Pedal Approach and Other Updated Techniques for Infrapopliteal CTO

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Tibioperoneal (Outflow Lesion) Angioplasty can be used as Primary Treatment in Patients with Critical Limb Ischemia. 5-Y Follow-Up.

- Prospective registry, 284 ischemic limbs
- Successful PTA of 486/529 BTK lesions (92%)
  - Success in stenoses 370/376 (98%)
  - **Success in occlusions 116/153 (73%)**

Dorros et al, *Circulation* 2001

The Problem of Infrapopliteal PTA

Recanalization of BTK-occlusions unsuccessful due to inability of guidewire-passage in up to **20-30%**

How can we improve our results **?**

Alternative access-techniques

Transpedal Approach

SAFARI-technique

Subintimal **a**rterial **f**lossing with

antegrade – **r**etrograde **I**ntervention

Spinosa et al. 2003

Gandini et al. 2007

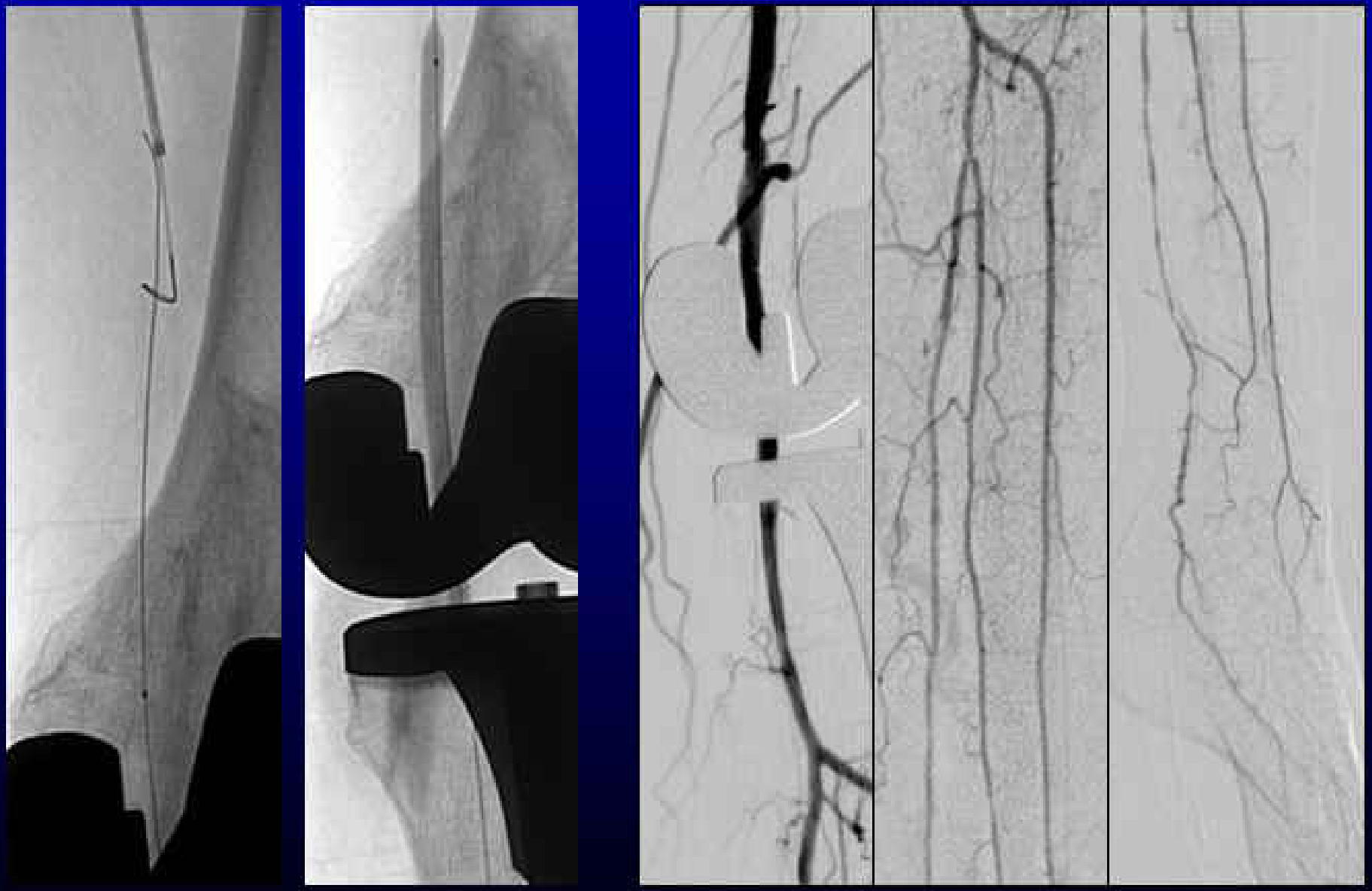
Fusaro et al. 2007

Occlusion left Pop. Art. + PTA

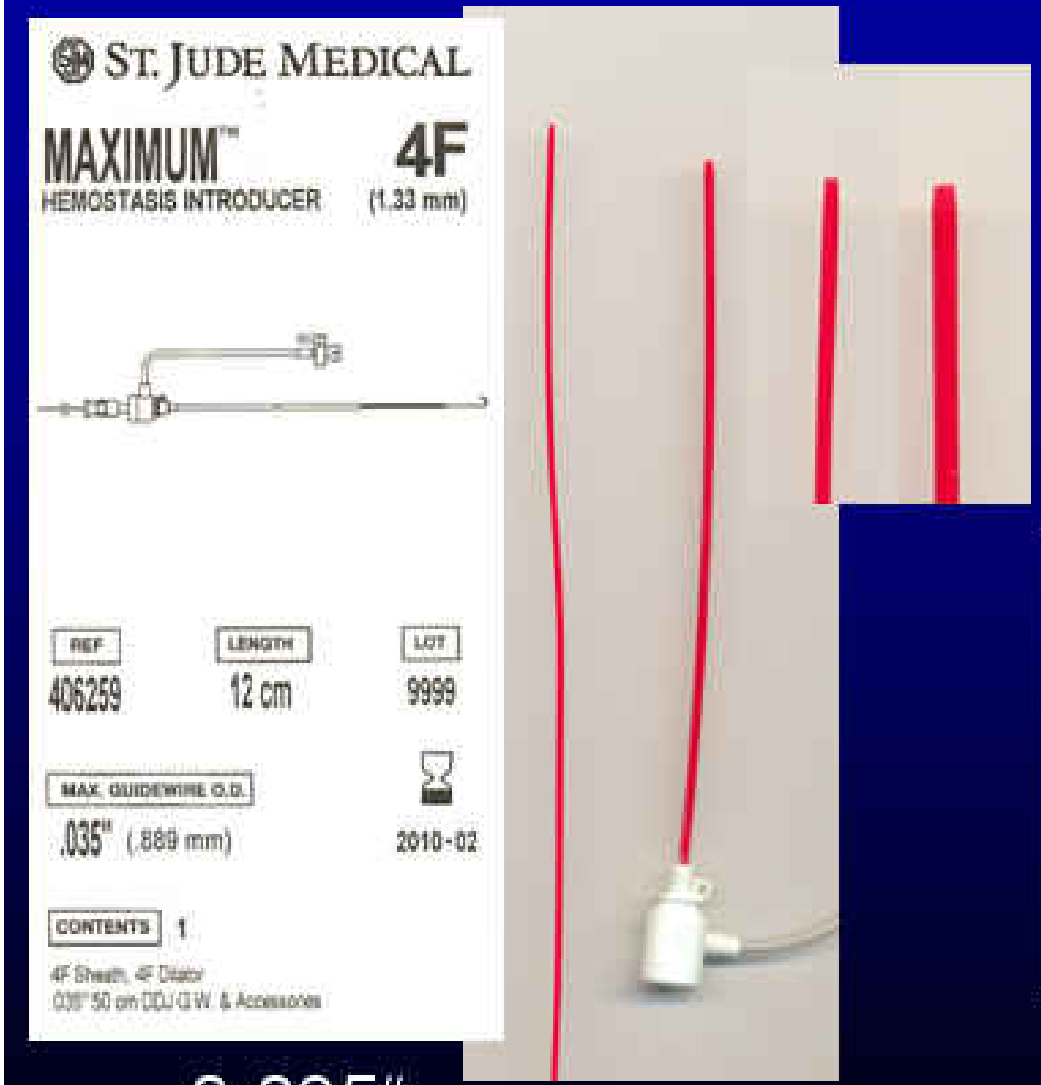
