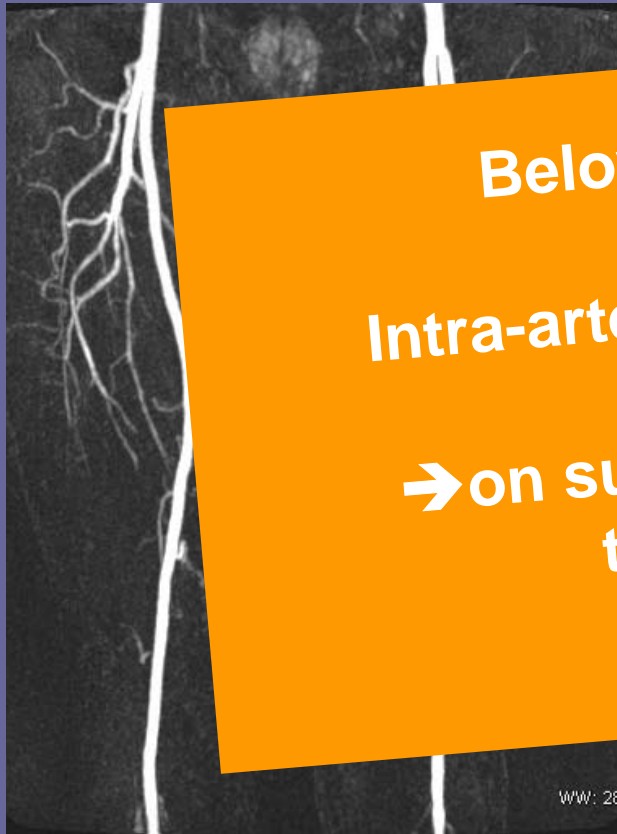
Presence of symptoms for more than 2 weeks

CLI is ALWAYS chronic
 (Do not confuse with acute limb ischemia !)



Vascular diagnosis

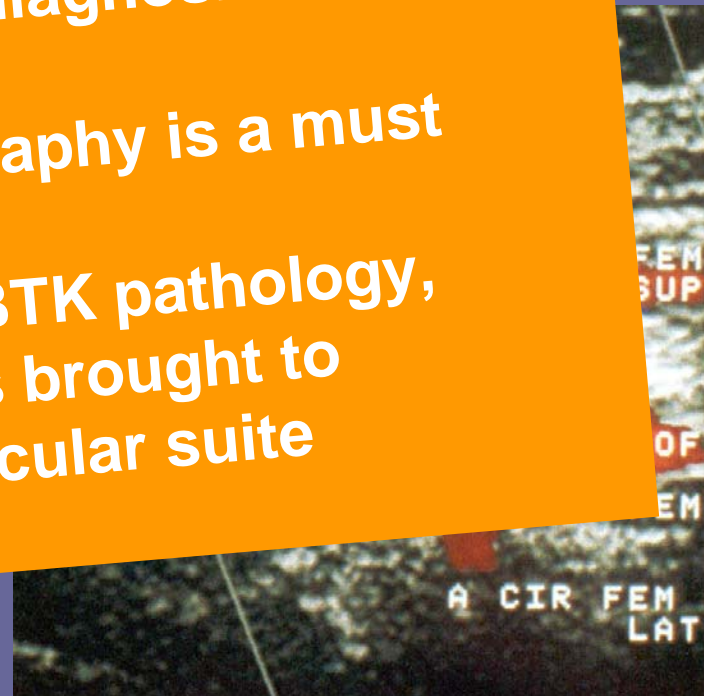
Above knee imaging



Below the knee diagnosis :

Intra-arterial angiography is a must

→ on suspicion of BTK pathology,
the patient is brought to
our endovascular suite



Vascular diagnosis

Below knee imaging



- Catheterisation lab in an operation theatre
 - 👍 Top-quality BTK images
 - 👍 Immediate intervention if needed with 1 puncture
 - 👍 General anesthesia limits amount of contrast (important in patients with renal disease)

Our suite in Bonheiden



Quick action is needed !



