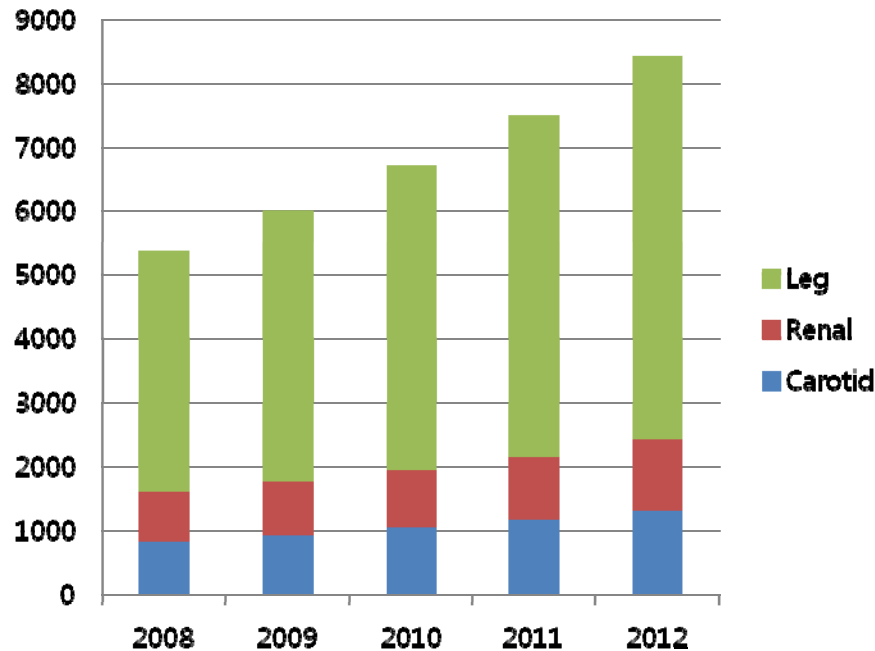


**Factors influencing wound
healing of critical ischemic foot
after PTA : Is the angiosome
important in selecting target
artery ?**

Woong Chol Kang M.D.

Gil Hospital, Gachon University, Incheon, Korea

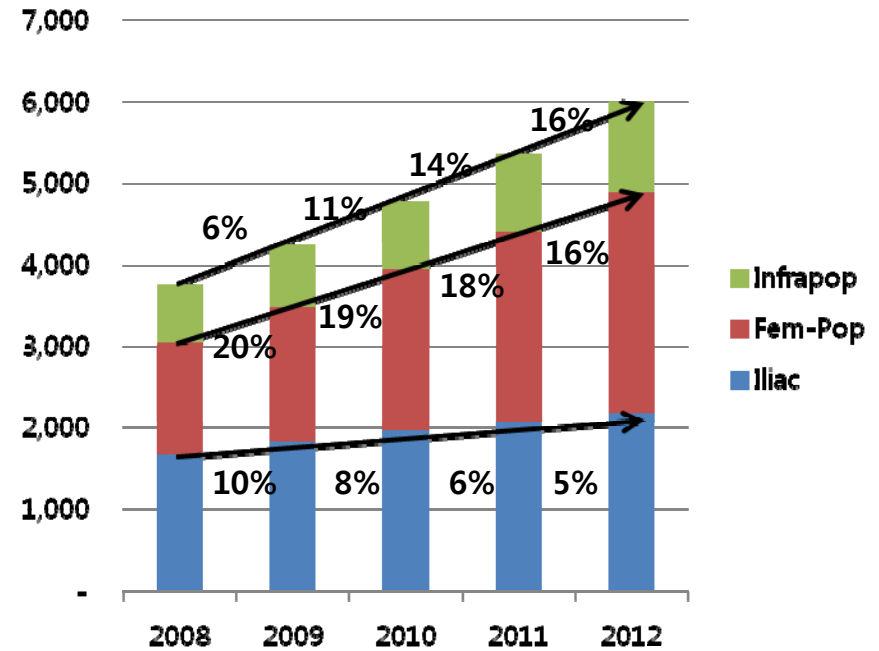
of Procedure by disease type



Key Finding

- Total EV procedure CAGR '08~'12 is 12.4%
- Leg procedure CAGR '08~'12 is 14.9% that is growth driver of total EV market
- Leg case continuously takes large portion in total PVD market

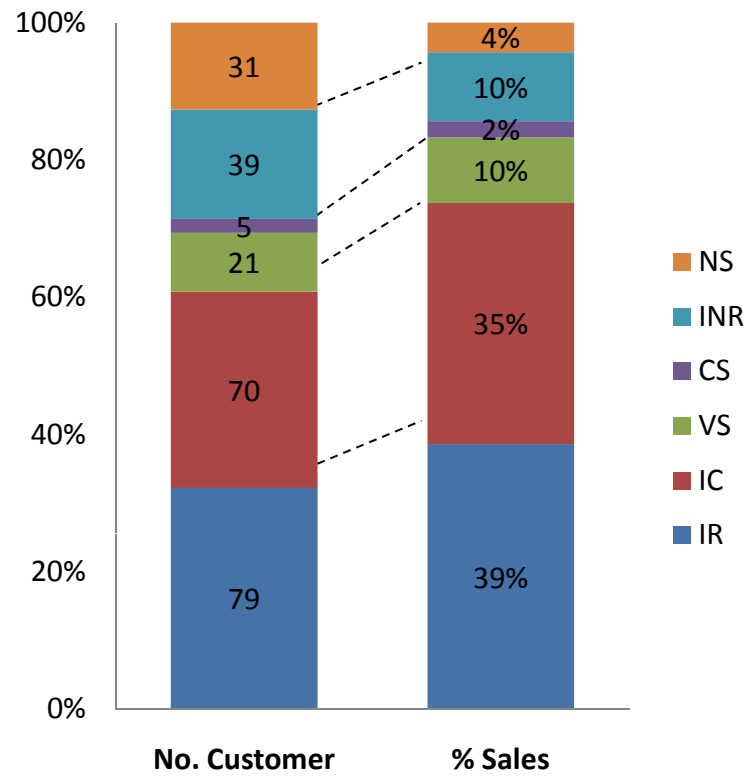
of Procedure by lesion in leg



Key Finding

- Fem-Pop procedure have grown fast since 2008 (CAGR '08~'12 is 19%)
- Iliac and Fem-Pop procedure's growth rates are decreasing
- Infrapop procedure's growth rate is increasing fast as key growth drive factor

EV Procedure By Specialty



No. of Hospital : 108
No. of Doctors : 245

- C.C : Lt. 4th toe pain and ulcer (Fontaine IV, Rutherford 5)

