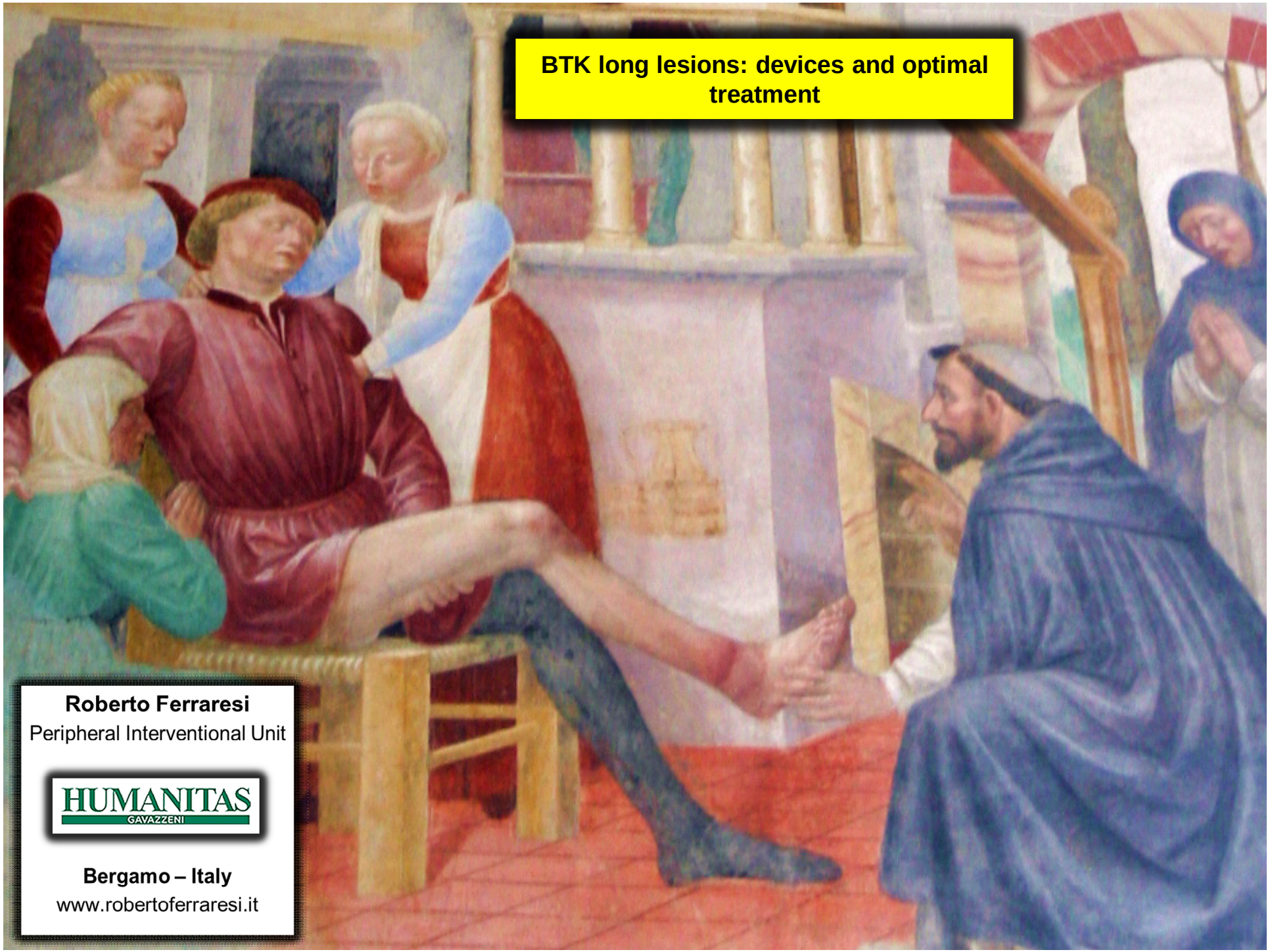

BTK long lesions: devices and optimal treatment

Roberto Ferraresi
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Potential conflicts of interest

Speaker's name: Roberto Ferraresi

- ❑ **I have the following potential conflicts of interest to report:**

  Consultant: **Medtronic, Abbott, Cook, Biotronik**

  Stockholder of a healthcare company: **LimFlow**

BTK long lesions: devices and optimal treatment

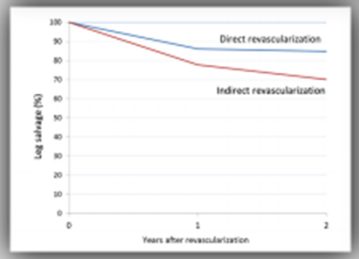
1. Antegrade femoral approach
2. CTOs crossing strategies
3. Optimization of acute result
4. Prevention of restenosis

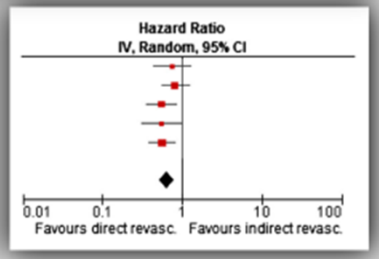
Angiosome-guided revascularization

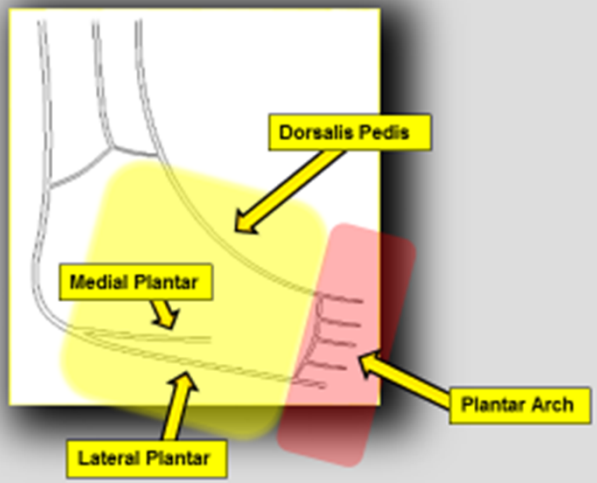
Angiosome-targeted Lower Limb Revascularization for Ischemic Foot Wounds: Systematic Review and Meta-analysis

F. Biancari *, T. Juvonen
Department of Surgery, Oulu University Hospital, Oulu, Finland

EJVES 2014;47:517-22



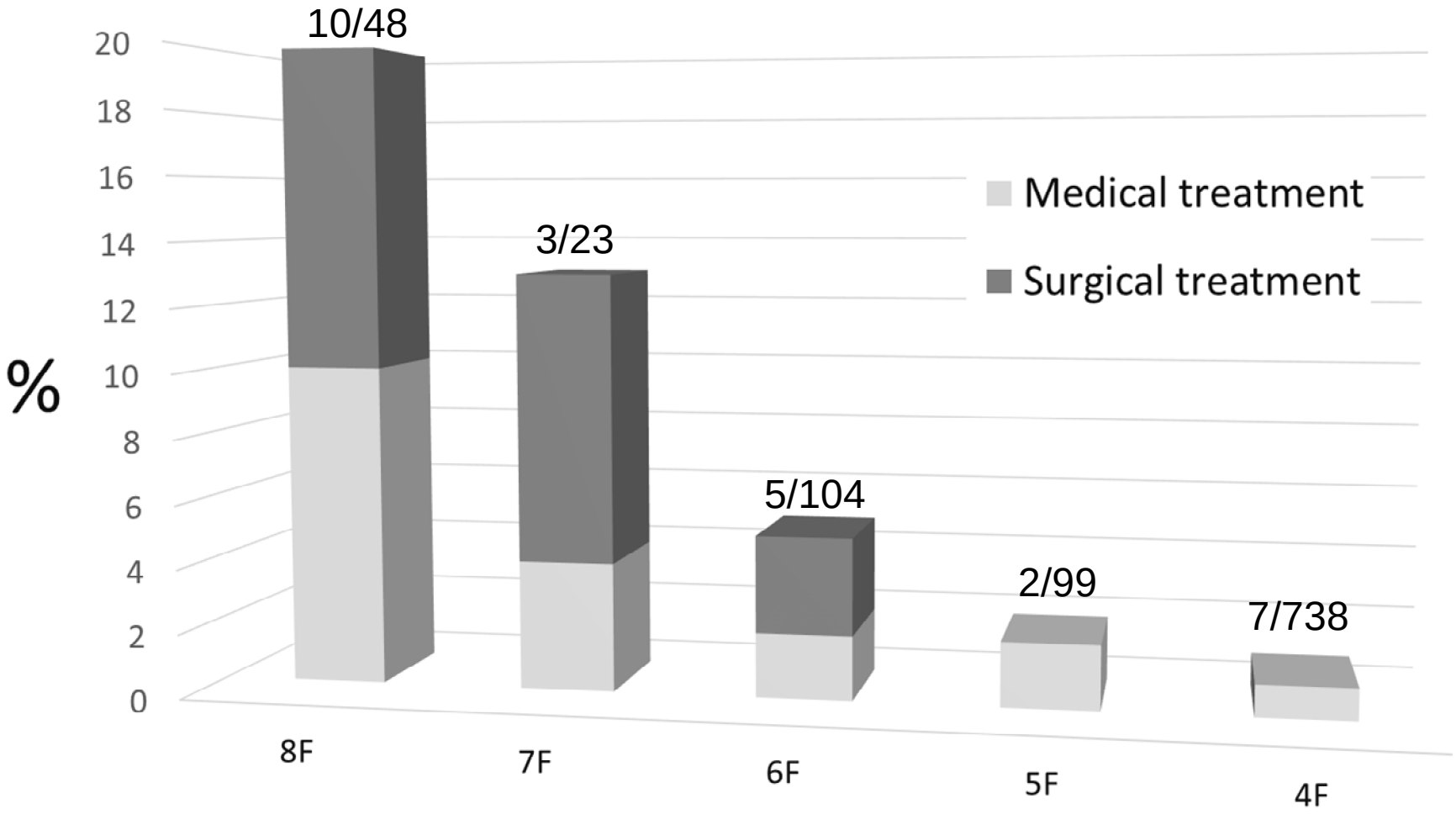




If our target in BTK-CLI revascularization is to restore a direct line of blood flow to the foot, the ***antegrade femoral approach*** is the best one due to:

- adequate device control
- angiographic resolution
- reduction in contrast dye

Antegrade femoral approach complications according to sheath size (2000-2008 yy; 1012 procedures)



1st key factor in reducing complications: standard use of 4-5 F sheaths

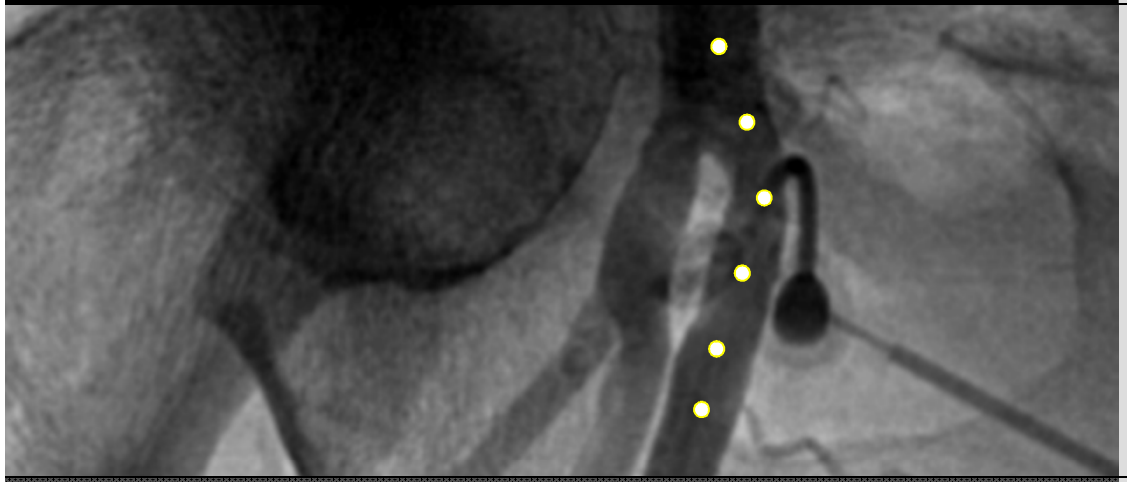
French size of the introducer sheath

Tips and tricks for a correct "endo approach"

R. FERRARESI [1], L. M. PALENA [2], G. MAURI [3], M. MANZI [4]

J CARDIOVASC SURG 2013;54:685-711

Danger of retroperitoneal, abdominal wall and external genital bleeding



The antegrade femoral puncture can be in the CFA or in the proximal SFA without an increase in morbidity.