Need for aggressive intervention strategy

- Cholesterol management
- Diabetes control
- Pain relief
- Wound healing
- Limb salvage

ON
ME
TH

Selective angiography on-table

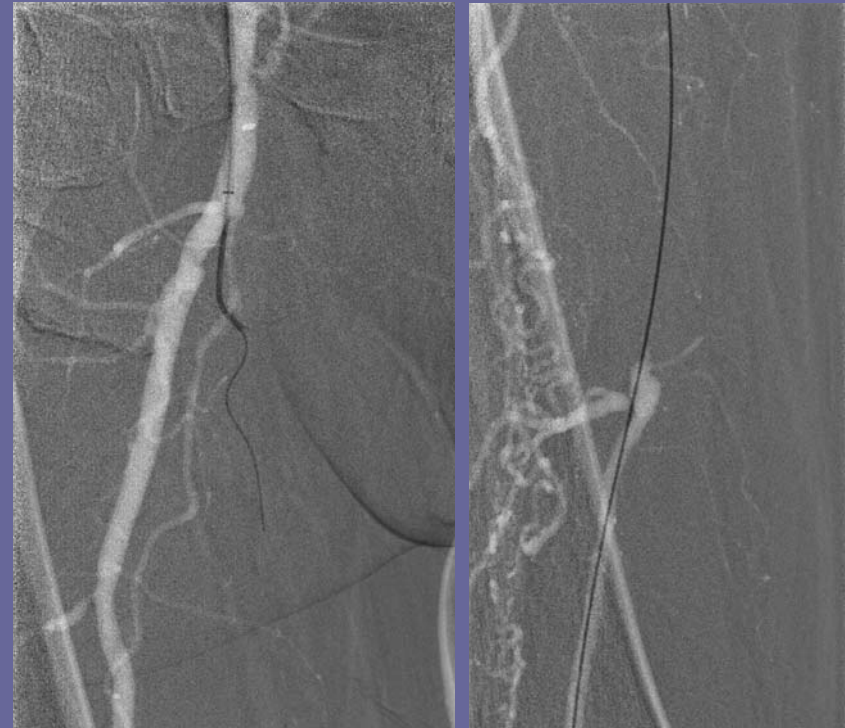
**saving time
can save a limb !**



Standard lesion passage

- Angled catheter
 - Berenstein
 - Vertebral
 - Multipurpose
- Hydrophilic guidewire
 - 0.035" or 0.018"
 - Straight or with curved tip
 - Start with guidewire of moderate stiffness
 - Increase stiffness with next wires

→ **Successful in 80%**



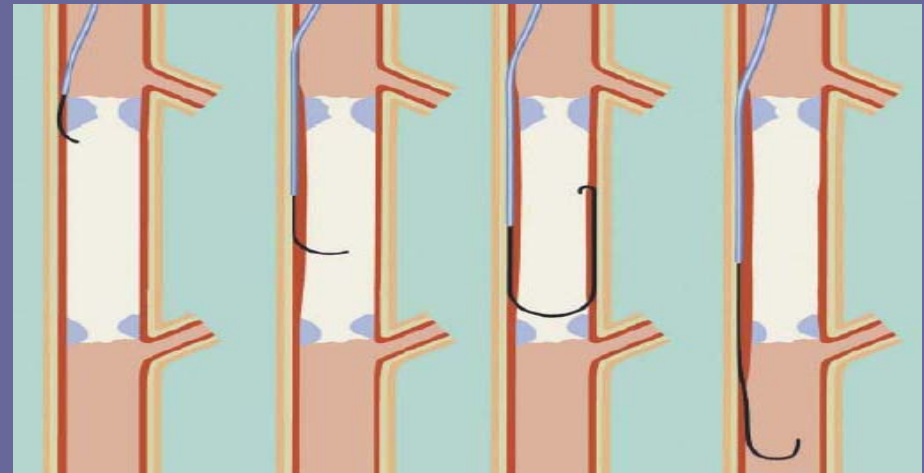
GlideWire (Terumo)