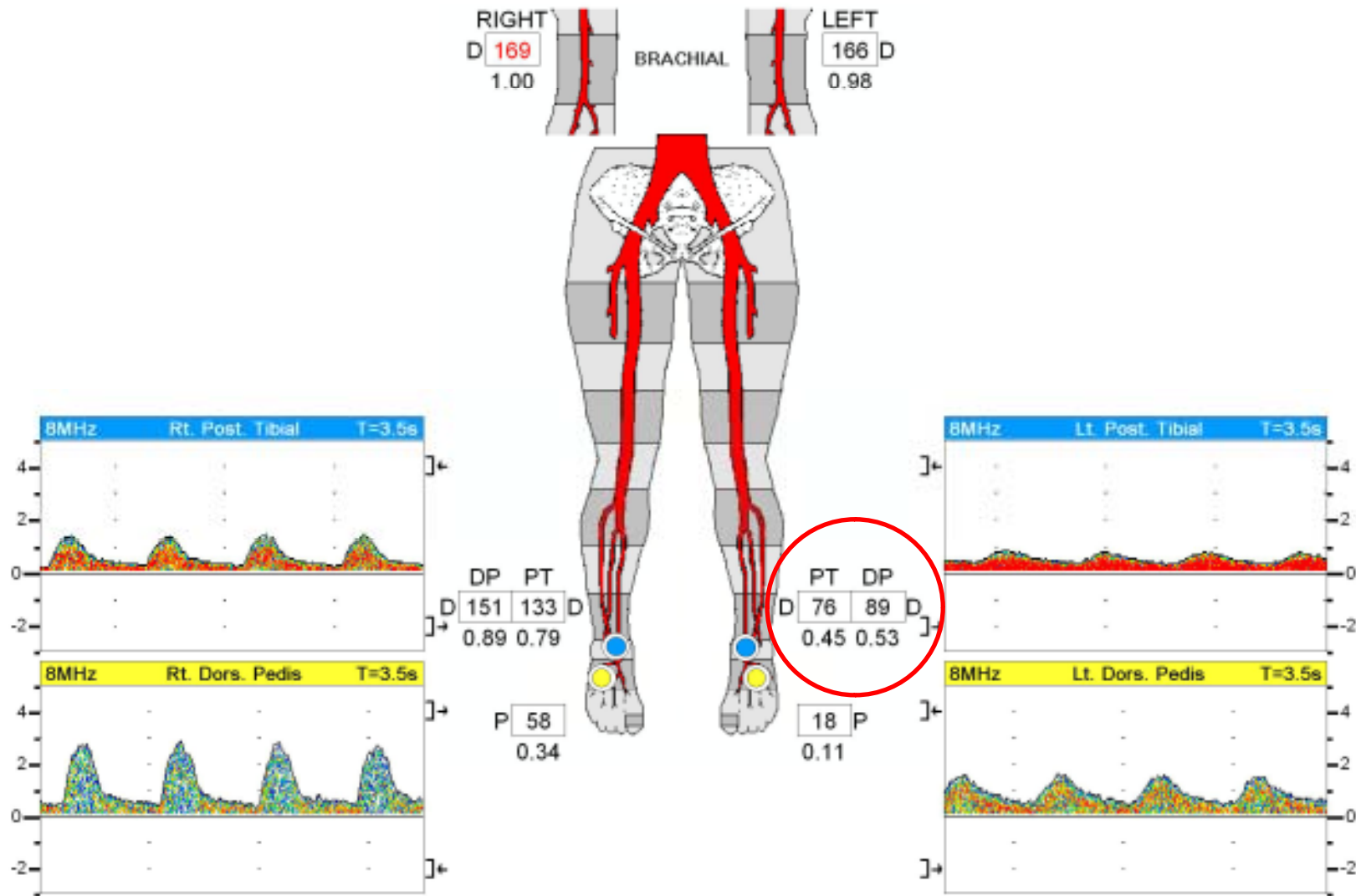
Wound during cutting toenail

- Risk Fx : HTN for 2 yrs, DM for 20 yrs
- PHx : NSTEMI

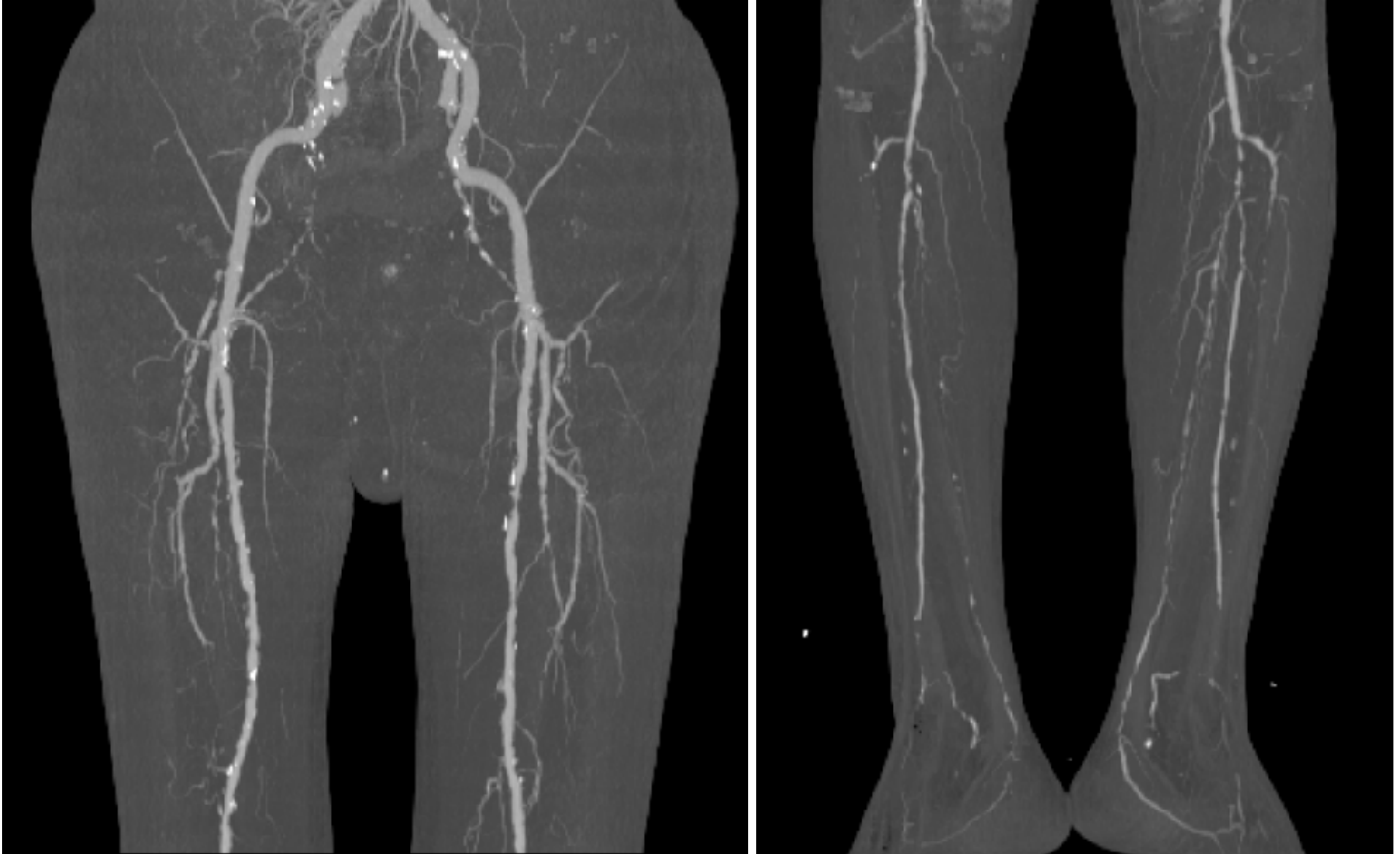
s/p stent for LAD, LCX