Kweon M et Al. Antegrade Superficial Femoral Artery versus Common Femoral Artery Punctures for Infrainguinal Occlusive Disease. J Vasc Interv Radiol 2012;23:1160–4

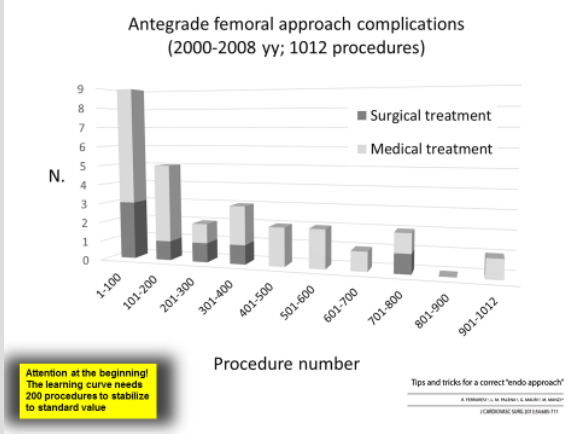
2nd key factor in reducing complications: X-ray guided puncture

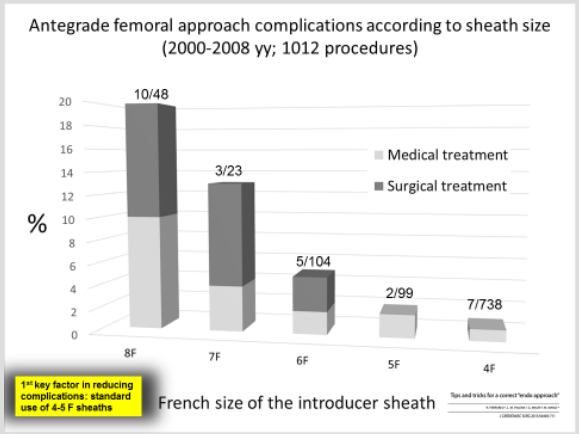
Danger of thigh ematoma or pseudoaneurism

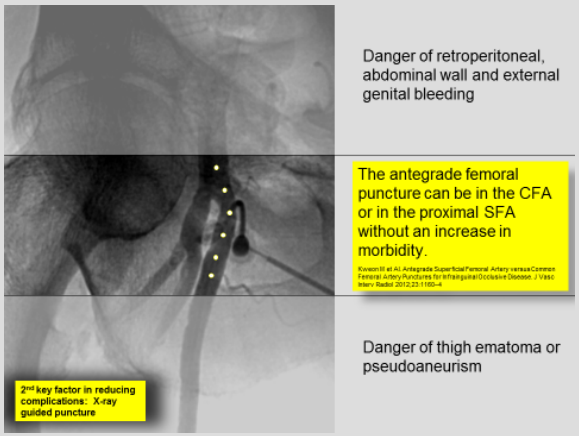
Tips and tricks for a correct "endo approach"

R. FERRARESI [1], L. M. PALENA [2], G. MAURI [3], M. MANZI [4]

J CARDIOVASC SURG 2013;54:685-711







1° statement

Antegrade femoral approach is a key points in BTK-CLI treatment

Tips and tricks for a correct "endo approach"

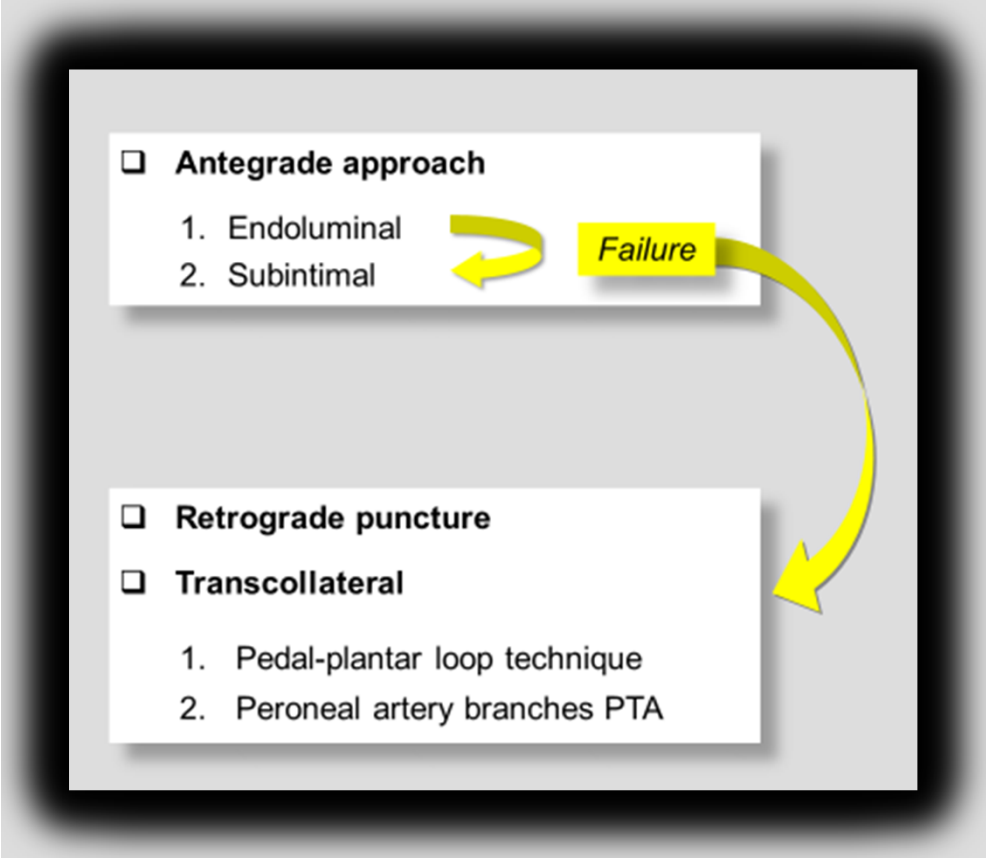
R. FERRARESI [1], L. M. PALENA [2], G. MAURI [3], M. MANZI [4]

J CARDIOVASC SURG 2013;54:685-711

BTK long lesions: devices and optimal treatment

1. Antegrade femoral approach
2. CTOs crossing strategies
3. Optimization of acute result
4. Prevention of restenosis

Step-by-step approach in CTOs crossing strategy



Tips and tricks for a correct "endo approach"

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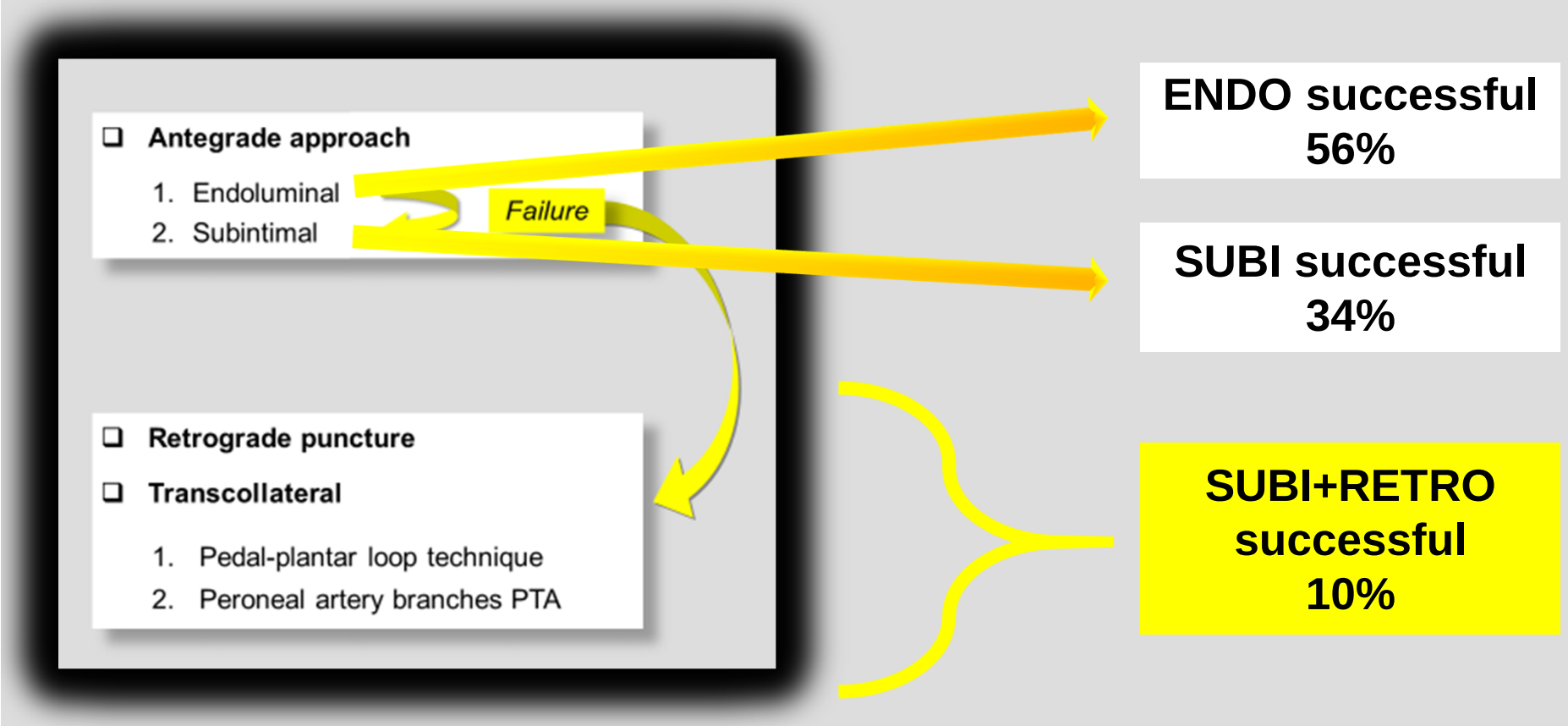
J CARDIOVASC SURG 2013;54:685-711