Attempted guidewire-passage

Sheath-Insertion (4F) right foot

Guidewire-Snaring and antegrade PTA



Material for Transpedal Access



0.035“

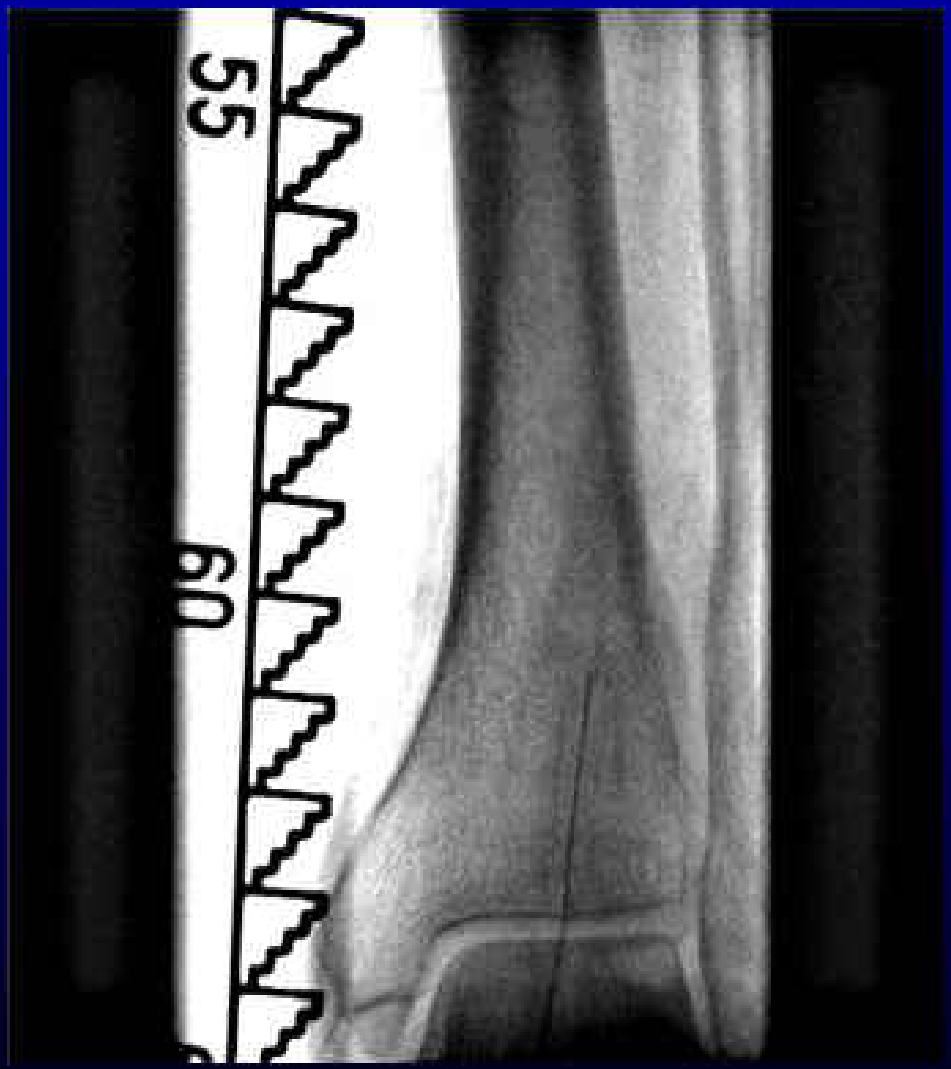
0.025“

Sheathless Approach for Transpedal Recanalization

Material for Transpedal Recanalization

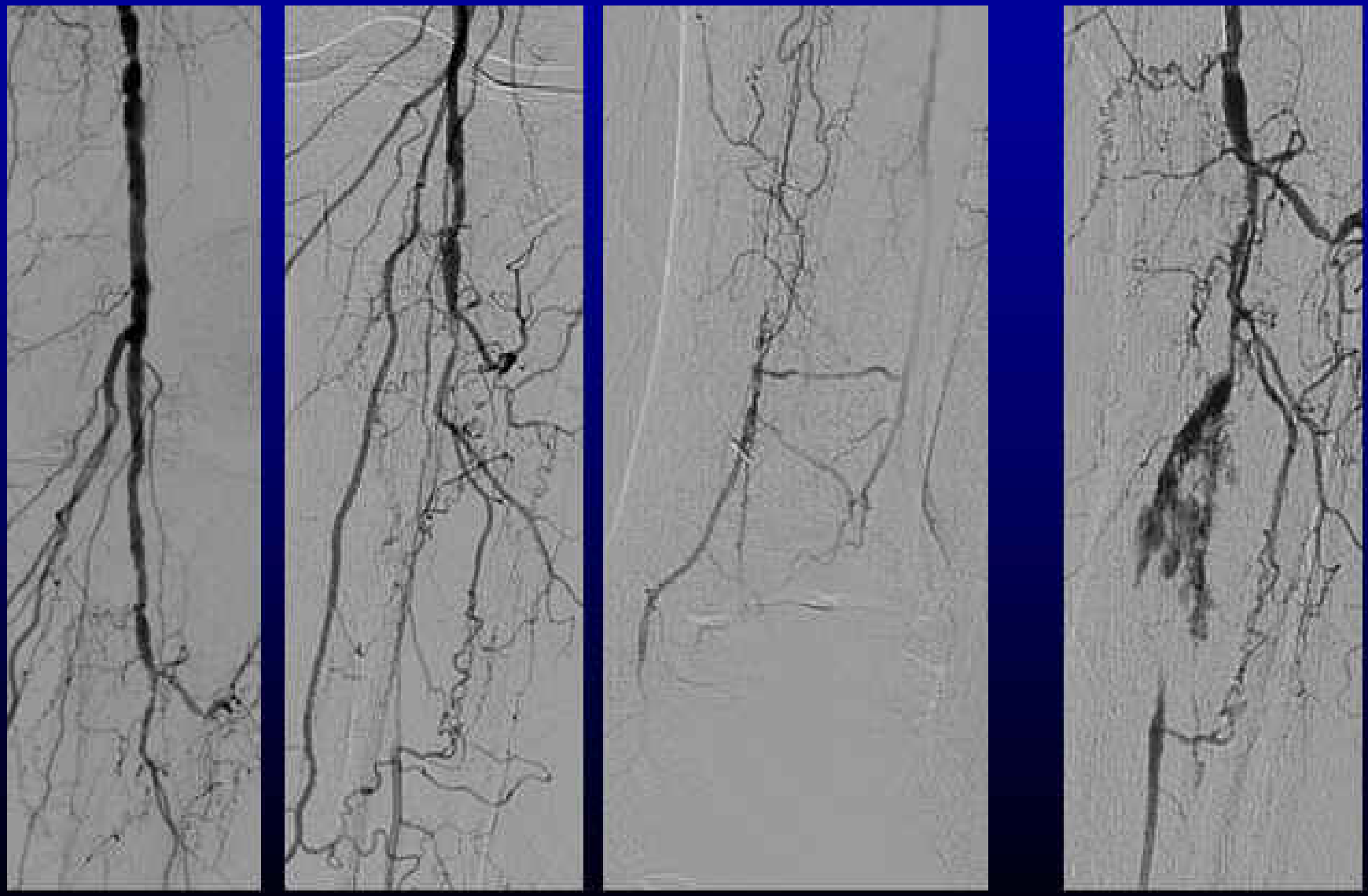
- 21 Gauge puncture-needle
- 0.014“ or 0.018“ hydrophilic coated guidewires
- Low-profile balloons 2.0/120mm
- 0.014“ coronary CTO-guidewires