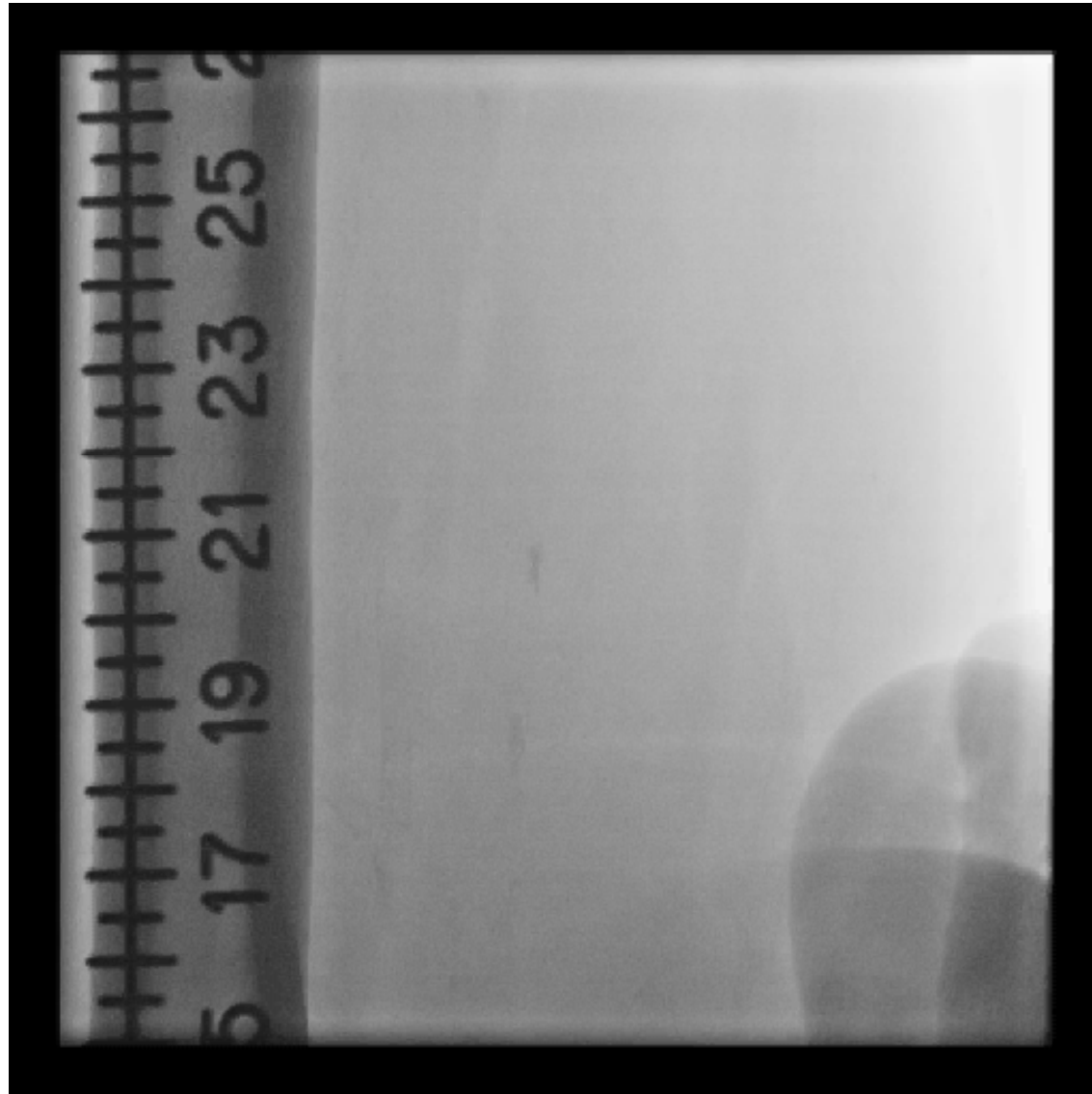
ABI test with doppler



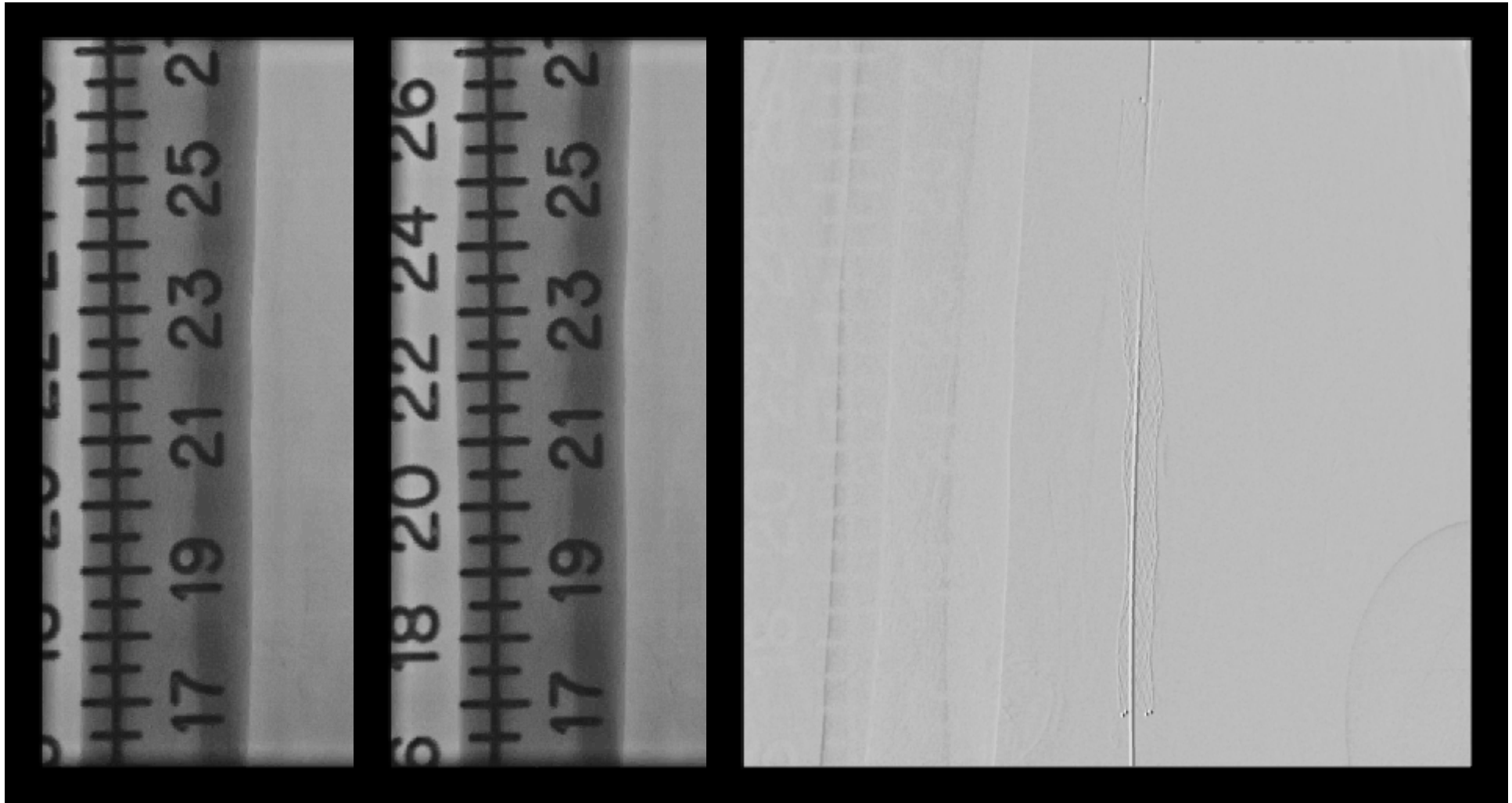
Femoral CT angiography (2012.3.13)



Angiography (2012.3.19)

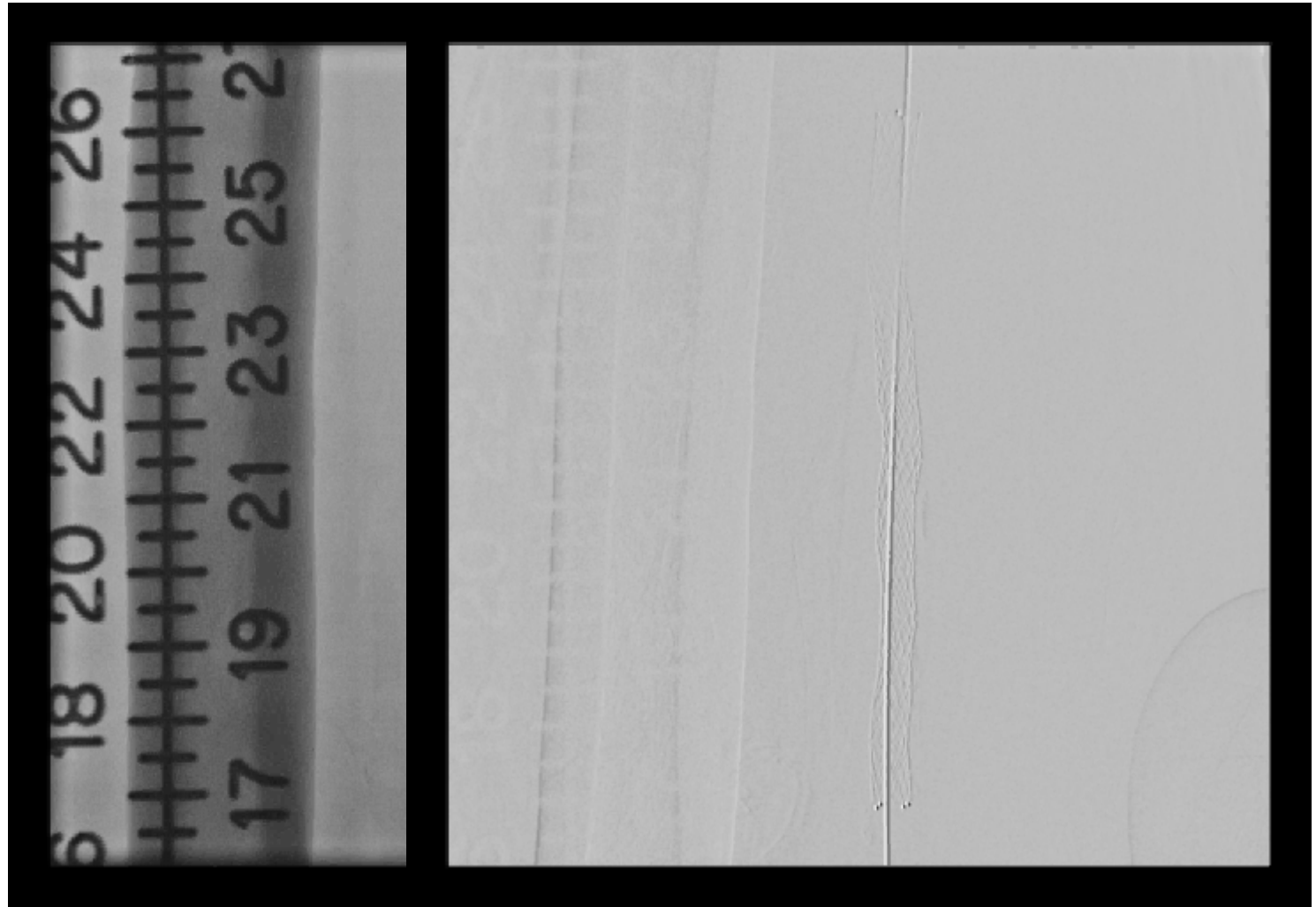


SFA (2012.3.19)