Step-by-step approach in CTOs crossing strategy

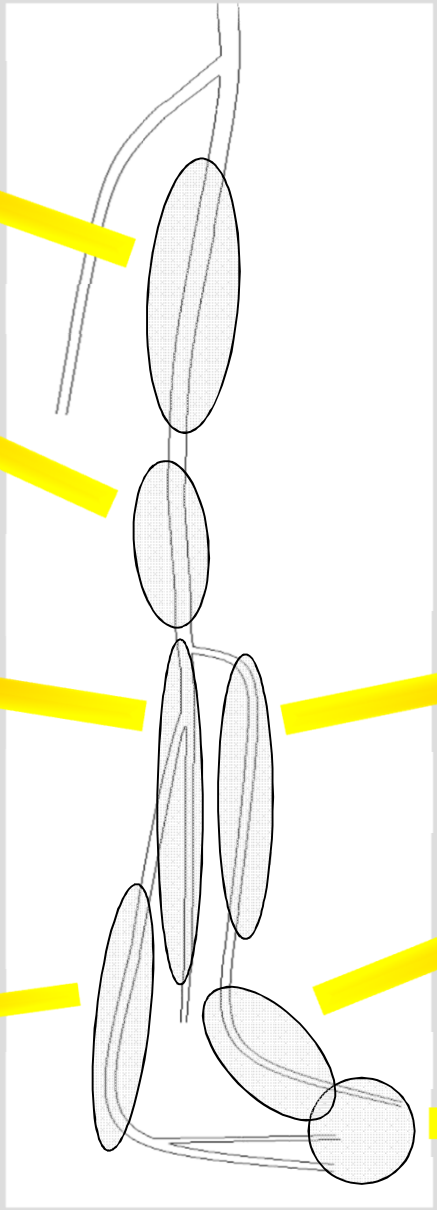


Tips and tricks for a correct "endo approach"

R. FERRARESI [1], L. M. PALENA [2], G. MAURI [3], M. MANZI [4]

J CARDIOVASC SURG 2013;54:685-711

Retrograde approach: Milan experience 2010-2013



SFA 8% (12)

POP 5% (7)

TTP-PER 3% (5)

PT 15% (23)

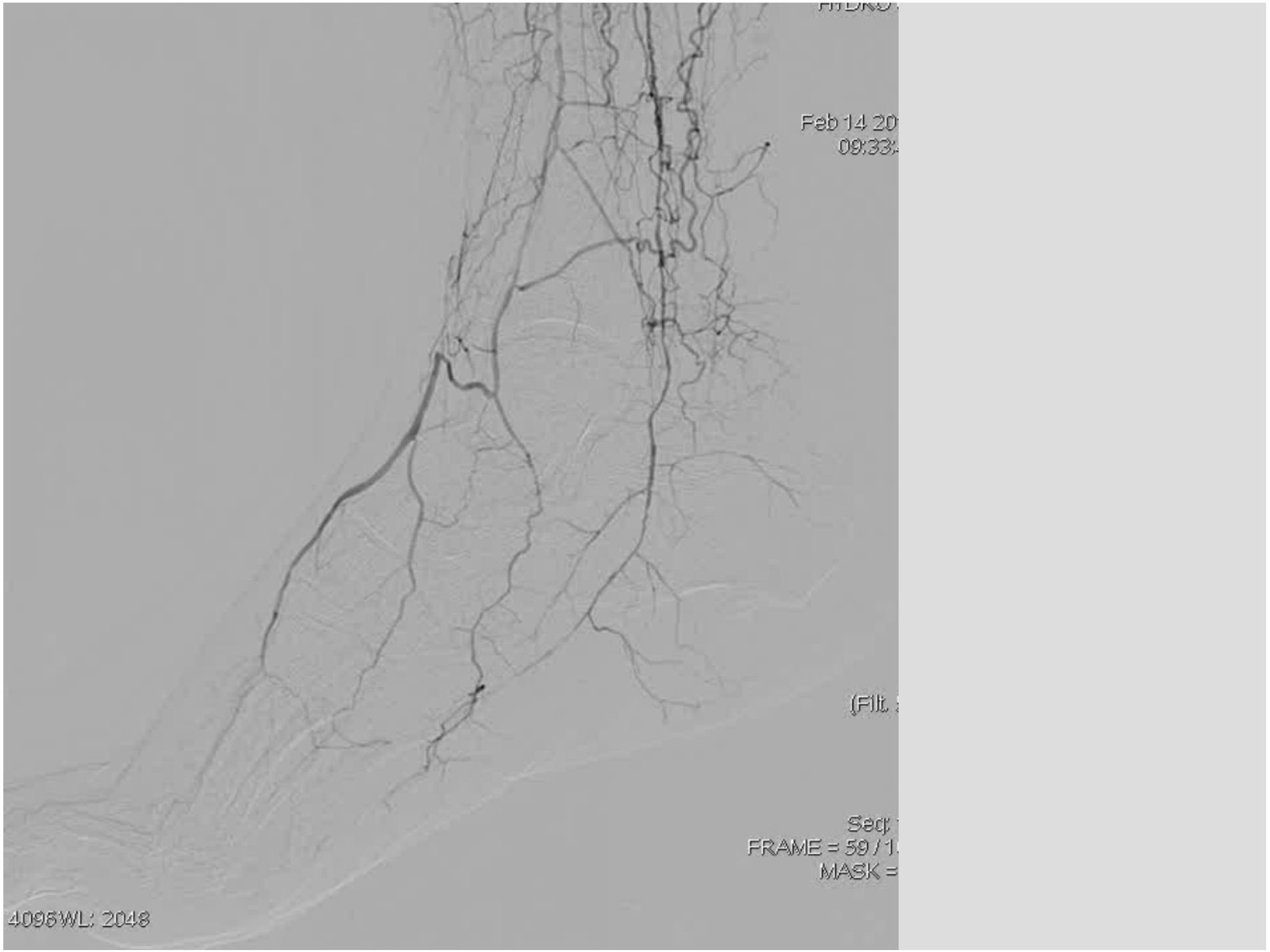
OTHER 5% (7)

AT 13% (19)

PED 35% (51)

PED-PLANT LOOP 16% (23)

PATIENT 01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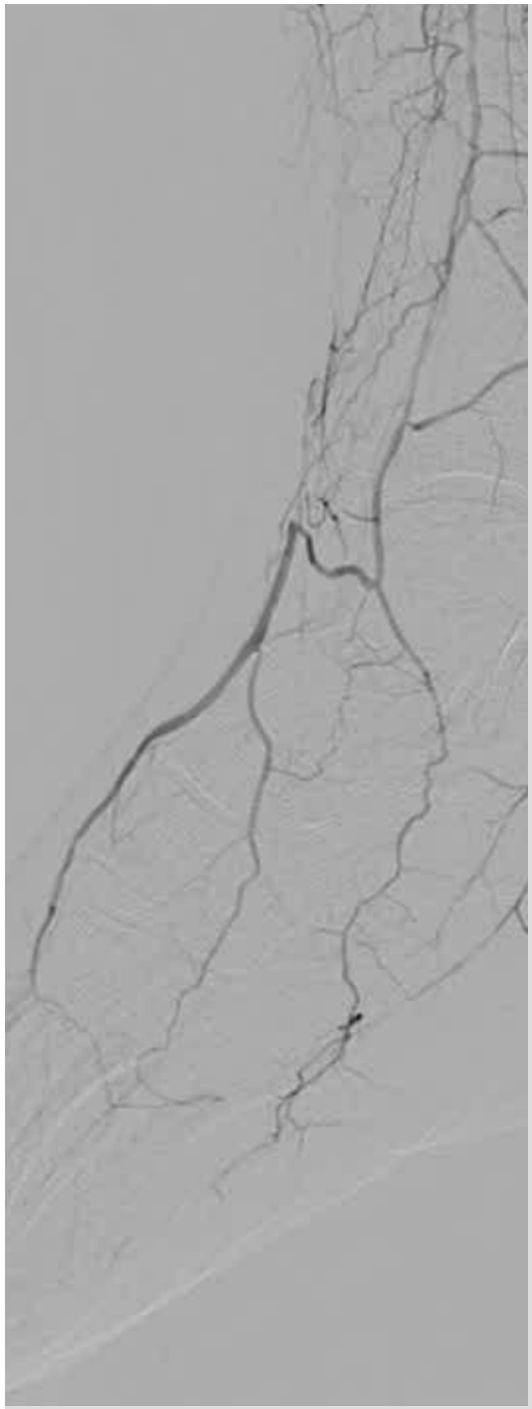