- 0.035" / 260cm
- Straight / soft

REMARK : Subintimal lesion passage



**Always
try to avoid
going subintimal**



balloon dilation

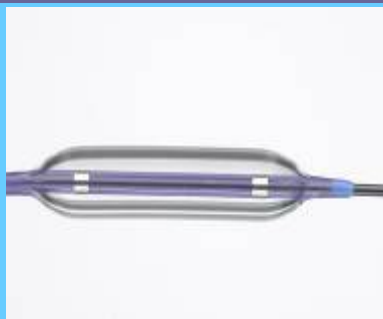
case

male, 78y
foot ulcer
diabetis



intervention

balloon
dilatation

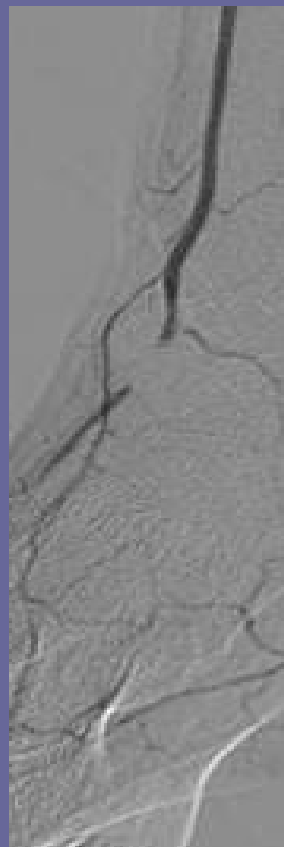


follow-up

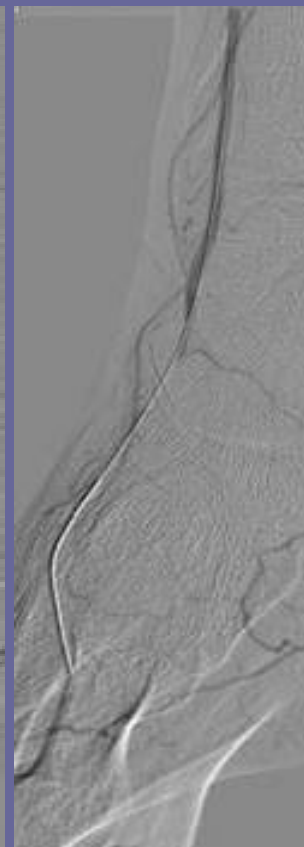
wound
healed
@6 months



pre-op
lesion



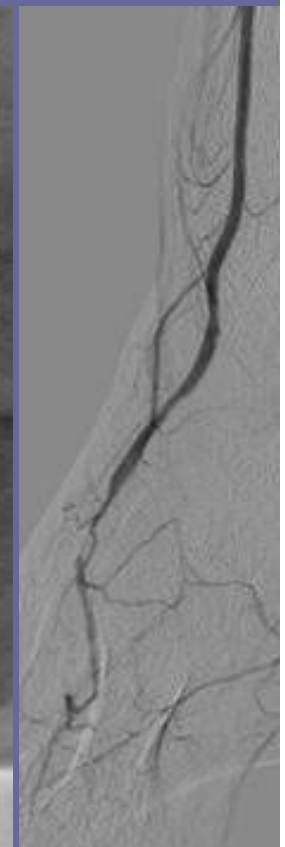
lesion passage
0.014" wire



dilation
with 2x30 balloon



post-op
result



dedicated stenting

case

female, 81y