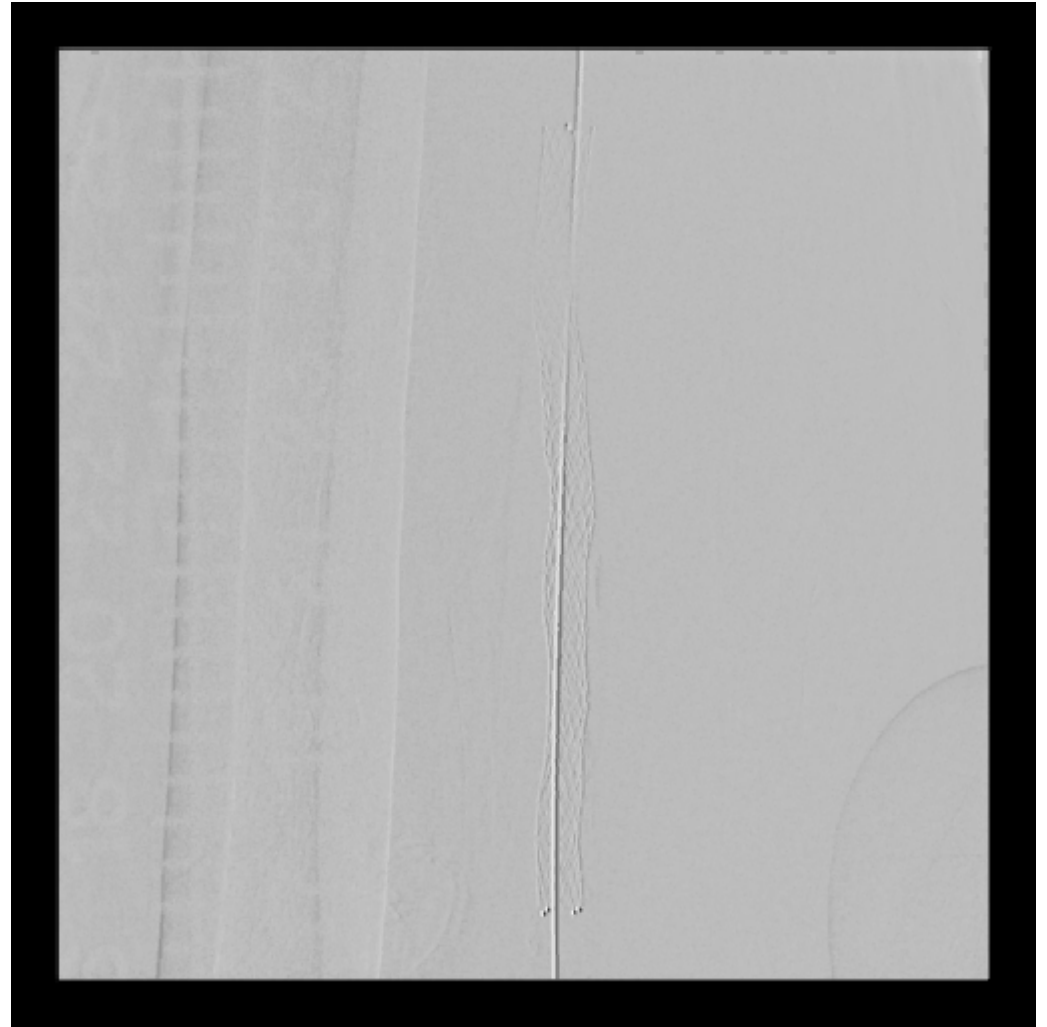
Powerflex 4 X 40 mm balloon

SFA (2012.3.19)



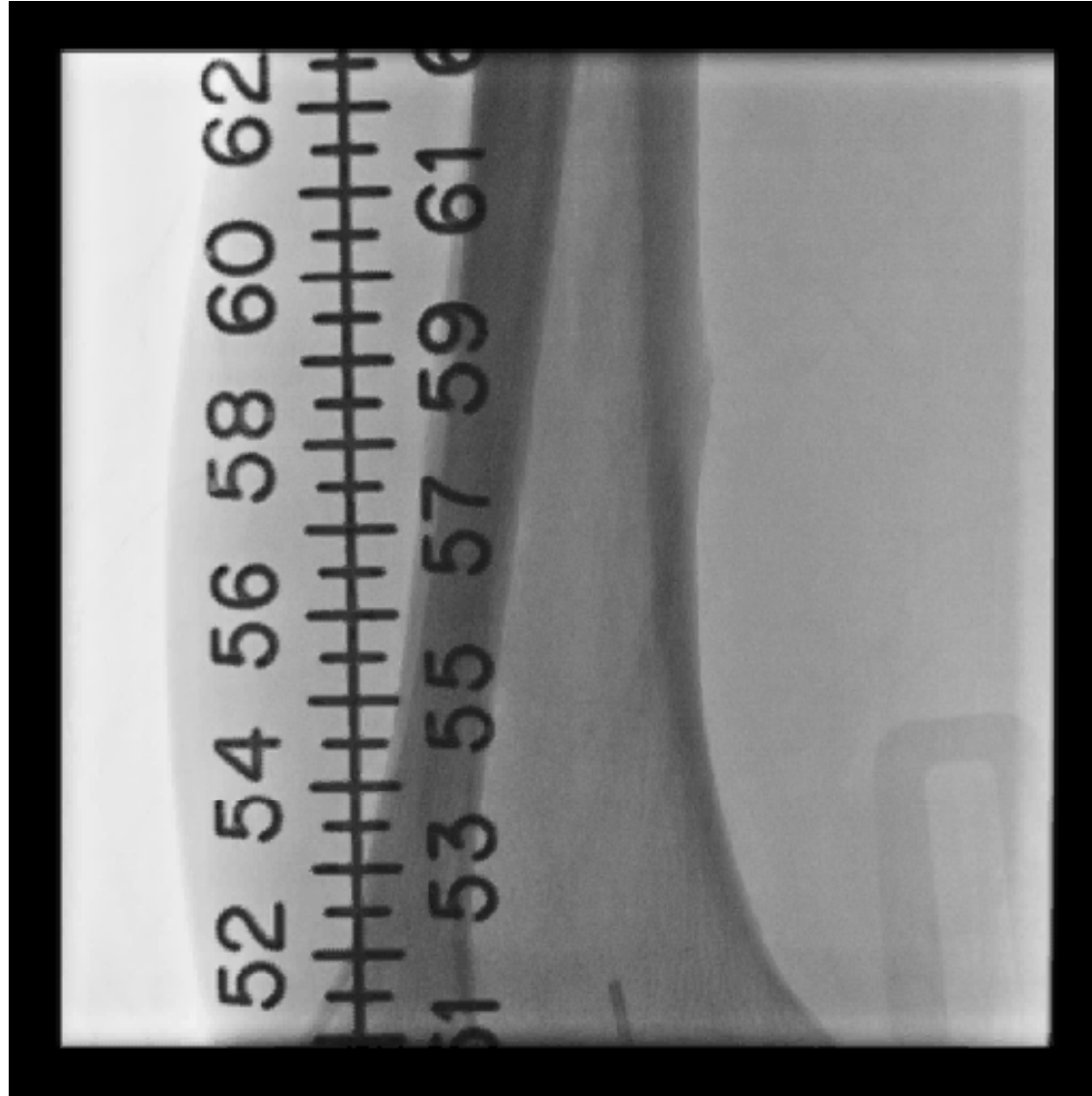
Complete SE 7 X 100 mm stent, Powerflex 6 X 80 mm balloon

SFA (2012.3.19)



Complete SE 7 X 100 mm stent

BTK Angiography (2012.3.19)