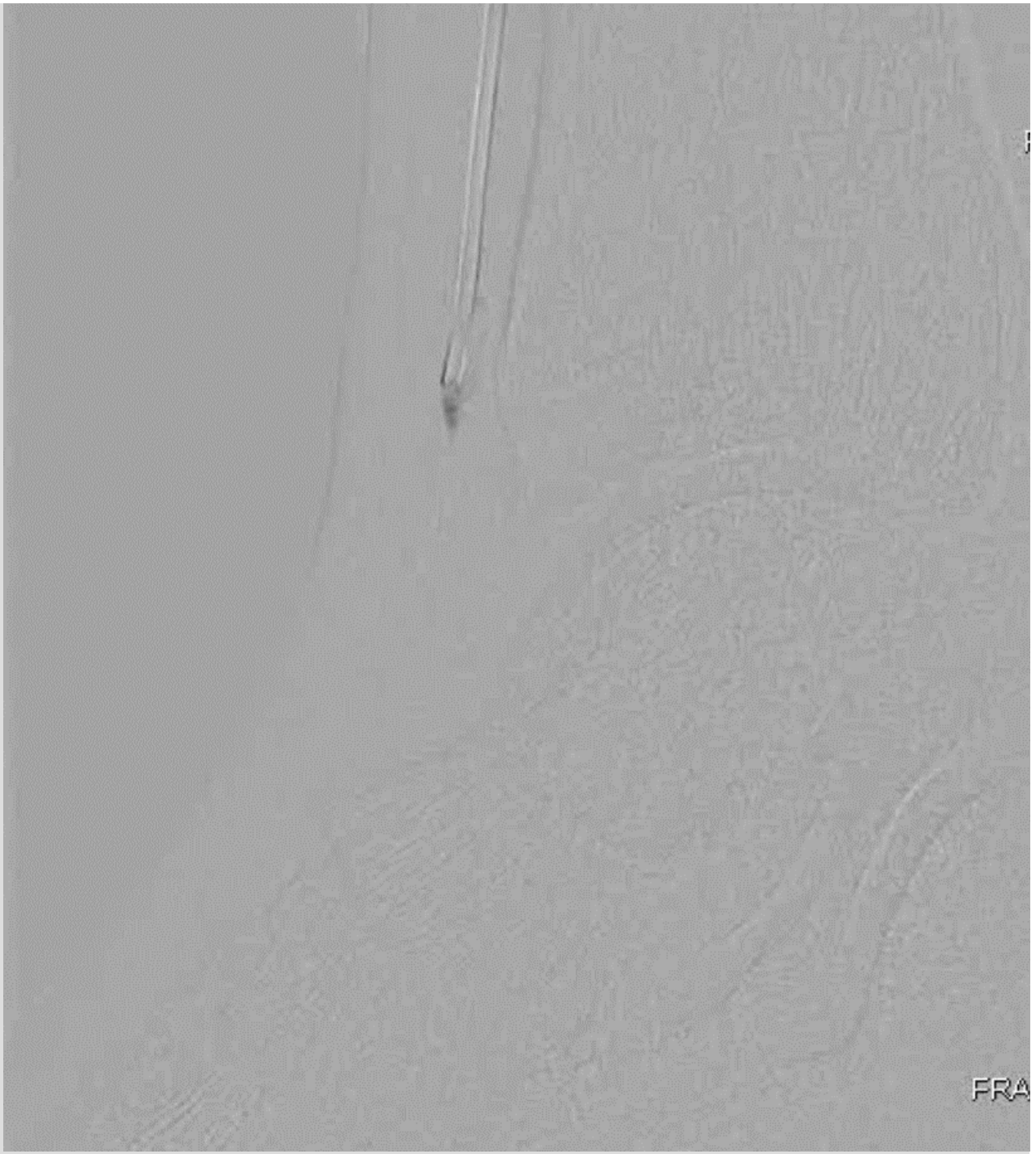

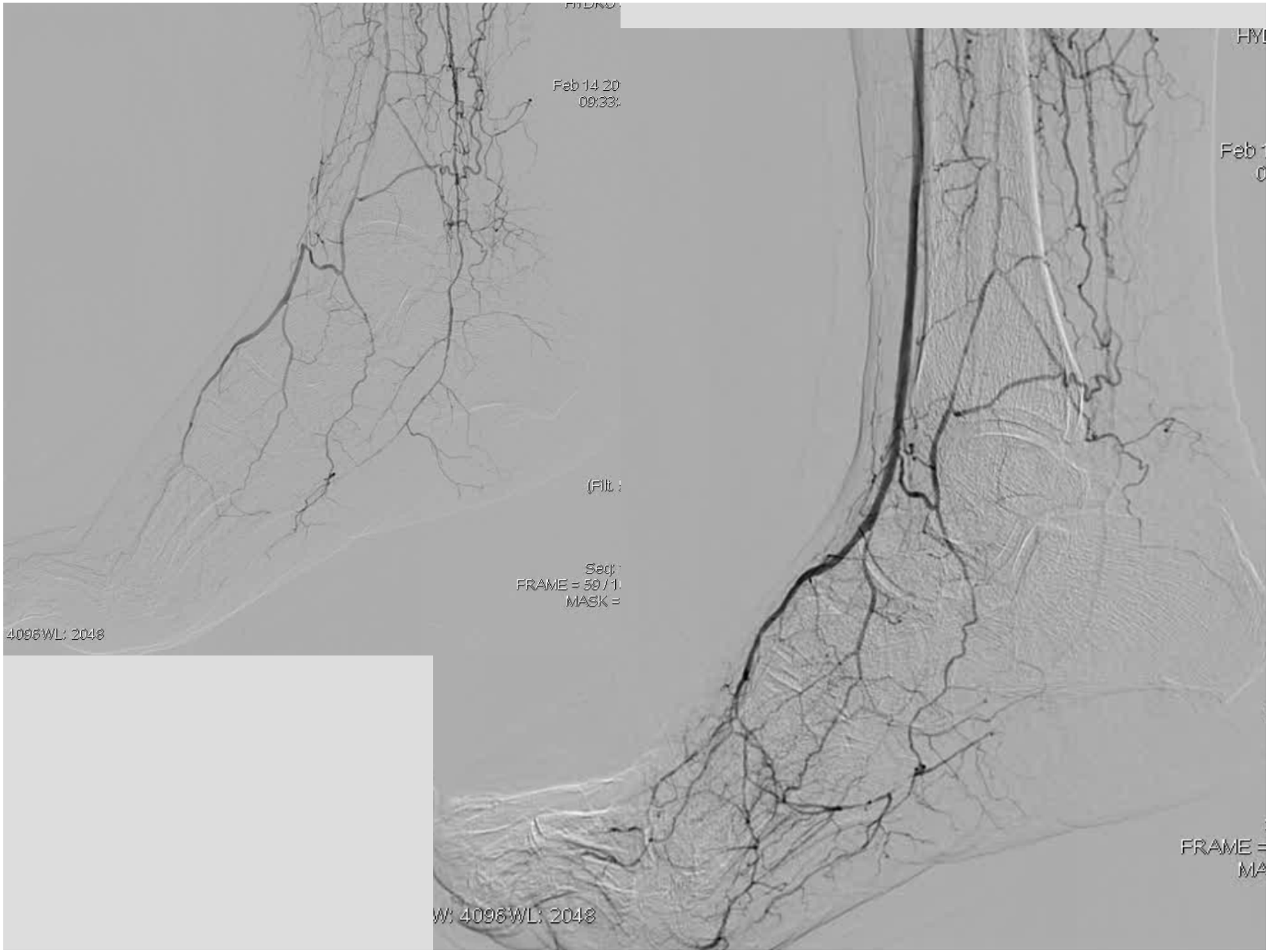
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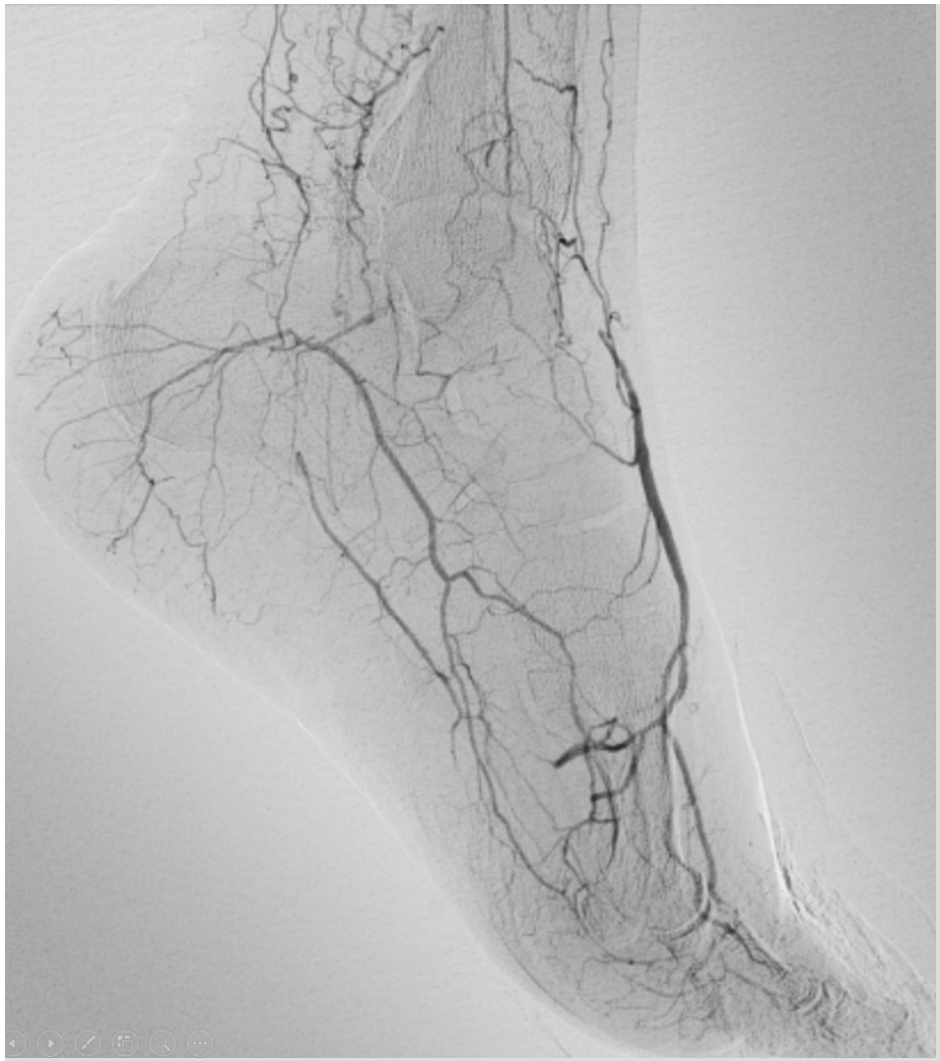