Technique of Transpedal Approach

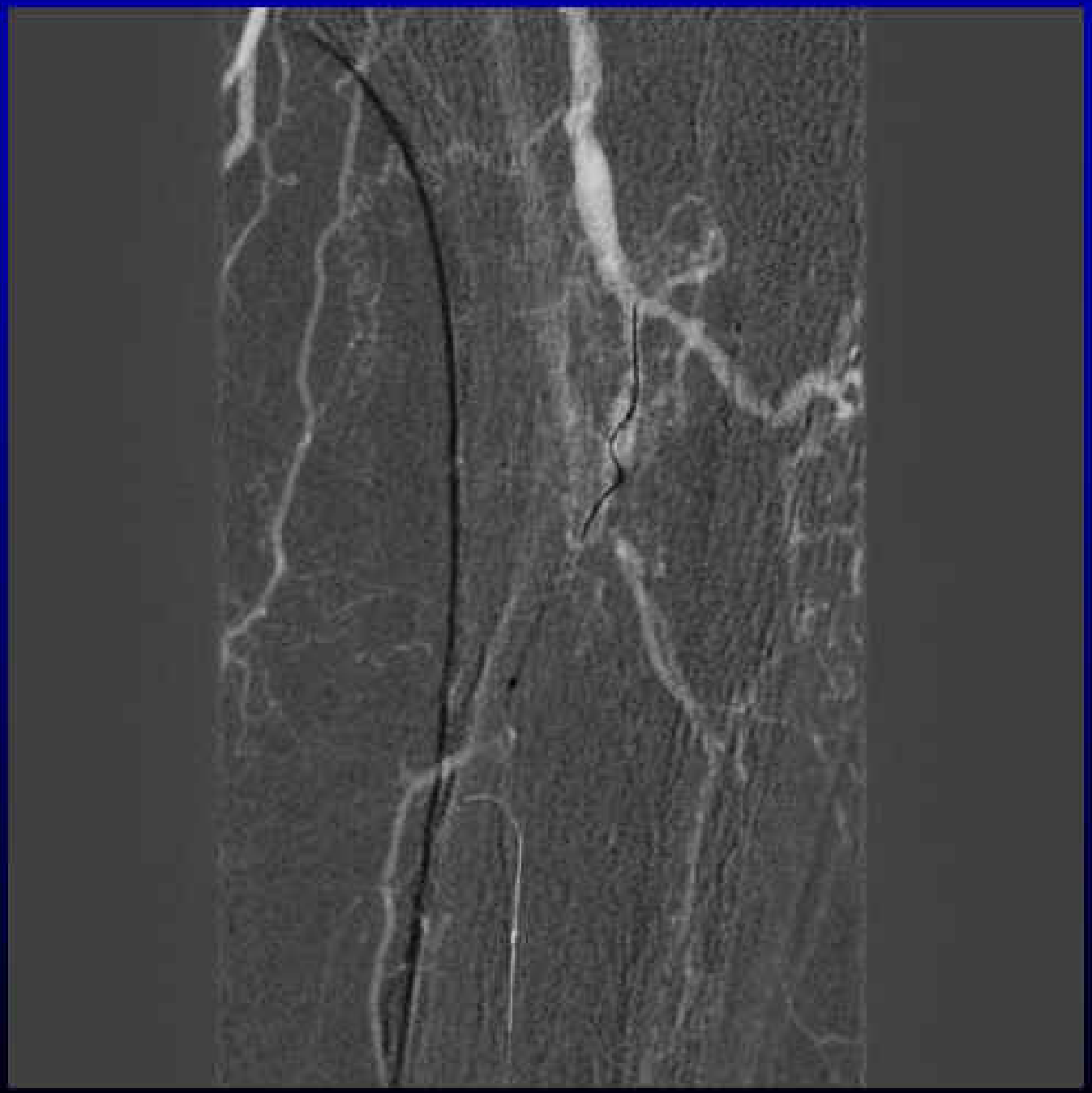


Transpedal Puncter using angiographic or road-map control

Puncture of the anterior, posterior tibial or peroneal artery

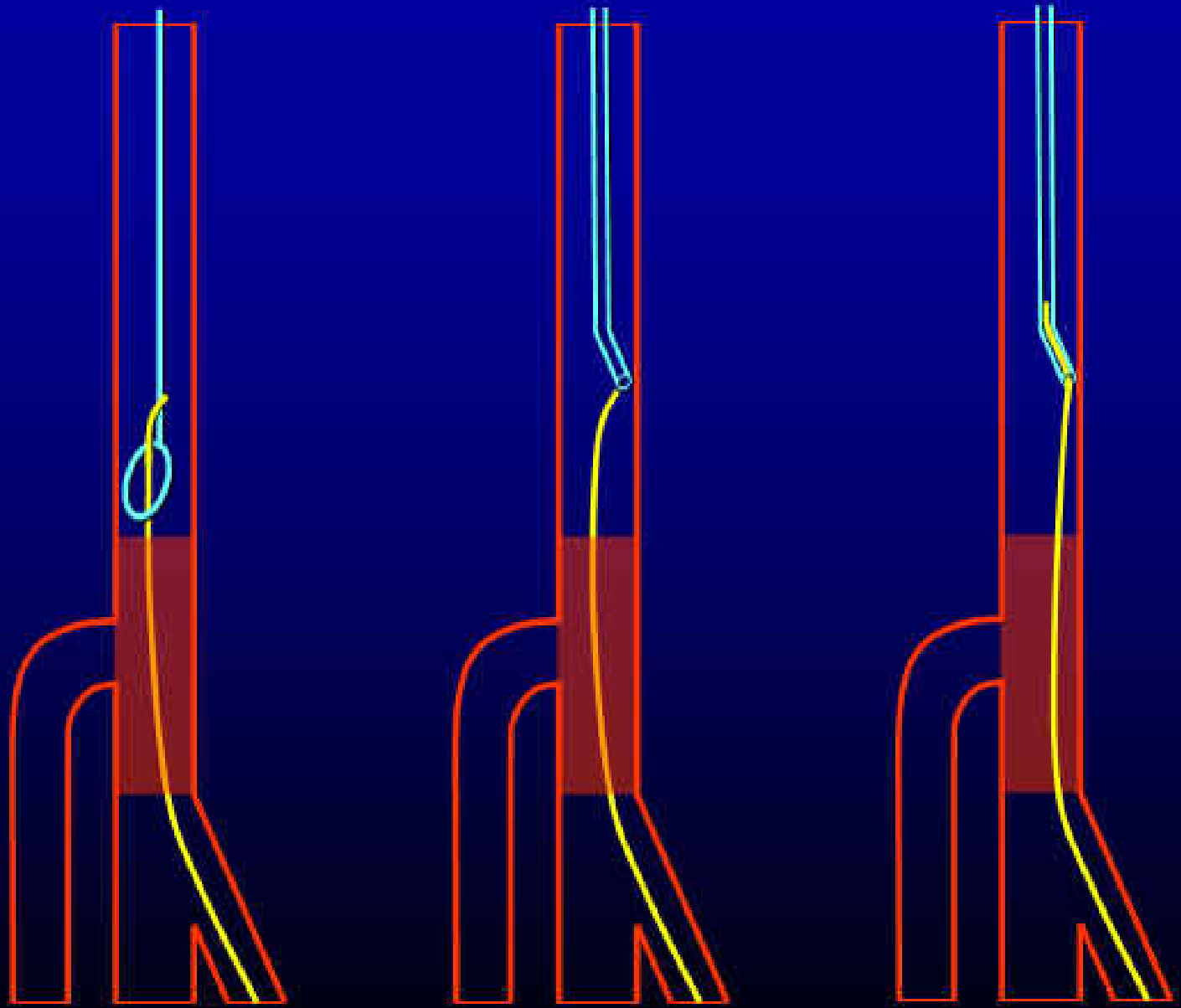


Difficult Passage of the guidewire to the PTA



Final Result after additional Stenting

“Snaring of the Retrograde Guide-Wire”