restpain
diabetes, arterial hypertension

intervention

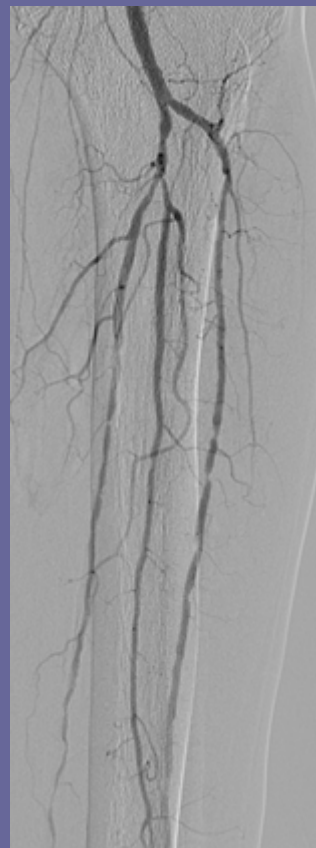
stenting



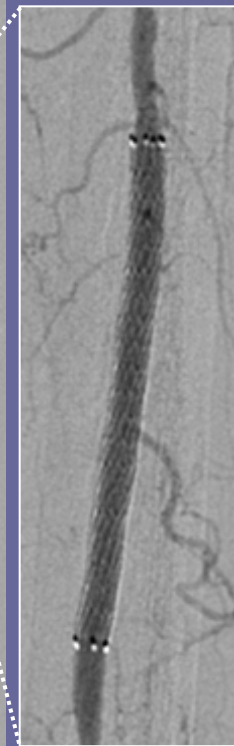
follow-up

no recurrent restpain
after 6 maanden

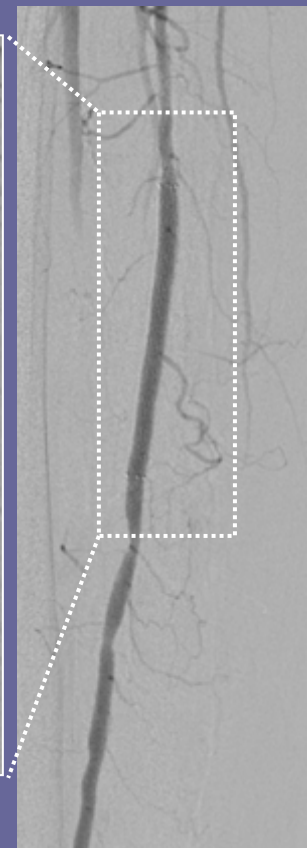
pre-op
lesion



placing
4x40 stent



post-op
result



What if standard lesion treatment does **NOT** work ?

Toys for Boys

„The difference between men and boys is the price of their toys.“



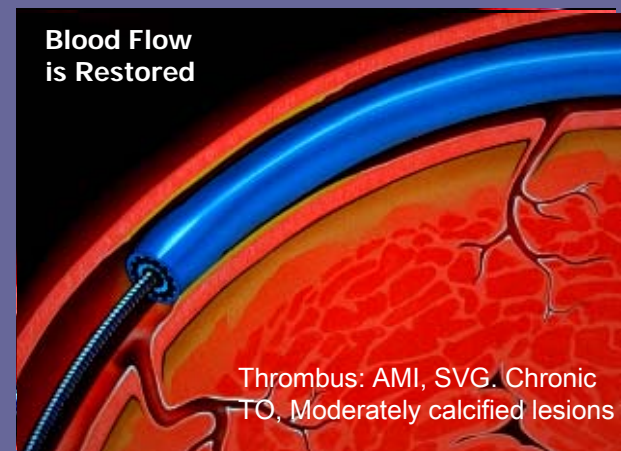
- Excimer laser
- High speed rotational
- Orbital
- Low speed rotational