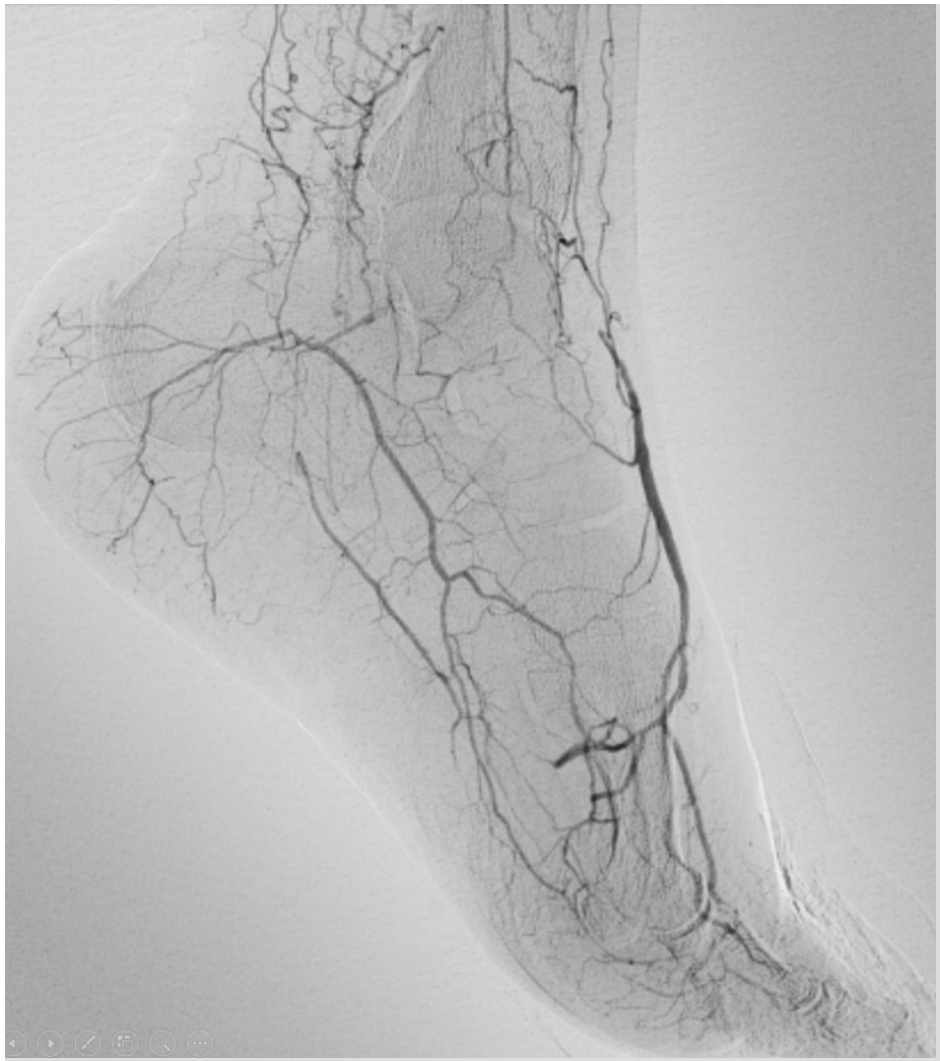
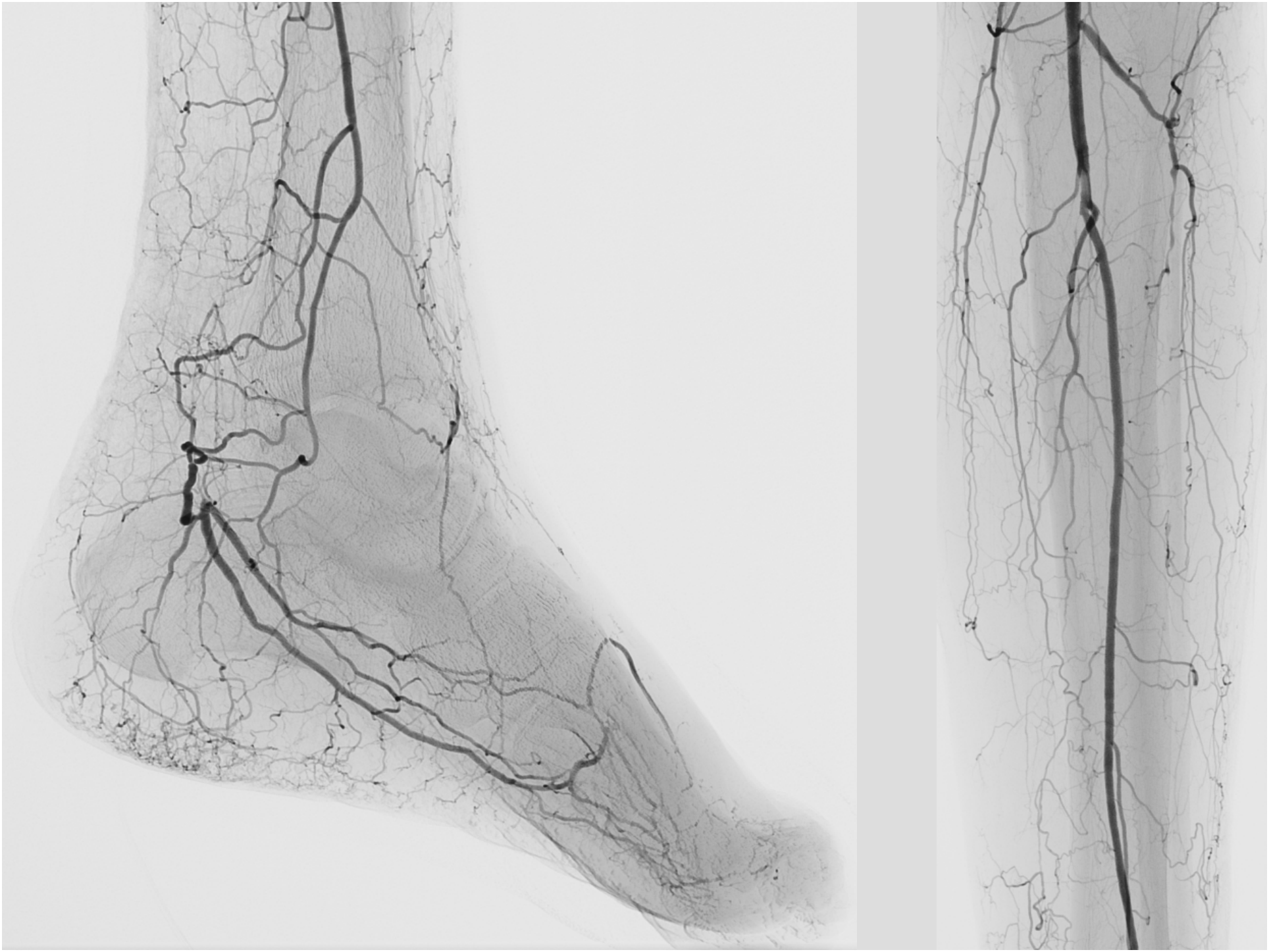
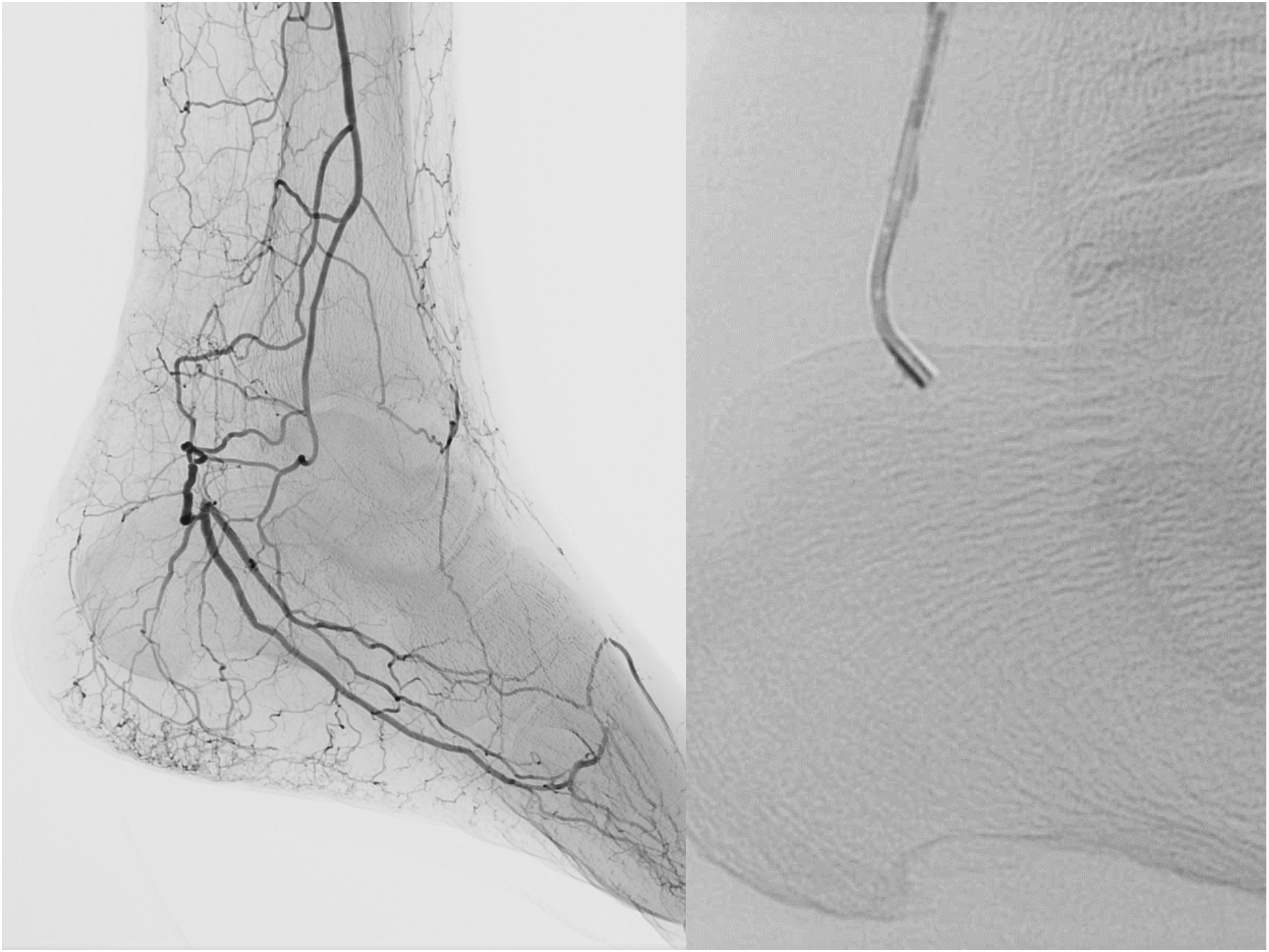
PATIENT 02