Snaring of the retrograde Guidewire

Antegrade
4Fr angled
Glidecath

Transpedal Access Technique

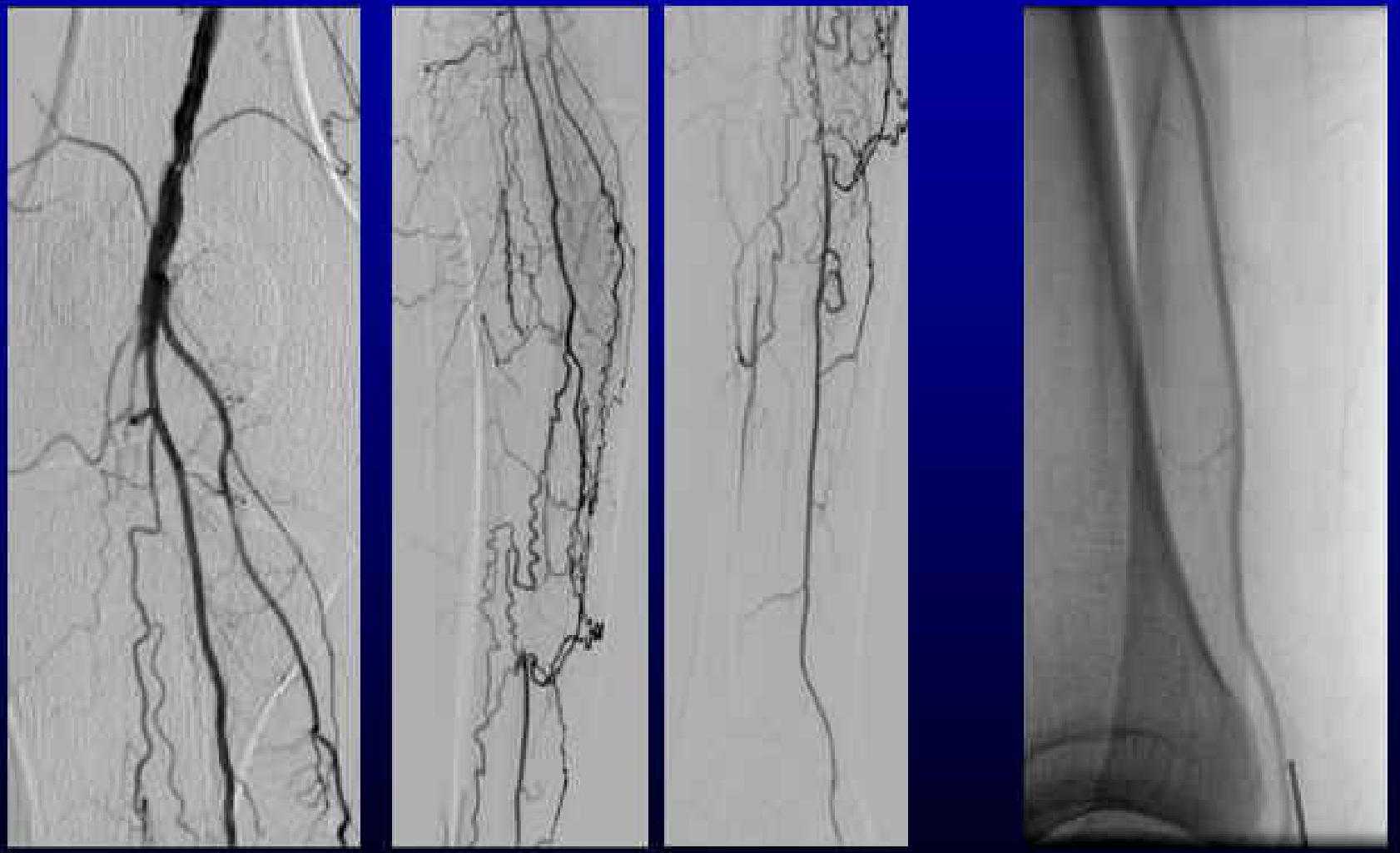
Time of transpedal access as short as possible

1. After passage of the target-lesion
2. Snaring of the wire and antegrade PTA
3. Immediate compression of the pedal puncture-site during the intervenion

Angiography of the pedal puncture-site at the end of the procedure + potential PTA

The Double Balloon-Technique

antegrade – retrograde Intervention

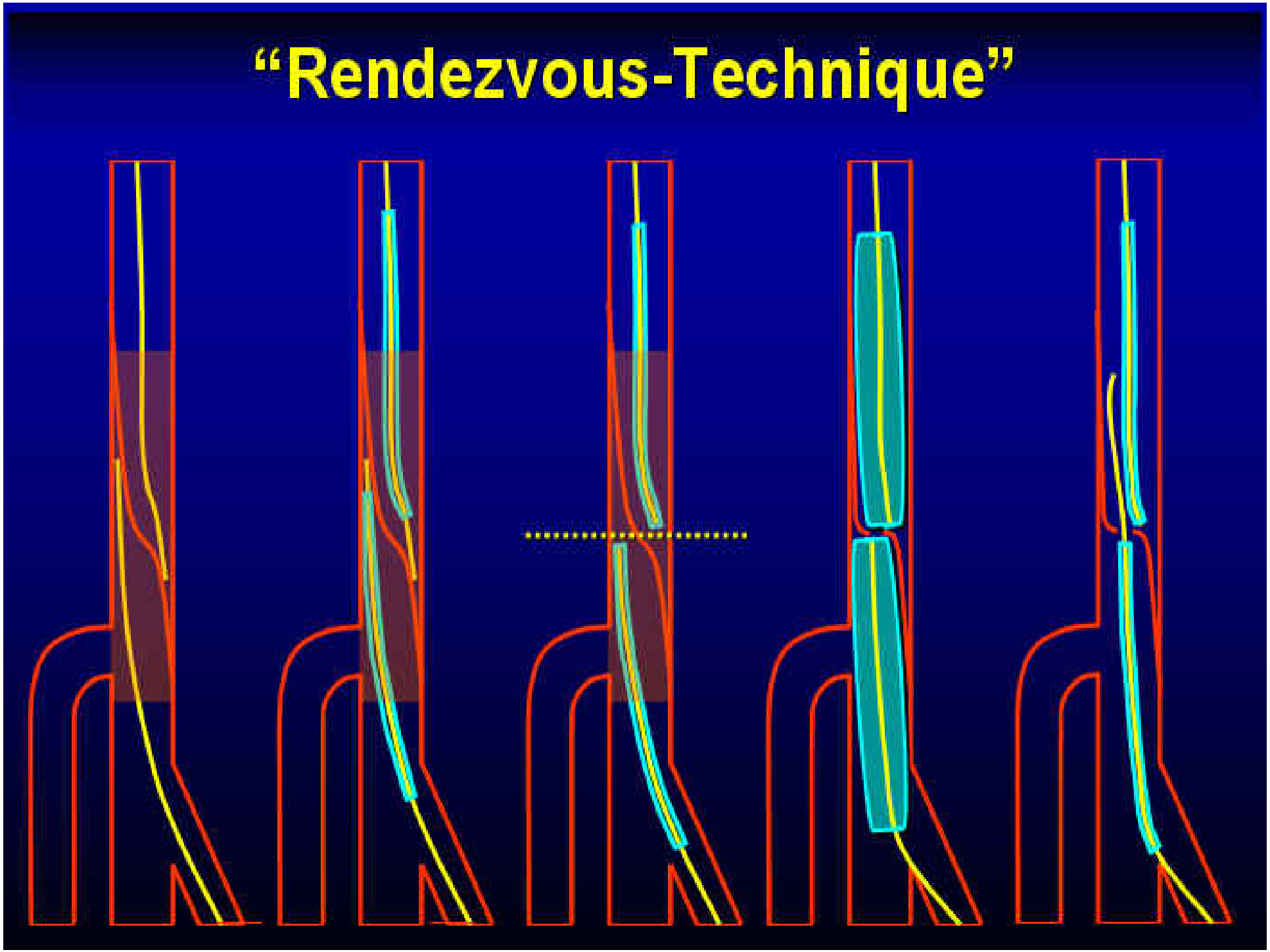


Unsuccessful antegrade PTA of the Apop-occlusion

Retrograde puncture of the PTA

The Double-Balloon Technique

“Rendezvous-Technique”