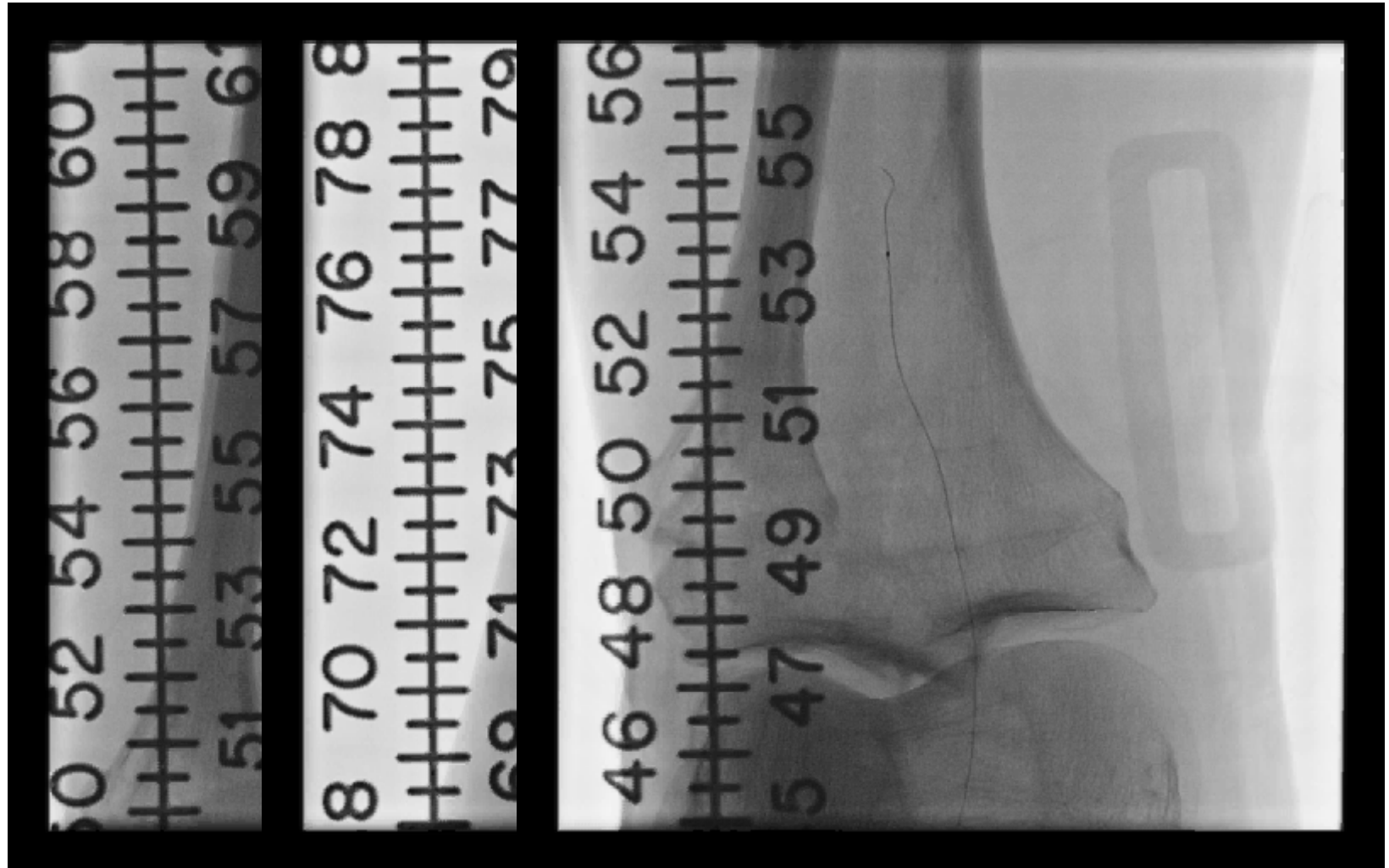


Peroneal A (2012.3.19)



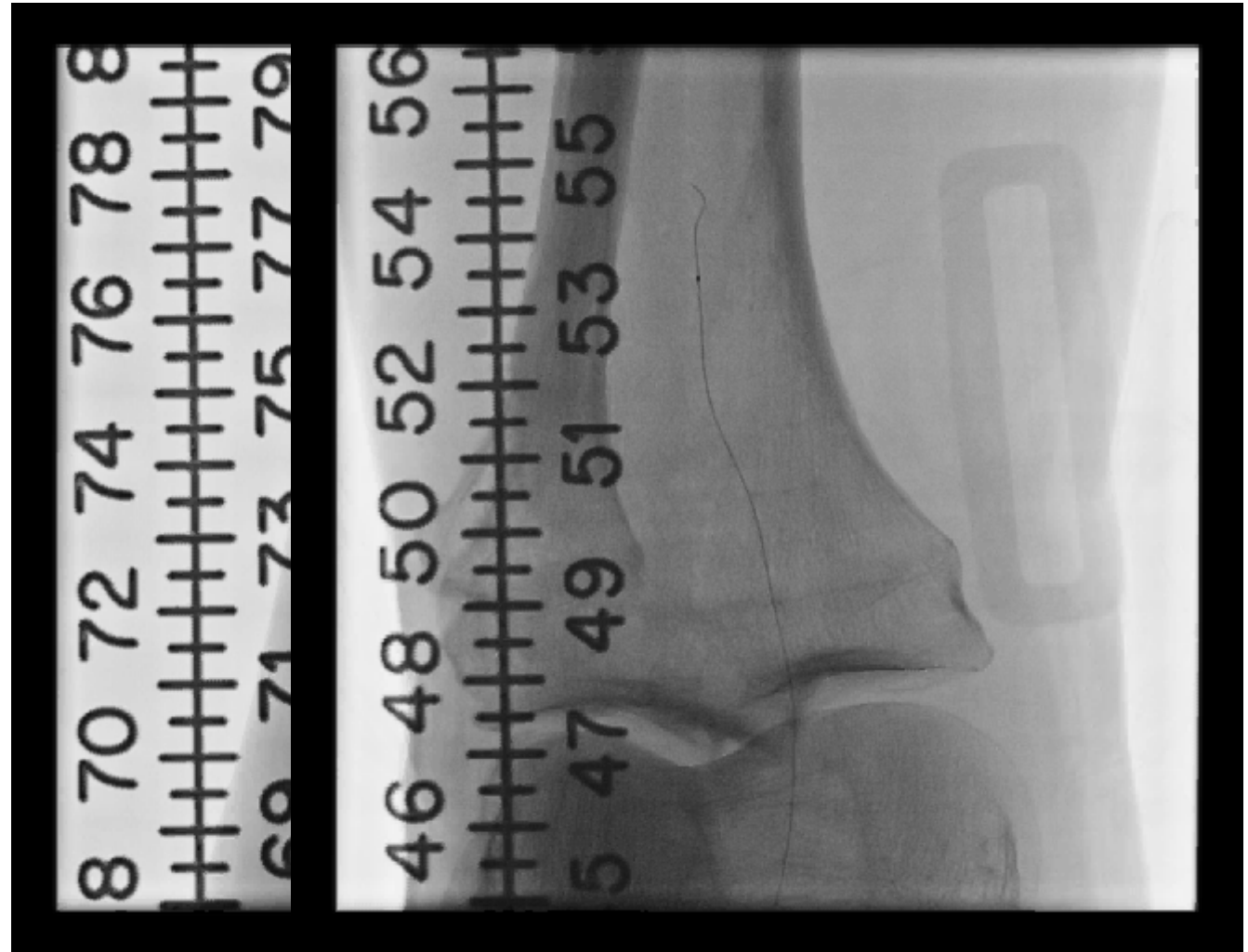
0.014" Skipper wire

Peroneal A (2012.3.19)



Nanocross 2.0 X 120mm balloon

Peroneal A (2012.3.19)



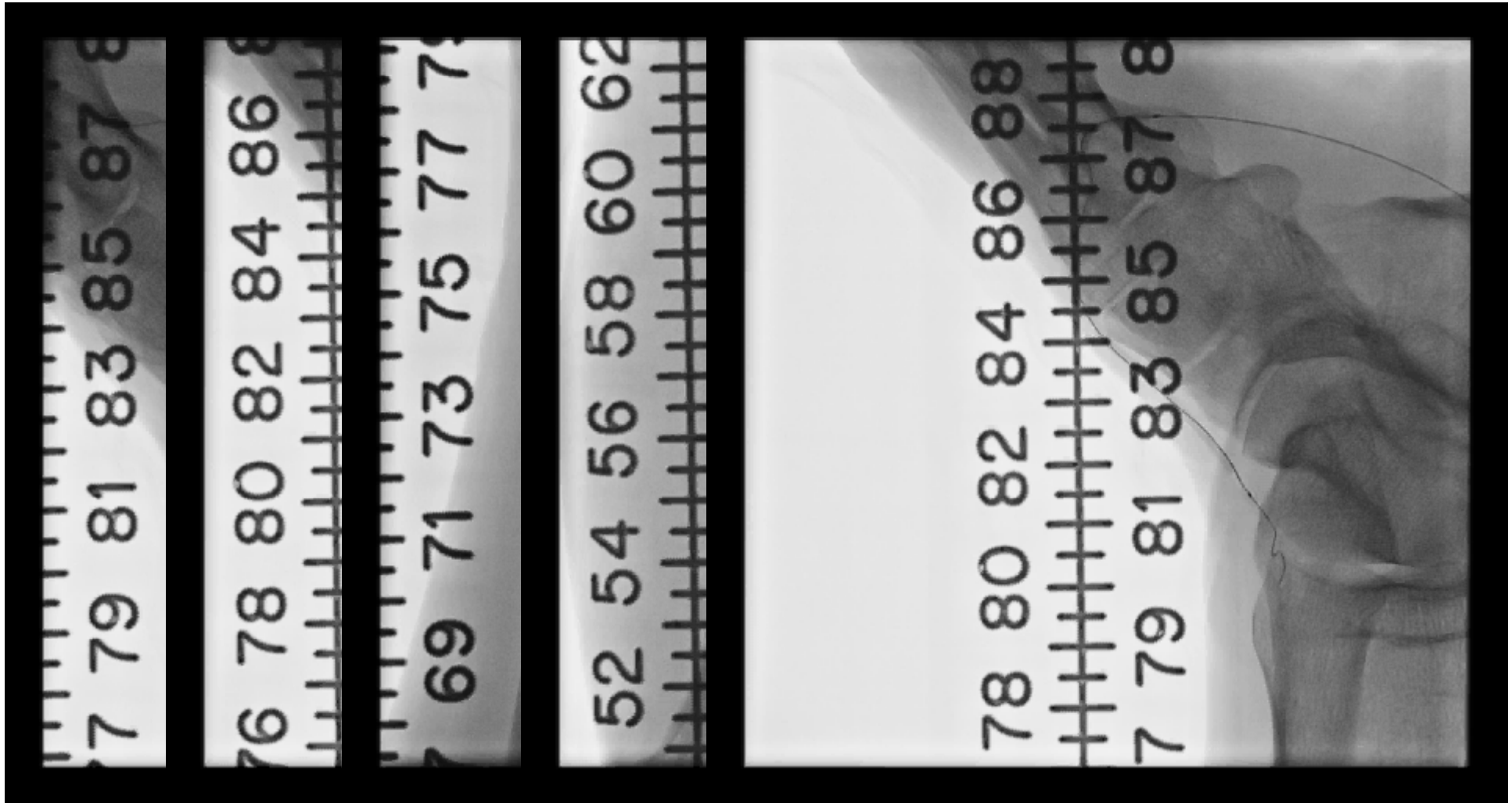
Nanocross 2.0 X 120mm balloon

Peroneal A (2012.3.19)