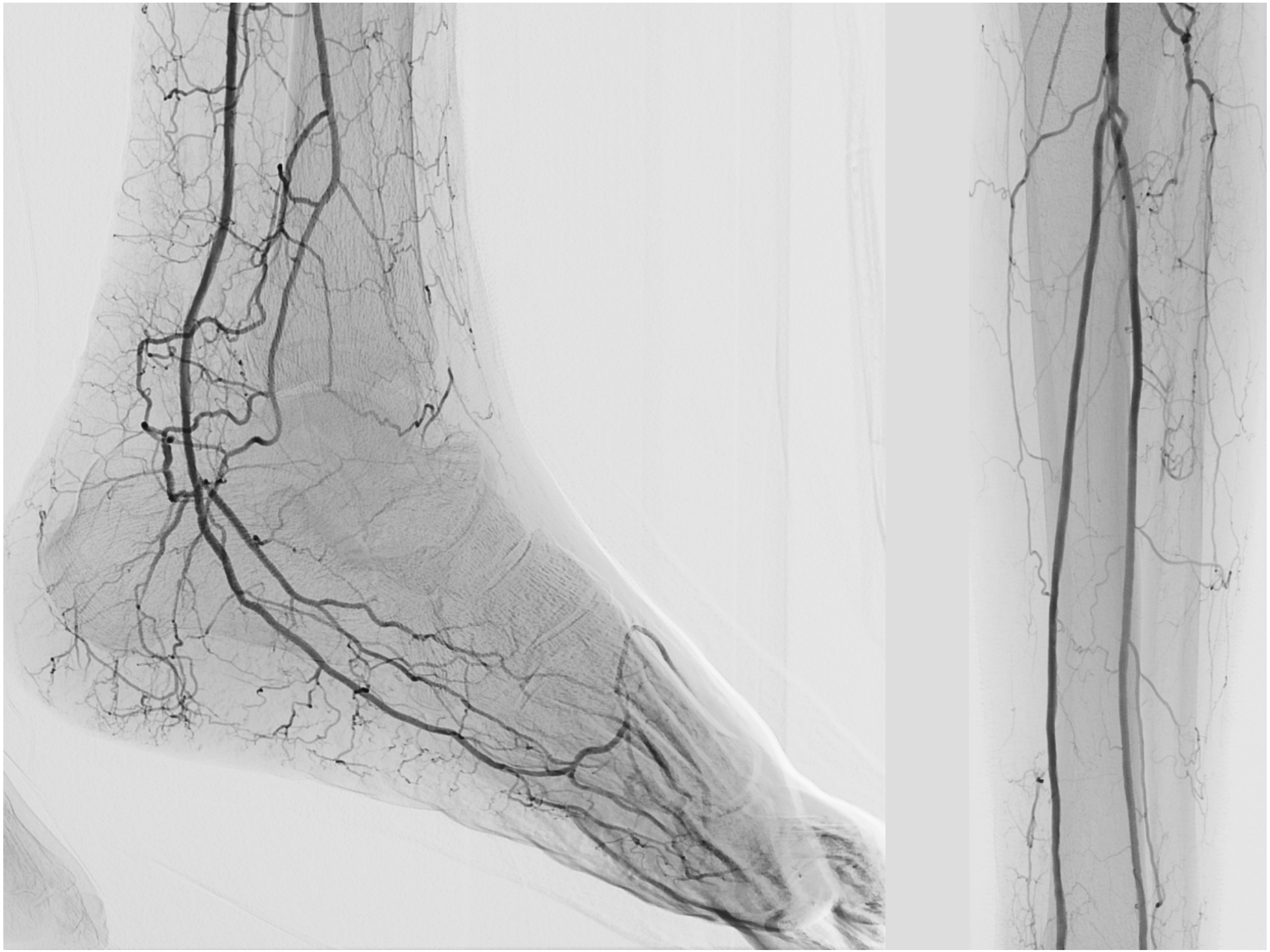


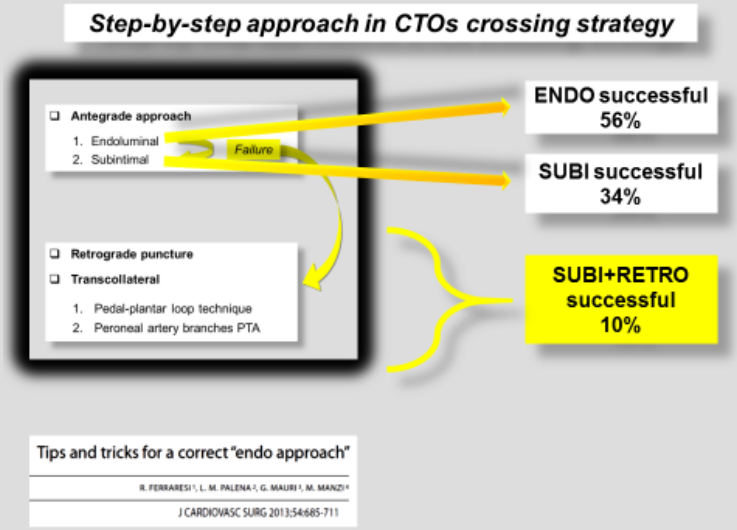


PATIENT 03

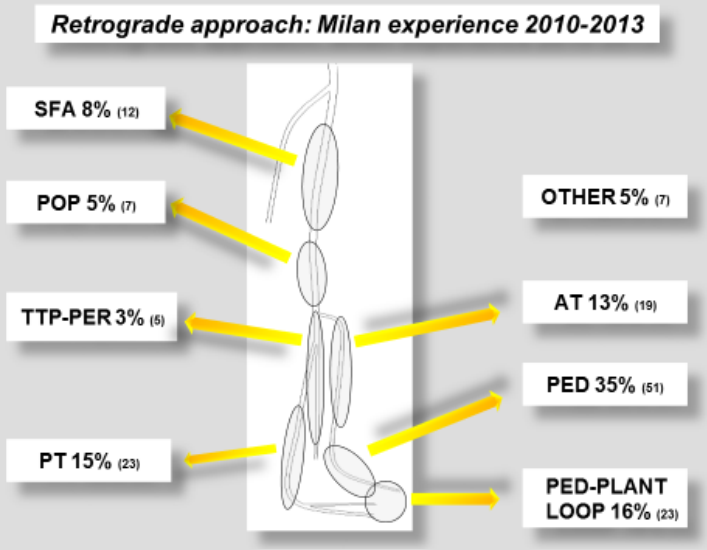








2° statement



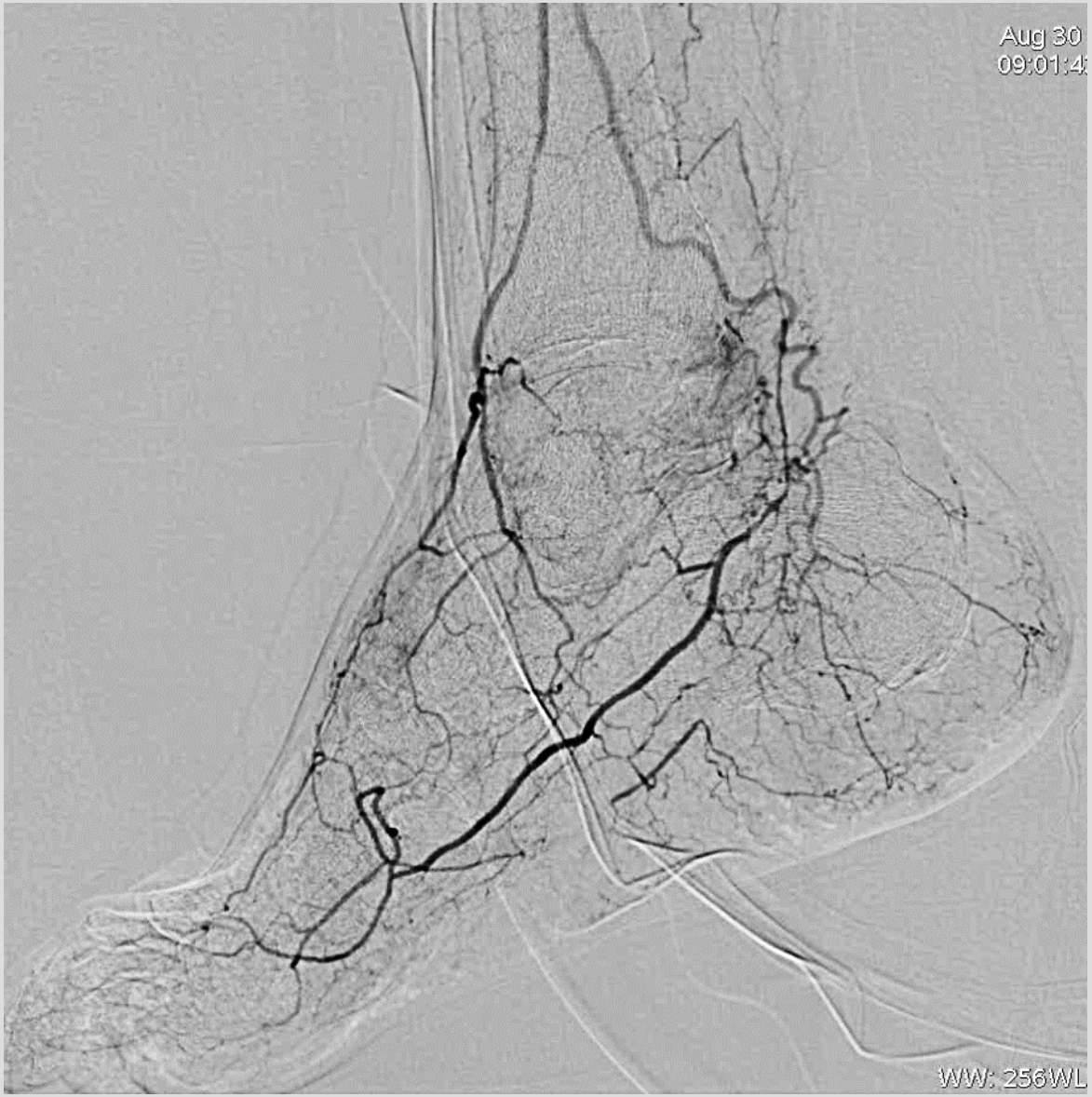
Endoluminal approach is sufficient only in half of the patients with BTK-CLI

Subintimal and retrograde approaches are not an option!!!

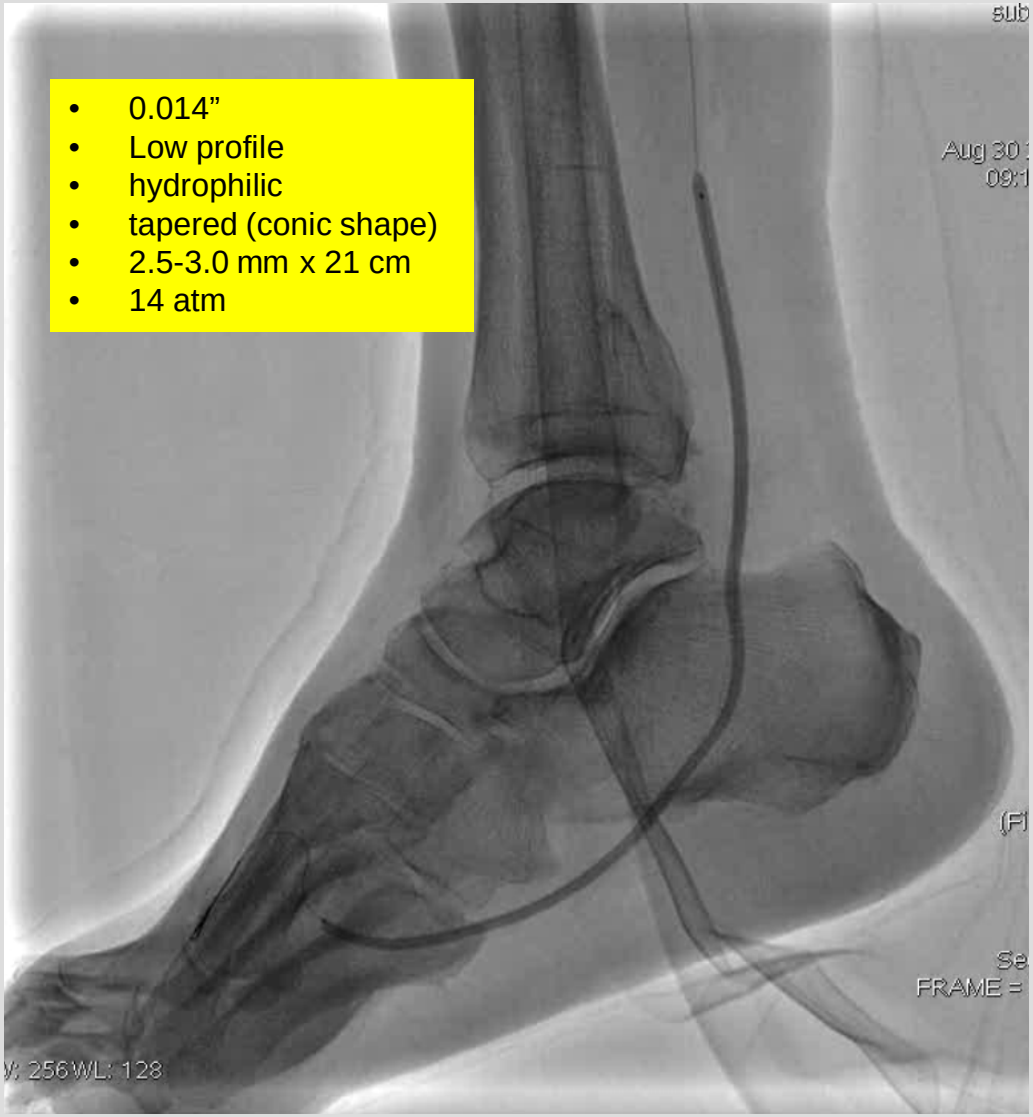
BTK long lesions: devices and optimal treatment

1. Antegrade femoral approach
2. CTOs crossing strategies
3. Optimization of acute result
4. Prevention of restenosis

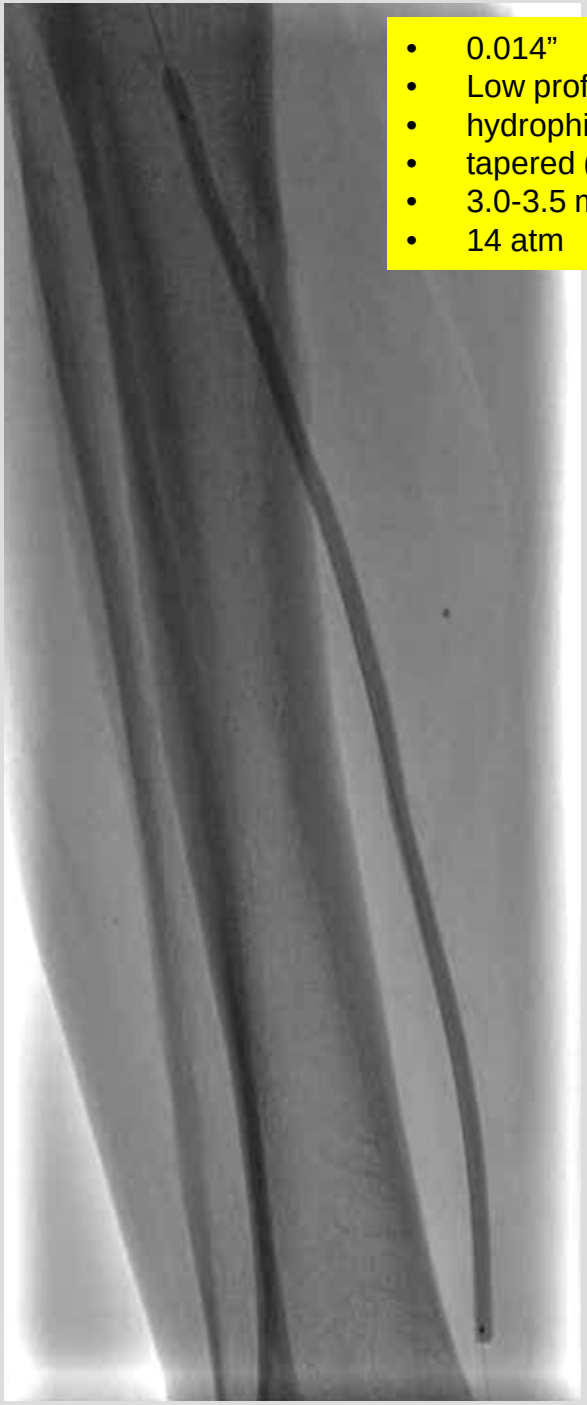
Basal angio



Balloon dilatation



- 0.014”
- Low profile
- hydrophilic
- tapered (conic shape)
- 2.5-3.0 mm x 21 cm
- 14 atm