The Double-Balloon Technique

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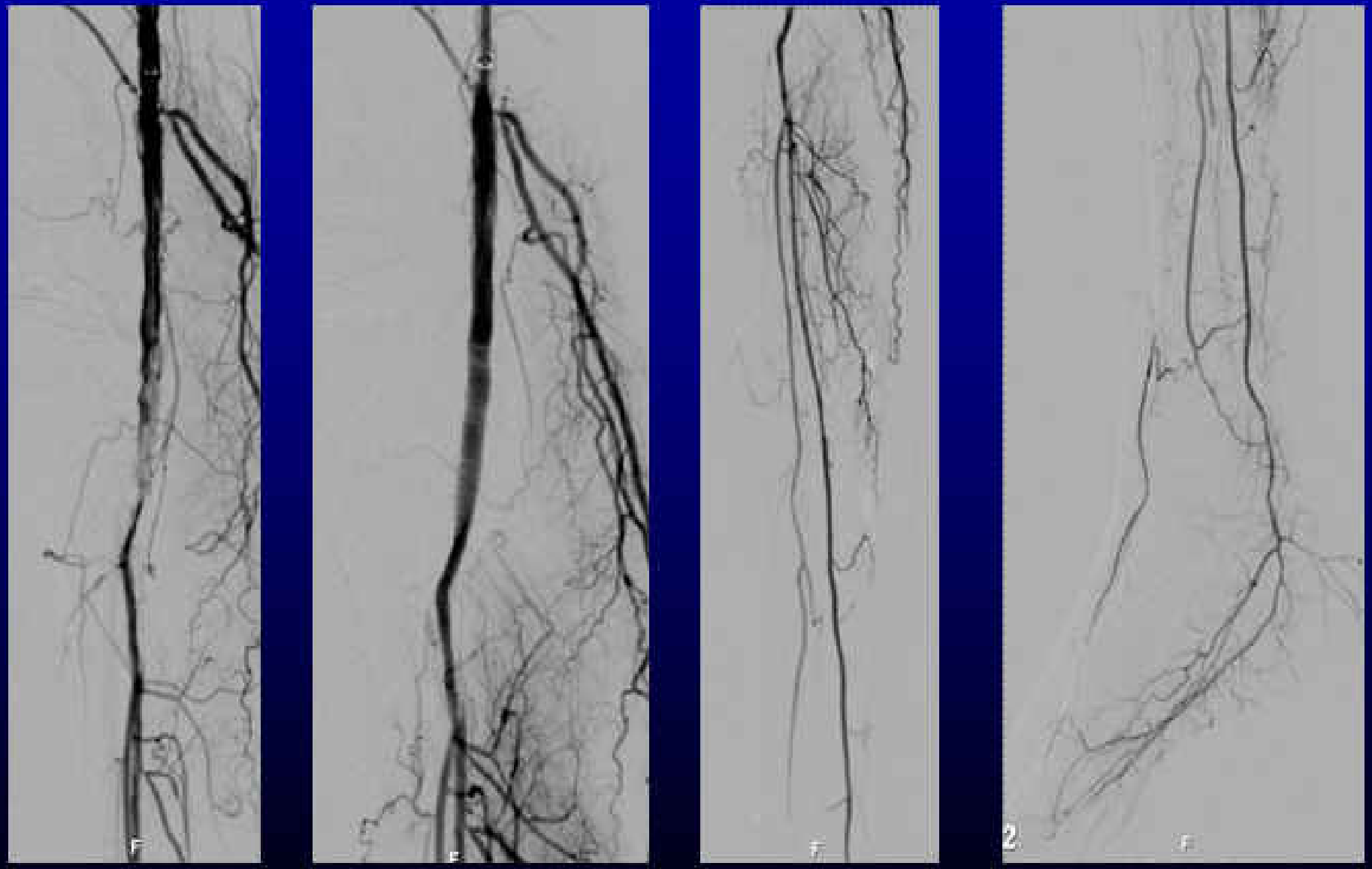
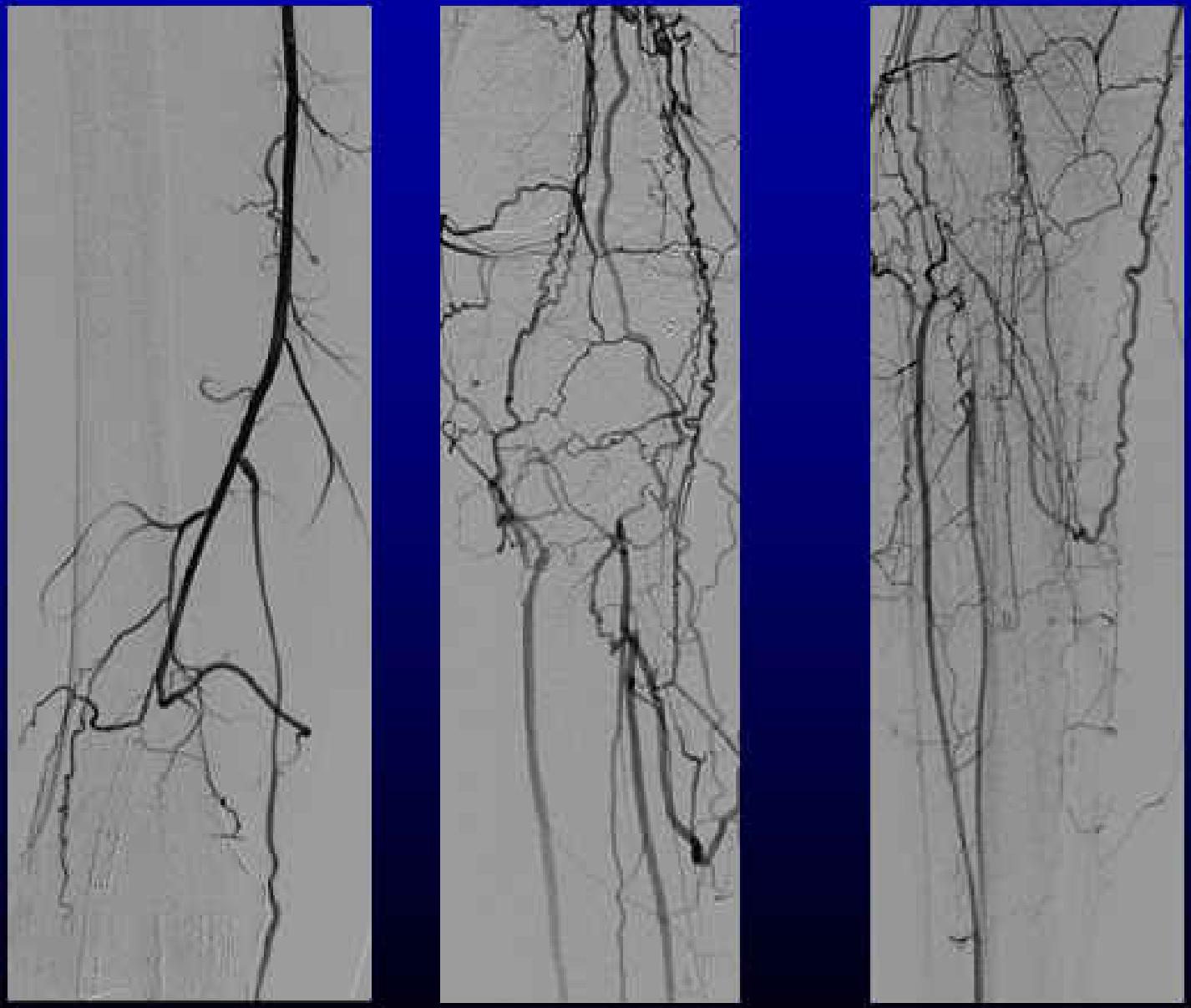