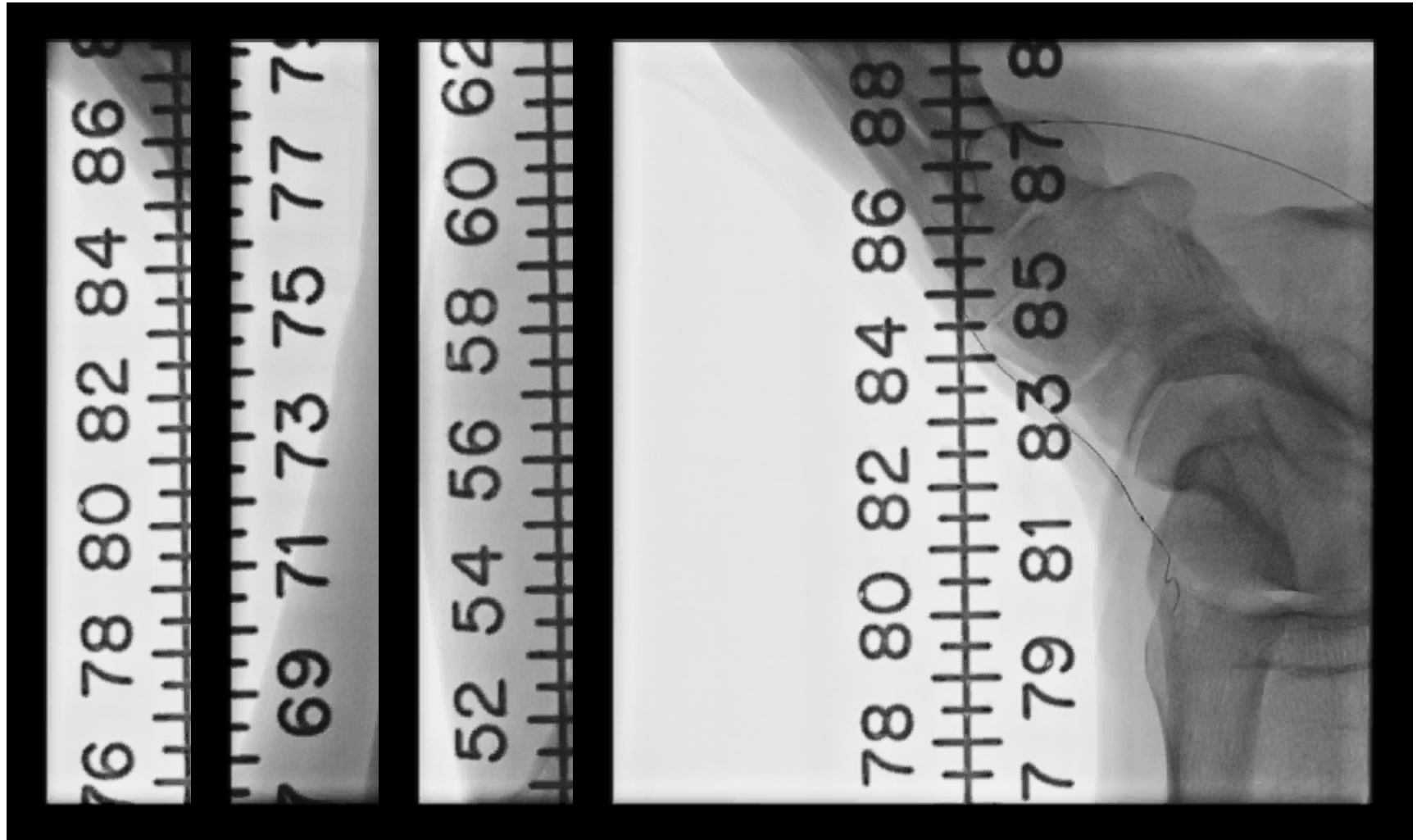
Nanocross 2.0 X 120mm balloon

PTA & ATA (2012.3.19)



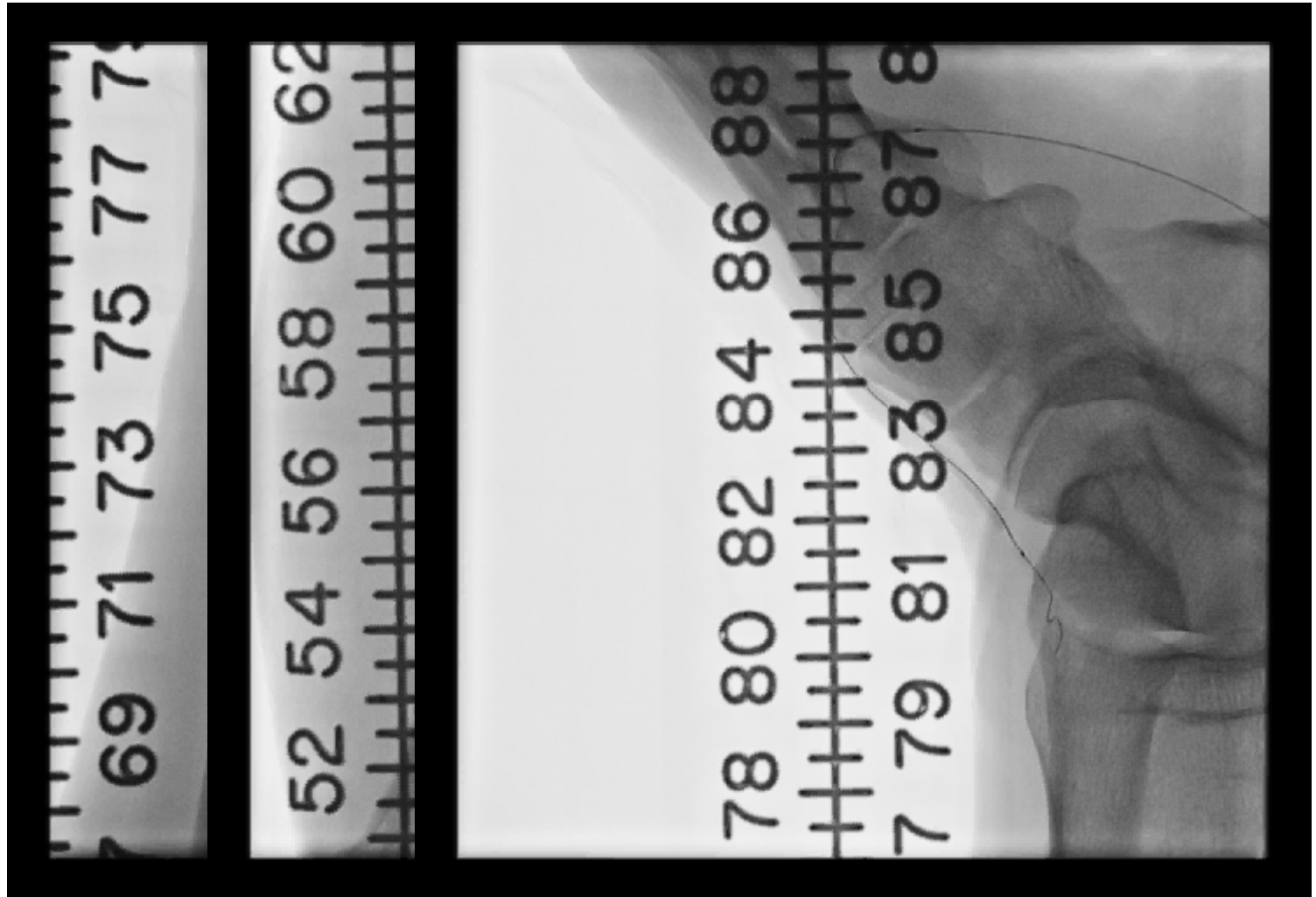
0.014" Skipper wire

PTA & ATA (2012.3.19)