- 0.014”
- Low profile
- hydrophilic
- tapered (conic shape)
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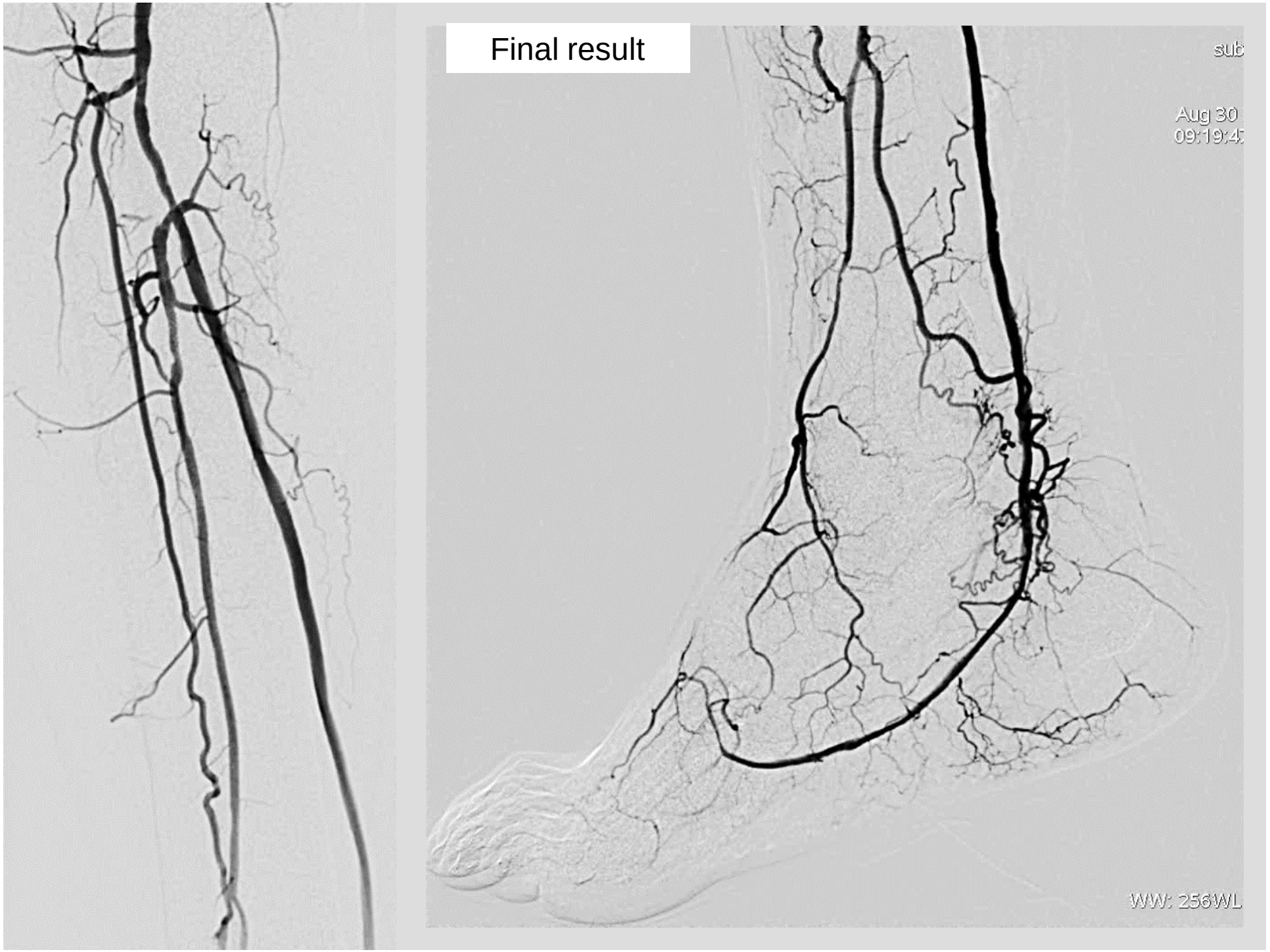
Final result
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Aug 30
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44

J ENDOVASC THER
2014;21:44–51

◆CLINICAL INVESTIGATION ◆

Early Recoil After Balloon Angioplasty of Tibial Artery Obstructions in Patients With Critical Limb Ischemia

Frederic Baumann, MD[1,2]; Jacqueline Fust[3]; Rolf Peter Engelberger, MD[1]; Ulrike Hügel, MD[1]; Do-Dai Do, MD[1]; Torsten Willenberg, MD[1]; Iris Baumgartner, MD[1]; and Nicolas Diehm, MD[1]

Purpose: To assess the extent of early recoil in patients with CLI undergoing conventional tibial balloon angioplasty.

Methods: Mean tibial lesion length was 83.8 mm. Early elastic recoil was determined on the basis of minimal lumen diameter (MLD) measurements at baseline/immediately after tibial balloon angioplasty, and 15 minutes thereafter.

Results: Elastic recoil was observed in ***97% patients*** with a mean luminal compromise of 29% according to MLD measurements ($MLD_{baseline}$ 0.23 mm, $MLD_{postdilatation}$ 2.0 mm, and MLD_{15min} 1.47 mm).

Conclusion: Early recoil is frequently observed in CLI patients undergoing tibial angioplasty and may significantly contribute to restenosis. ***These findings support the role of dedicated mechanical scaffolding approaches*** for the prevention of restenosis in tibial arteries.

J ENDOVASC THER
2014;21:44–51

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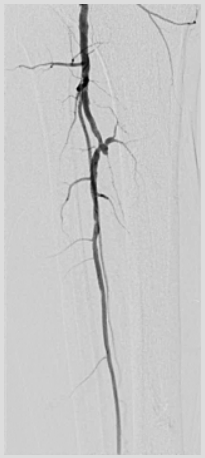
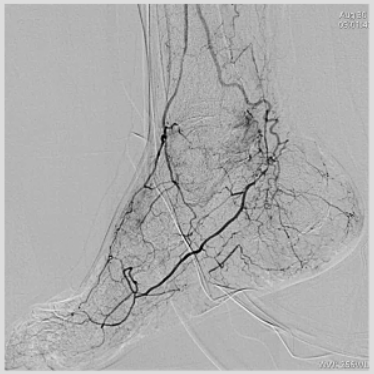


Basal angio



Final result

3° statement

Nowadays BTK revascularization has not a well-defined, stable and shared technical approach: the optimization of acute result is an open problem.

We still are in an "artisanal" stage of BTK-PTA evolution

BTK long lesions: devices and optimal treatment

1. Antegrade femoral approach
2. CTOs crossing strategies
3. Optimization of acute result
4. Prevention of restenosis

Restenosis rate in real world long BTK vessels
Uncoated balloons

Study	Mean lesion length	Follow up	restenosis	TLR
Catheterization and Cardiovascular Interventions 76:1047–1054 (2010) **Angiographic Patency and Clinical Outcome After Balloon-Angioplasty for Extensive Infrapopliteal Arterial Disease** Andrej Schmidt, MD, Matthias Ulrich, MD, Bert Winkler, Christina Klaeffling, MD, Yvonne Bausback, MD, Sven Bräunlich, MD, Spiridon Botsios, MD, Hans-Joachim Kruse, MD, Ramon L. Varcoe, FRACS (Vasc), MD, Steven Kum, MD, and Dierk Scheinert, MD	18.4 cm	3 m	69%	50%
European Journal of Vascular and Endovascular Surgery 44 (2012) 425–431 Contents lists available at SciVerse ScienceDirect European Journal of Vascular and Endovascular Surgery journal homepage: www.ejves.com **Angiographic Restenosis and Its Clinical Impact after Infrapopliteal Angioplasty** O. Iida, Y. Soga, D. Kawasaki, K. Hirano, T. Yamaoka, K. Suzuki, Y. Miyashita, H. Yokoi, M. Takahara, M. Uematsu	14.0 cm	3 m	73%	40%
		12 m	82%	48%

Restenosis in extensive BTK-FOOT-PTA is precocious and aggressive: 70% at 3 months

Delay of healing in patients with restenosis

European Journal of Vascular and Endovascular Surgery 44 (2012) 425–431

Contents lists available at SciVerse ScienceDirect

European Journal of Vascular and Endovascular Surgery

journal homepage: www.ejves.com

Angiographic Restenosis and Its Clinical Impact after Infrapopliteal Angioplasty

O. Iida [a,*], Y. Soga [b], D. Kawasaki [c], K. Hirano [d], T. Yamaoka [e], K. Suzuki [f], Y. Miyashita [g], H. Yokoi [b], M. Takahara [h], M. Uematsu [a]

Restenosis delays healing of tissue lesions!