- Transluminal plaque removal
- Only very limited data available yet

Excimer laser

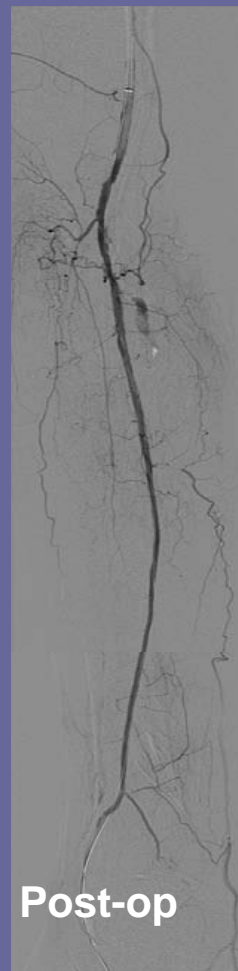
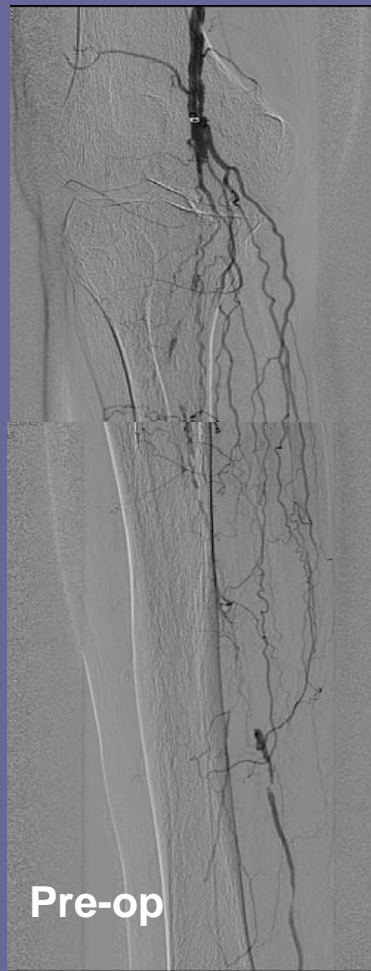
Spectranetics

- Special use for long total occlusions
- Vaporization of plaque material
- Cool tip laser (<math><45^{\circ}\text{C}</math>)
 - Controlled ablation depth
 - Energy absorption in the plaque
- Available diameters :
0.9 – 1.4 – 1.7 – 2.0 – 2.3 – 2.5
- Step-by-step technique :
Alternating laser catheter debulking
& wire advancement