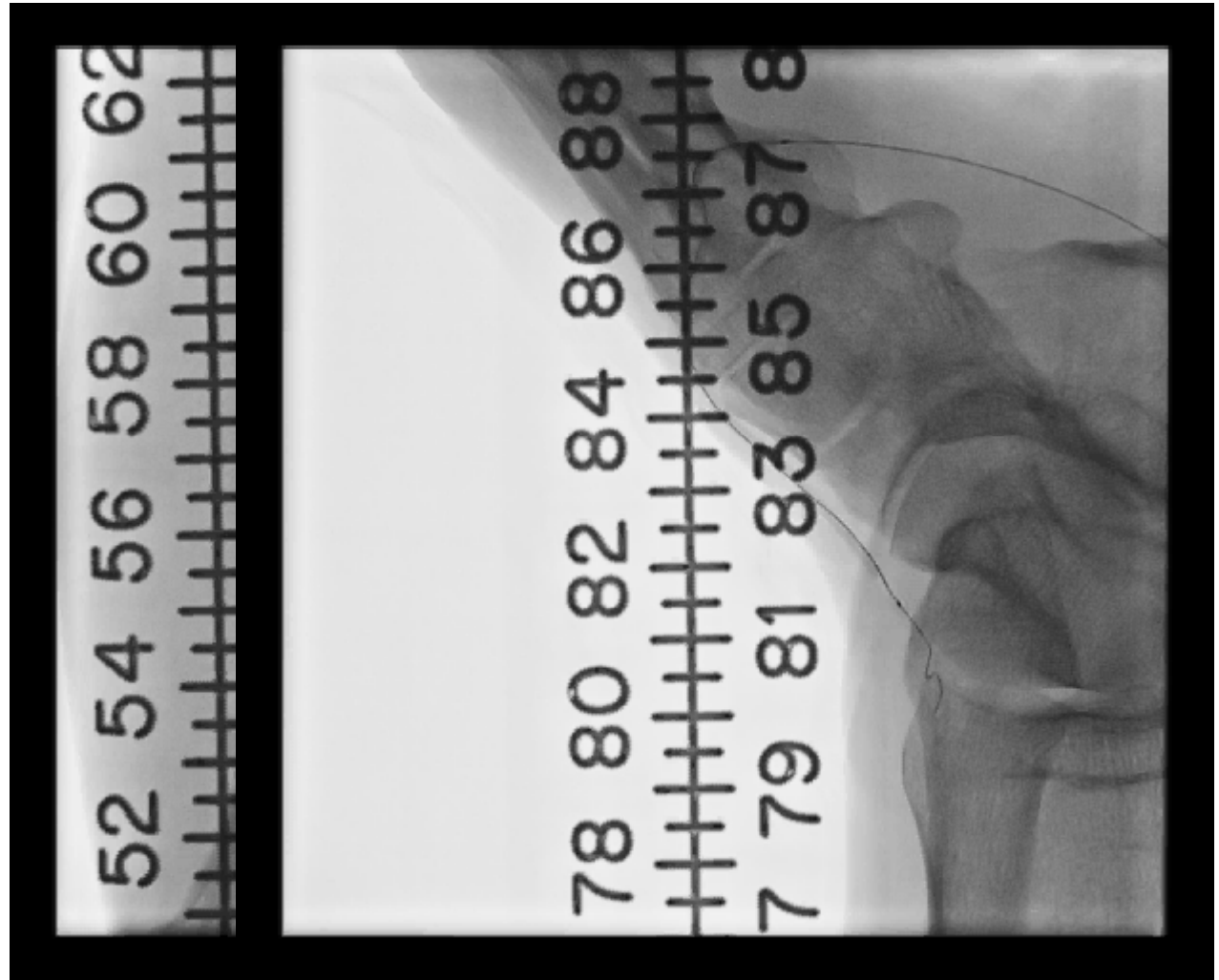
Nanocross 2.0 X 120mm balloon

PTA & ATA (2012.3.19)



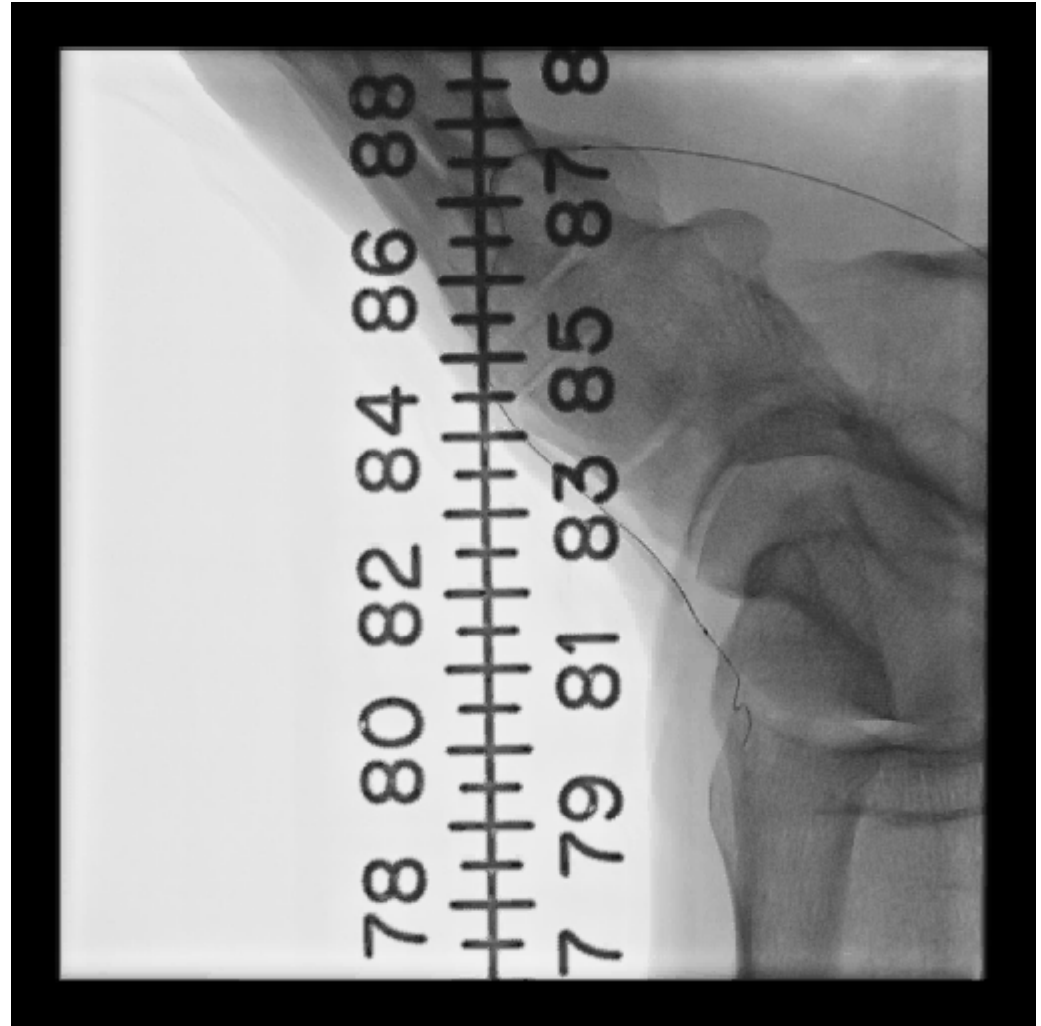
Nanocross 2.0 X 120mm balloon

PTA & ATA (2012.3.19)