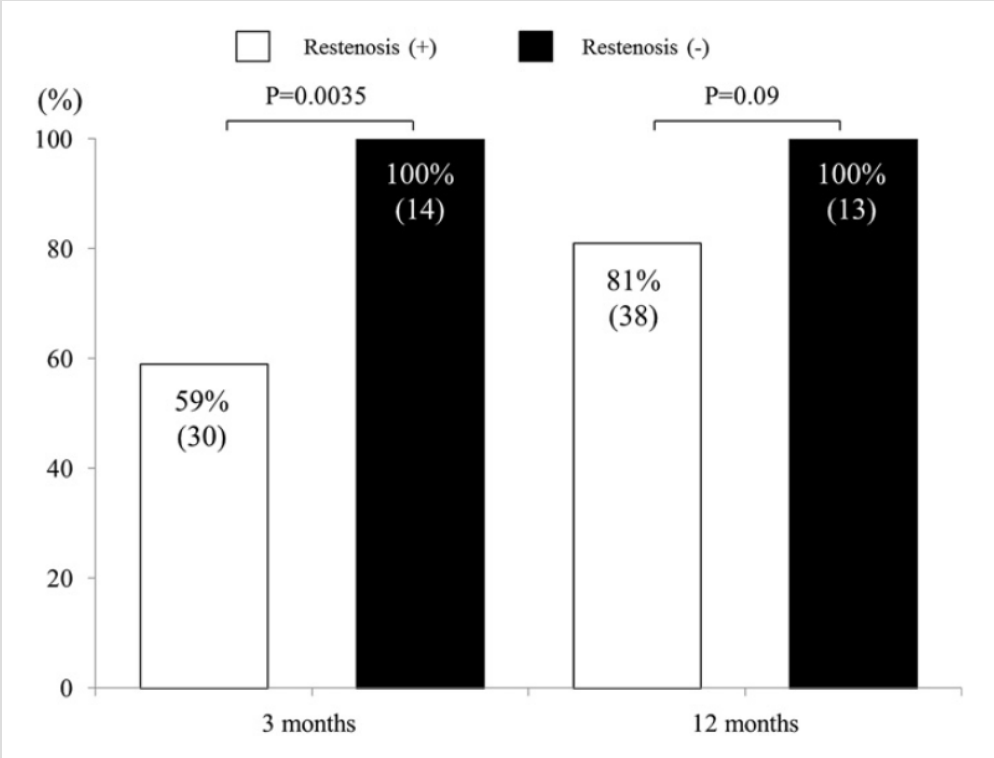
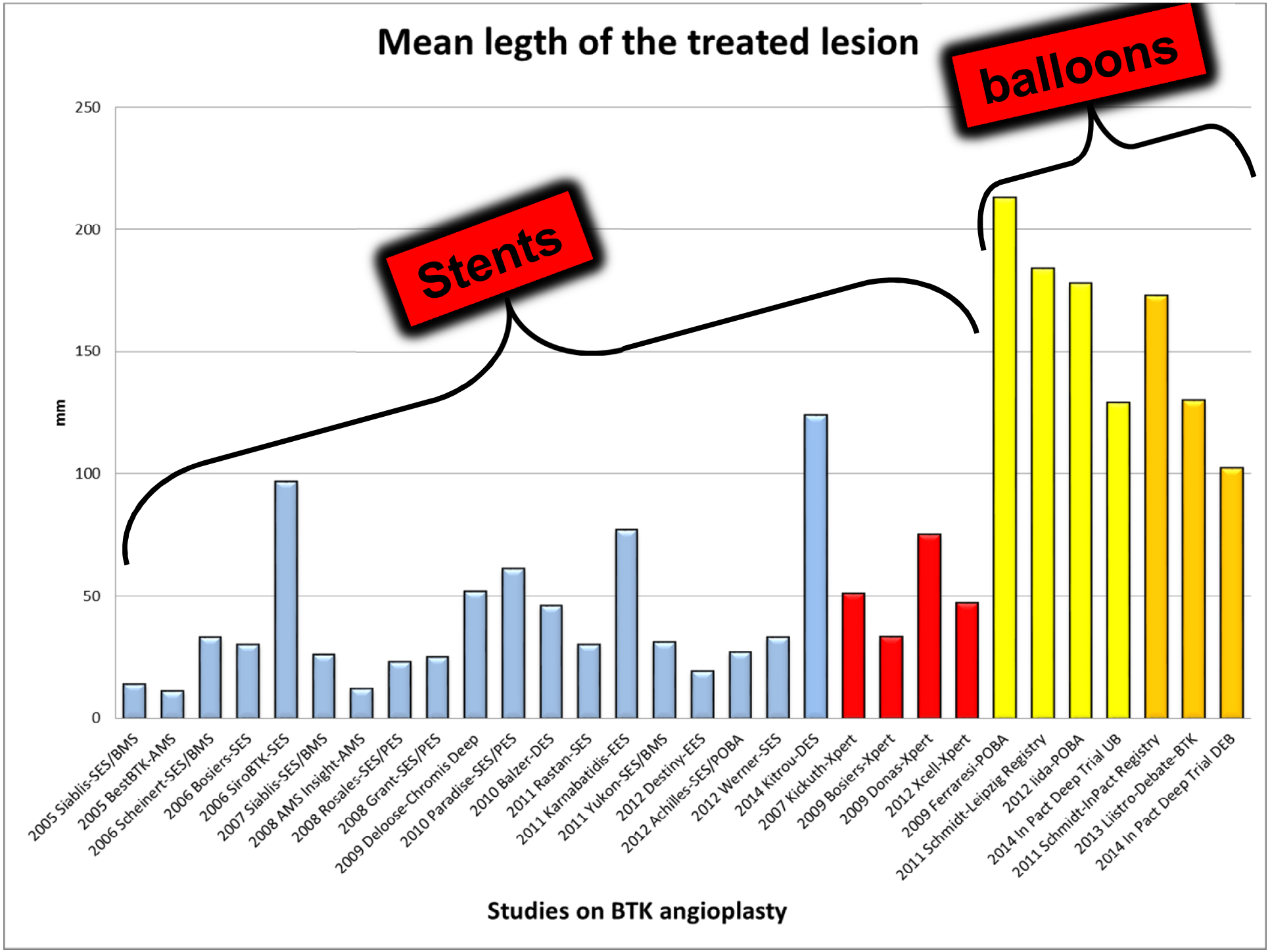
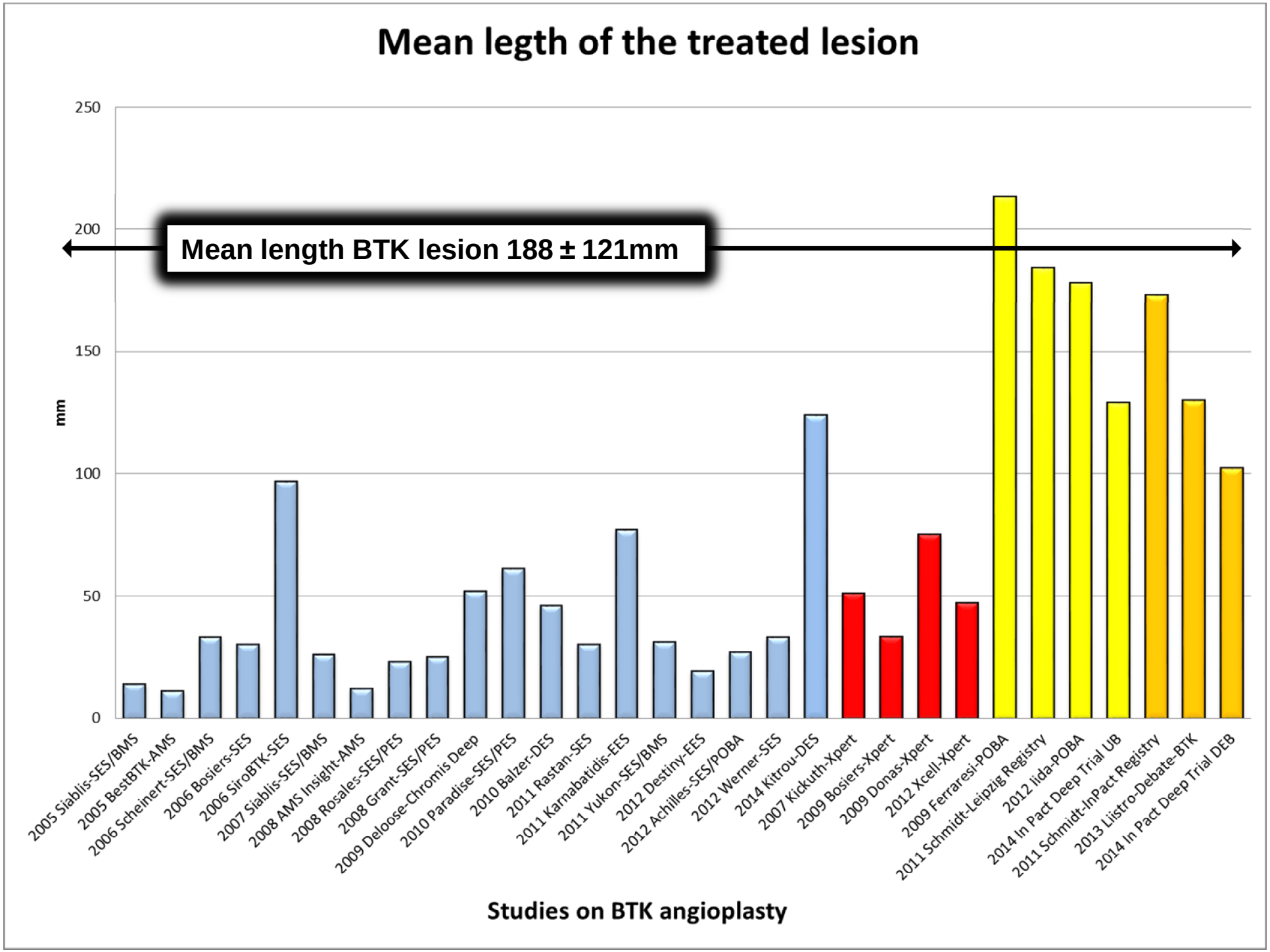


Figure 5. Comparison of frequency of complete ulcer healing or lack of rest pain with and without restenosis after 3 and 12 months.


Mean legth of the treated lesion
balloons
Stents
250
200
150
100
50
0
mm
2005 Siablis-SES/BMS
2005 BestBTK-AMS
2006 Scheinert-SES/BMS
2006 Bosiers-SES
2006 SiroBTK-SES
2007 Siablis-SES/BMS
2008 AMS Insight-AMS
2008 Rosales-SES/PES
2008 Grant-SES/PES
2009 Deloose-Chromis Deep
2010 Paradise-SES/PES
2010 Balzer-DES
2011 Rastan-SES
2011 Karnabatidis-EES
2011 Yukon-SES/BMS
2012 Destiny-EES
2012 Achilles-SES/POBA
2012 Werner-SES
2014 Kitrou-DES
2007 Kickuth-Xpert
2009 Bosiers-Xpert
2009 Donas-Xpert
2012 Xcell-Xpert
2009 Ferraresi-POBA
2011 Schmidt-Leipzig Registry
2012 Iida-POBA
2014 In Pact Deep Trial UB
2011 Schmidt-InPact Registry
2013 Liistro-Debate-BTK
2014 In Pact Deep Trial DEB
Studies on BTK angioplasty


Mean legth of the treated lesion
Mean length BTK lesion 188 ± 121mm
mm
250
200
150
100
50
0
2005 Siablis-SES/BMS
2005 BestBTK-AMS
2006 Scheinert-SES/BMS
2006 Bosiers-SES
2006 SiroBTK-SES
2007 Siablis-SES/BMS
2008 AMS Insight-AMS
2008 Rosales-SES/PES
2008 Grant-SES/PES
2009 Deloose-Chromis Deep
2010 Paradise-SES/PES
2010 Balzer-DES
2011 Rastan-SES
2011 Karnabatidis-EES
2011 Yukon-SES/BMS
2012 Destiny-EES
2012 Achilles-SES/POBA
2012 Werner-SES
2014 Kitrou-DES
2007 Kickuth-Xpert
2009 Bosiers-Xpert
2009 Donas-Xpert
2012 Xcell-Xpert
2009 Ferraresi-POBA
2011 Schmidt-Leipzig Registry
2012 Iida-POBA
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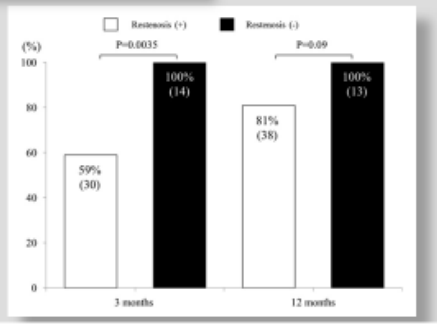
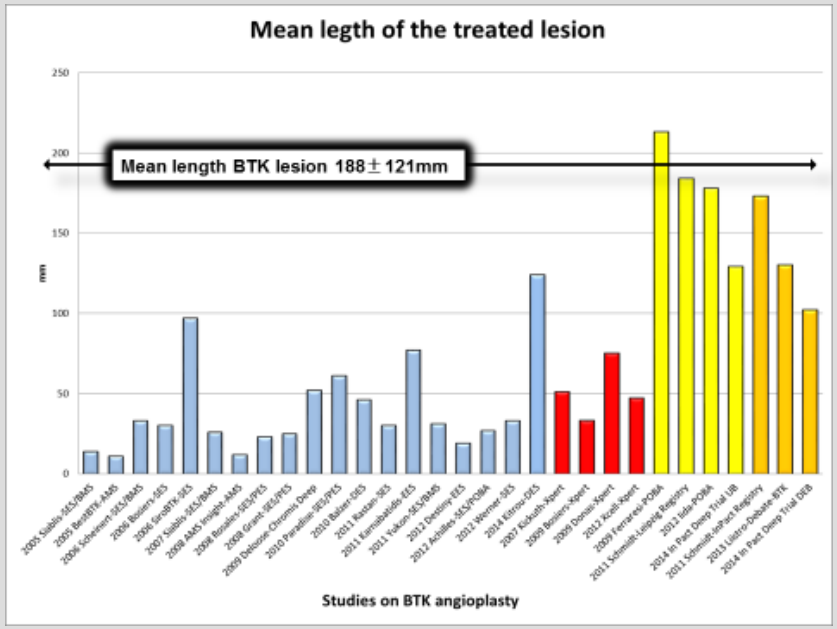


Figure 5. Comparison of frequency of complete ulcer healing or lack of rest pain with and without restenosis after 3 and 12 months.



4° statement

- **In short BTK lesions (<5cm) there is an increasing evidence about good acute and mid-term results of primary stenting. DESs seem to be promising devices in prevention of restenosis**
- **In long diffuse lesions (<u>majority of BTK-CLI patients)</u> the optimal endovascular treatment is POBA with UB (or DEB?) + bailout stenting**

BTK-PTA: the race is open

Decreasing incidence of restenosis

Decreasing invasiveness of surgical procedure

"Evolution fuel"