Excimer laser

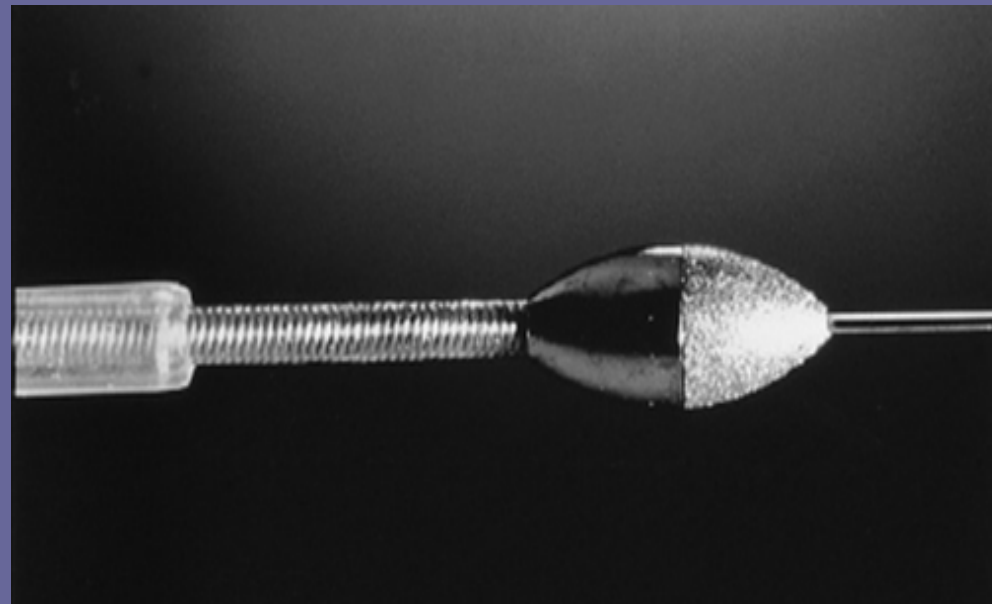
Spectranetics



Rotablator

Boston Scientific

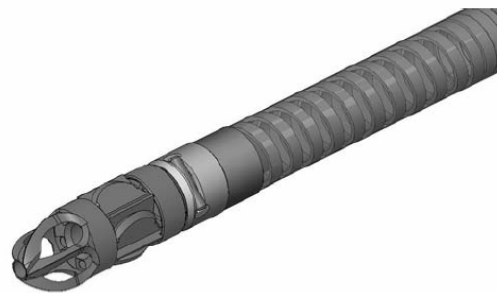
An olive-shaped diamond catheter tip, used as a drill
In order to pass through
occlusions



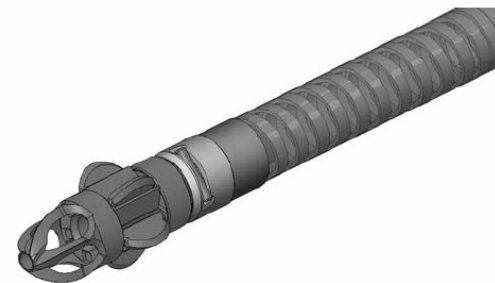
Pathway

Pathway Medical

Four blades at the catheter tip are expanded, in order to drill a way through an occluded artery lumen



Expandable Catheter Tip with Blades Down
(Minimum Diameter)



Expandable Catheter Tip with Blades Up
(Maximum Diameter)

- Own experience : 3 cases

Orbital Atherectomy System

CSI

An excentrically designed catheter tip rapidly rotates through occlusions, working like a drill

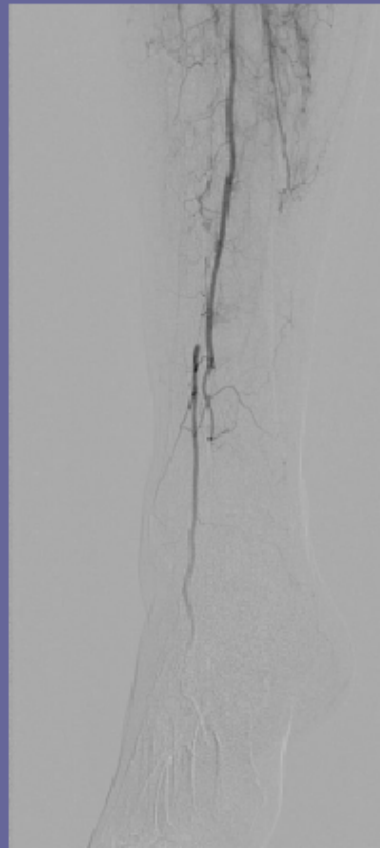
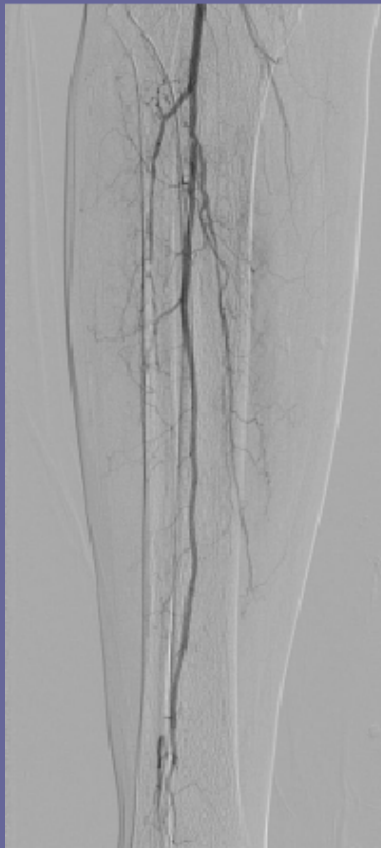
- Own experience : 22 cases