Retrograde Recanalization BTK



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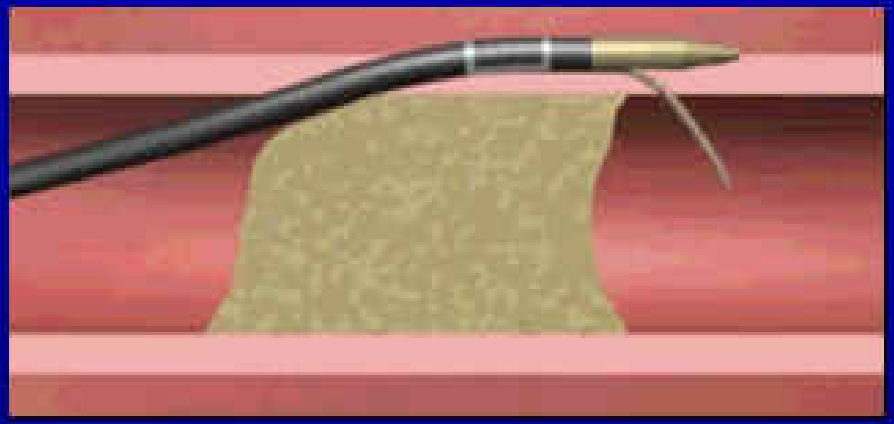

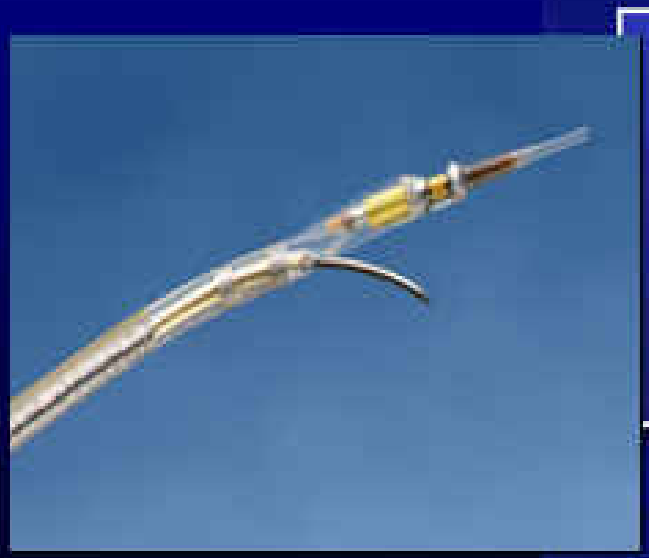

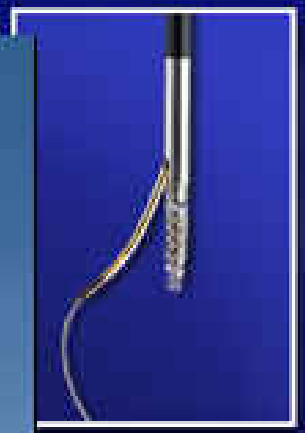

Pioneer

Outback

Retrograde Recanalization BTK

Retrograde Recanalization BTK

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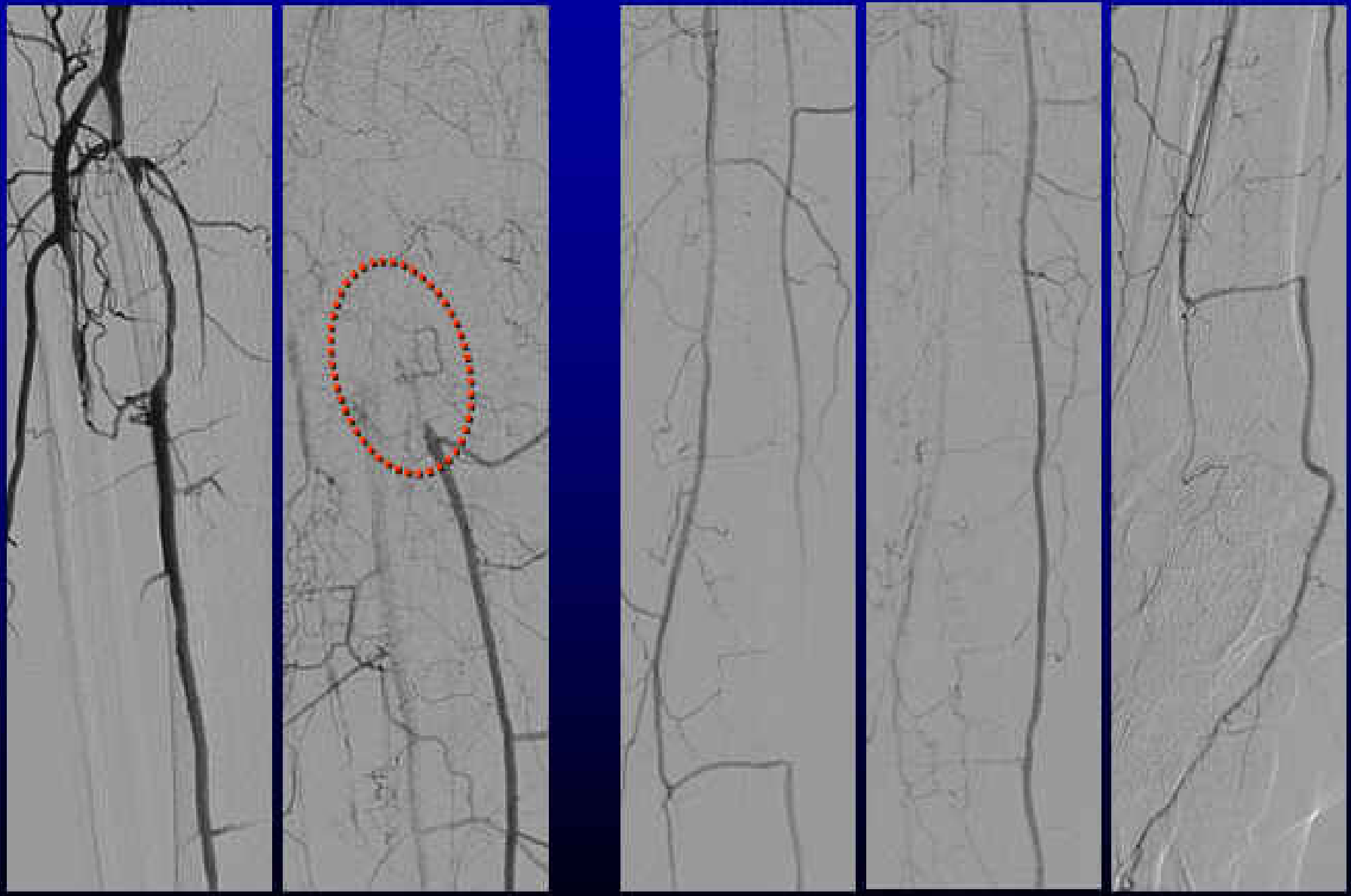
Retrograde Recanalization BTK