Orbital Atherectomy System

CSI

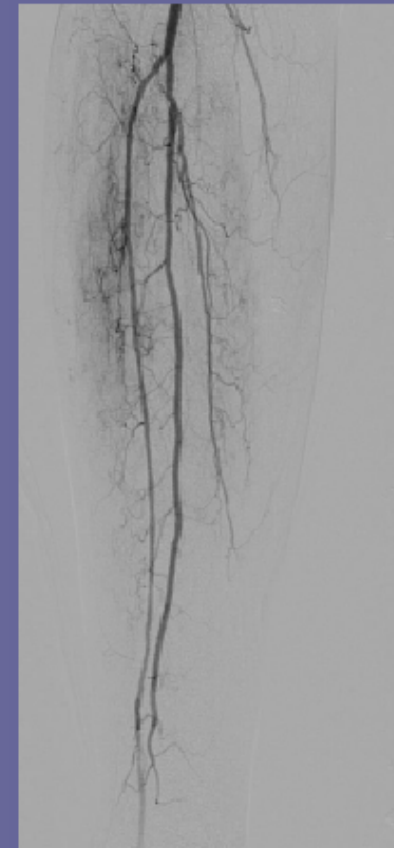
Example case



Pre-op lesion
and outflow



Post-op result



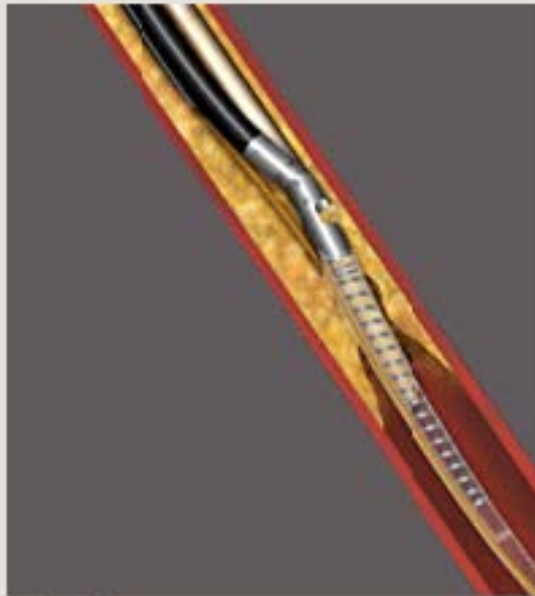
SilverHawk Plaque Excision System

FoxHollow Technologies



Step 1:

The SilverHawk catheter is inserted into the body through a small puncture site and is advanced through the artery to the site of the blockage.



Step 2:

Once the SilverHawk catheter is at the site of the blockage, a tiny rotating blade is activated. The physician advances the catheter through the lesion, shaving plaque off of the artery walls.



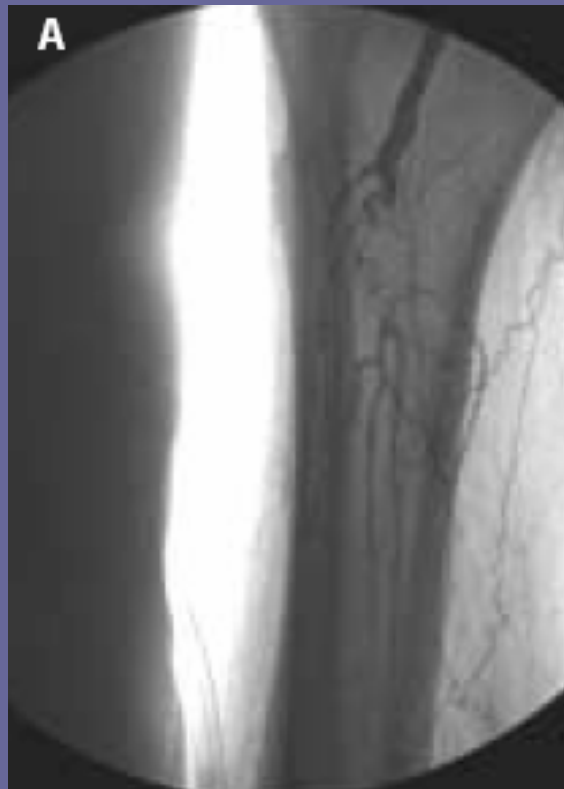
Step 3:

The plaque collects in the tip of the catheter and then is completely removed from the body. The physician may need to repeat these steps until enough plaque is removed to restore normal blood

SilverHawk Plaque Excision System

FoxHollow Technologies

Example BTK case



Preop



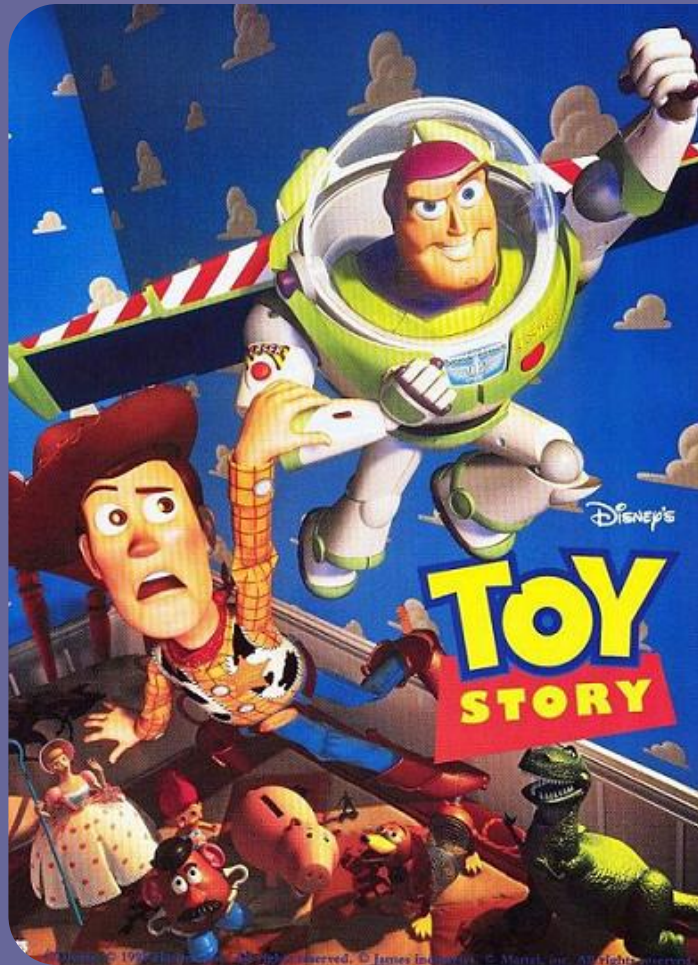
Postop

Results

Atherectomy devices

	N	Ind	R/	PP %	LS %
Laird J Cardiovasc Surg 2004	155	CLI	Excimer laser	-	93 @6M
Bosiers, Peeters J Endovasc Ther 2006	51	CLI	Excimer laser	-	90.5 @6M
Zeller J Endovasc Ther 2007	15	IC/C LI	Pathway +/- PTA, stent	73 @6M	-
Zeller J Endovasc Ther 2007	36	CLI	SilverHawk +/- PTA, stent	60 @24M	-
Keeling J Vasc Surg 2007	60	CLI	SilverHawk +/- PTA, stent	61 @12M	-
Ramaiah J Endovasc Ther 2006	601	IC/C LI	PTA	-	-

Conclusion



Atherectomy devices
are nice toys, but...

- Limited value
- Doubtable outcome
- Important price tag