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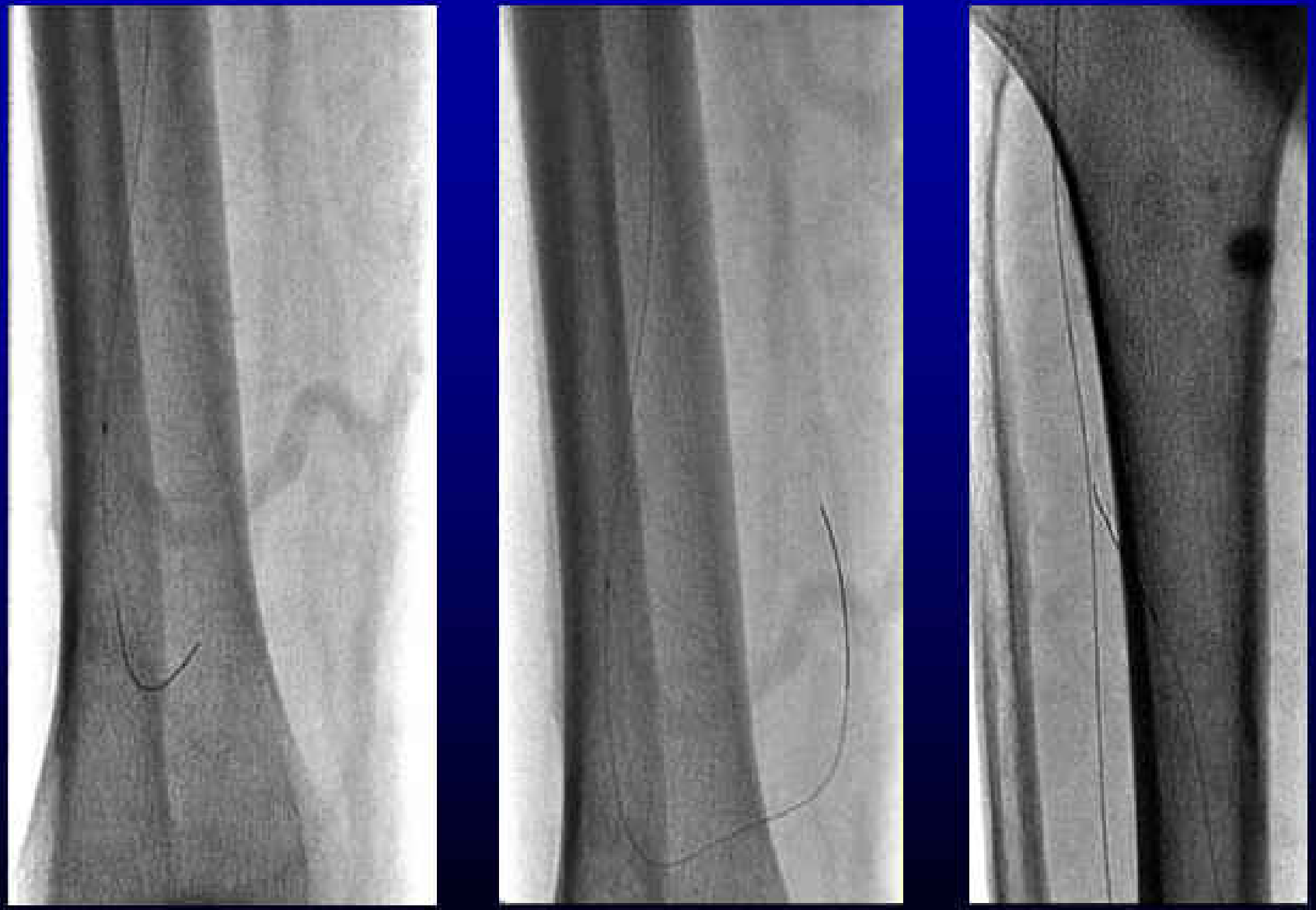

Retrograde Recanalization BTK

Transpedal Approach for infrapopliteal Angioplasty

- Success-rate in long BTK-occlusions ~ 80%
- 51 patients with popliteal and infrapopliteal occlusions and failed antegrade intervention
- Retrograde access in all patients possible
- Interventional success in 44 / 51 (86.3 %)

Montero-Baker, Schmidt et al., JEVT Oct. 2008

Transpedal Approach for infrainguinal Angioplasty

- Mean lesion-length: 18,3 cm (35 – 3cm)

- Complications:
  - Access-site occlusion 1
  - Access-site-hematoma 1
  - Perforations 3
    (covered stents)

Saftey of the Retrograde Transpedal Approach

- Follow-up of 36 / 70 patients
- 3-24 months postinterventional

- During FU angiography, MR-angio or Duplex of the pedal artery

- No stenosis or occlusion at the former puncture-site at the pedal artey up to now.

Conclusion

The transpedal / transcollateral approach is highly successful and safe in case of failure of antegrade recanalization.

However follow-up data have to be awaited before broad recommendation of this technique.