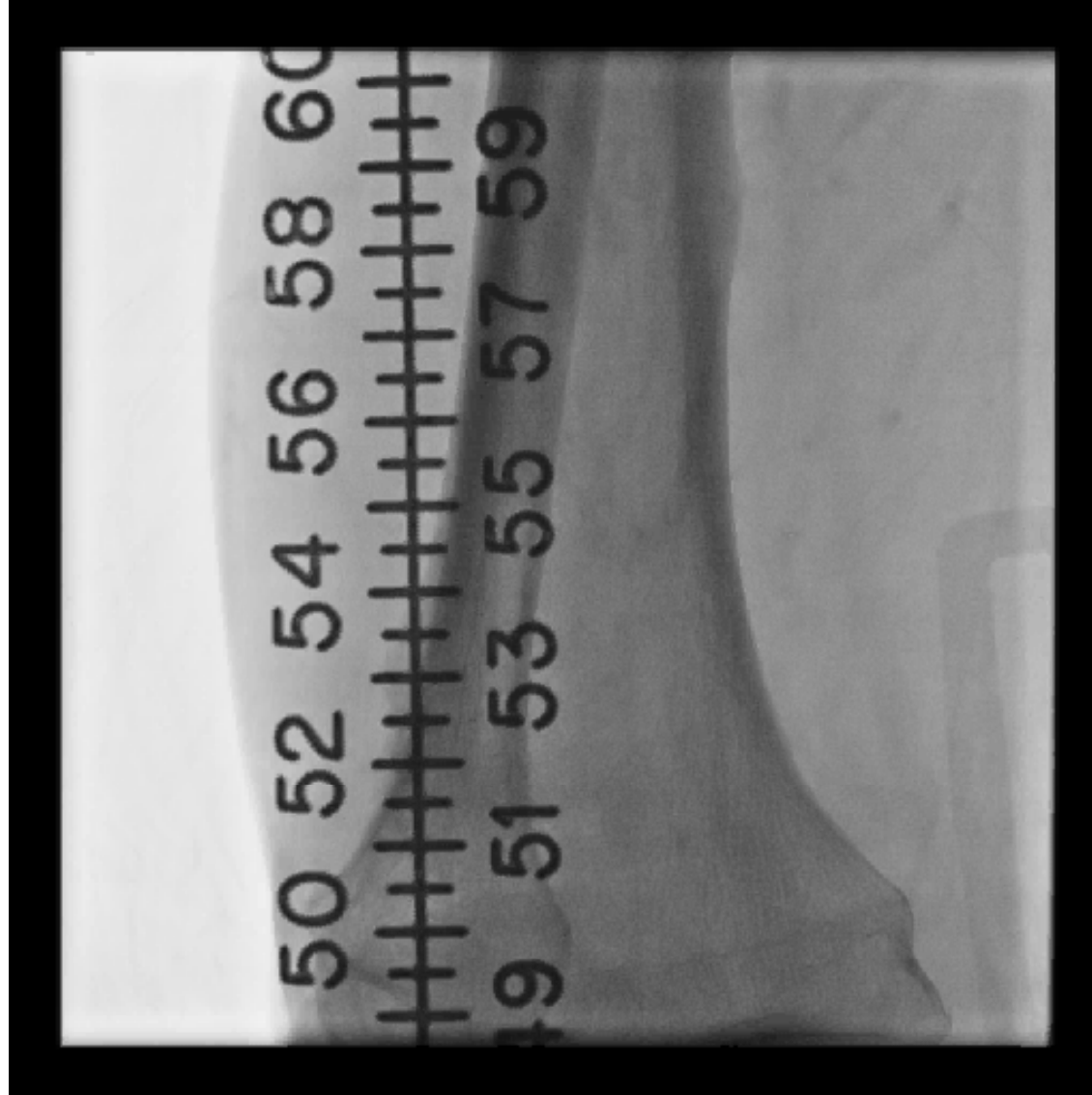
Nanocross 2.0 X 120mm balloon

PTA & ATA (2012.3.19)

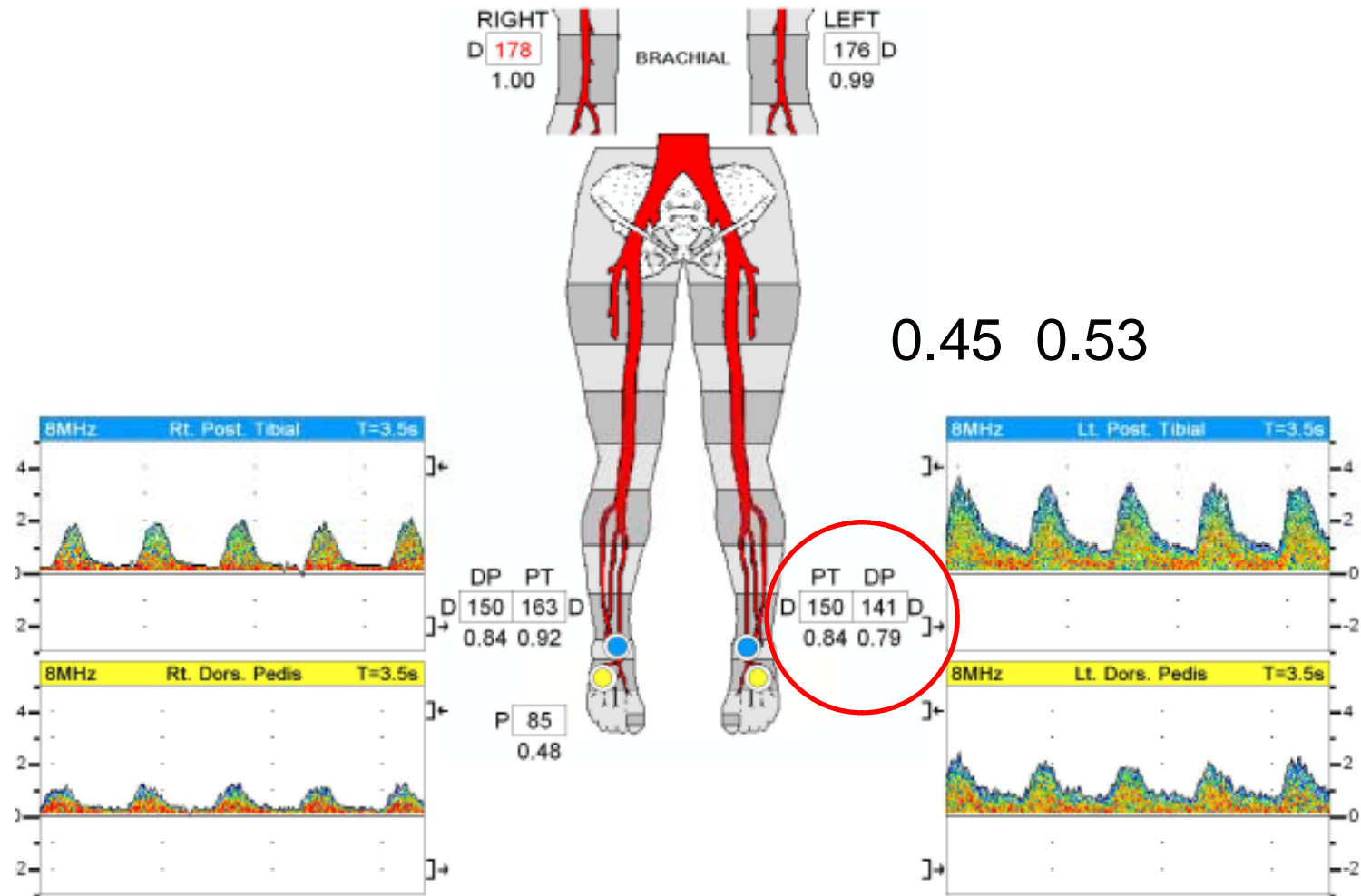


Nanocross 2.0 X 120mm balloon

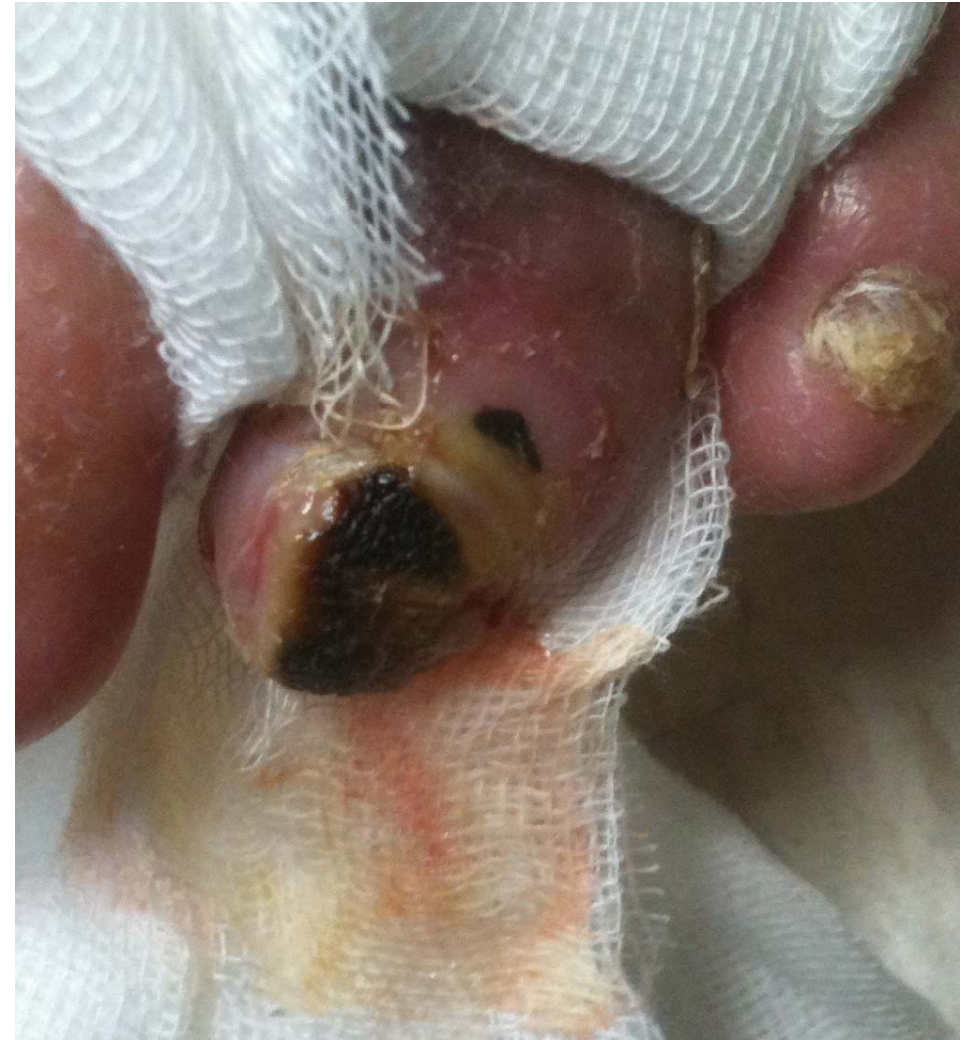
Final angiography



ABI test after PTA



Healing ulcer after PTA



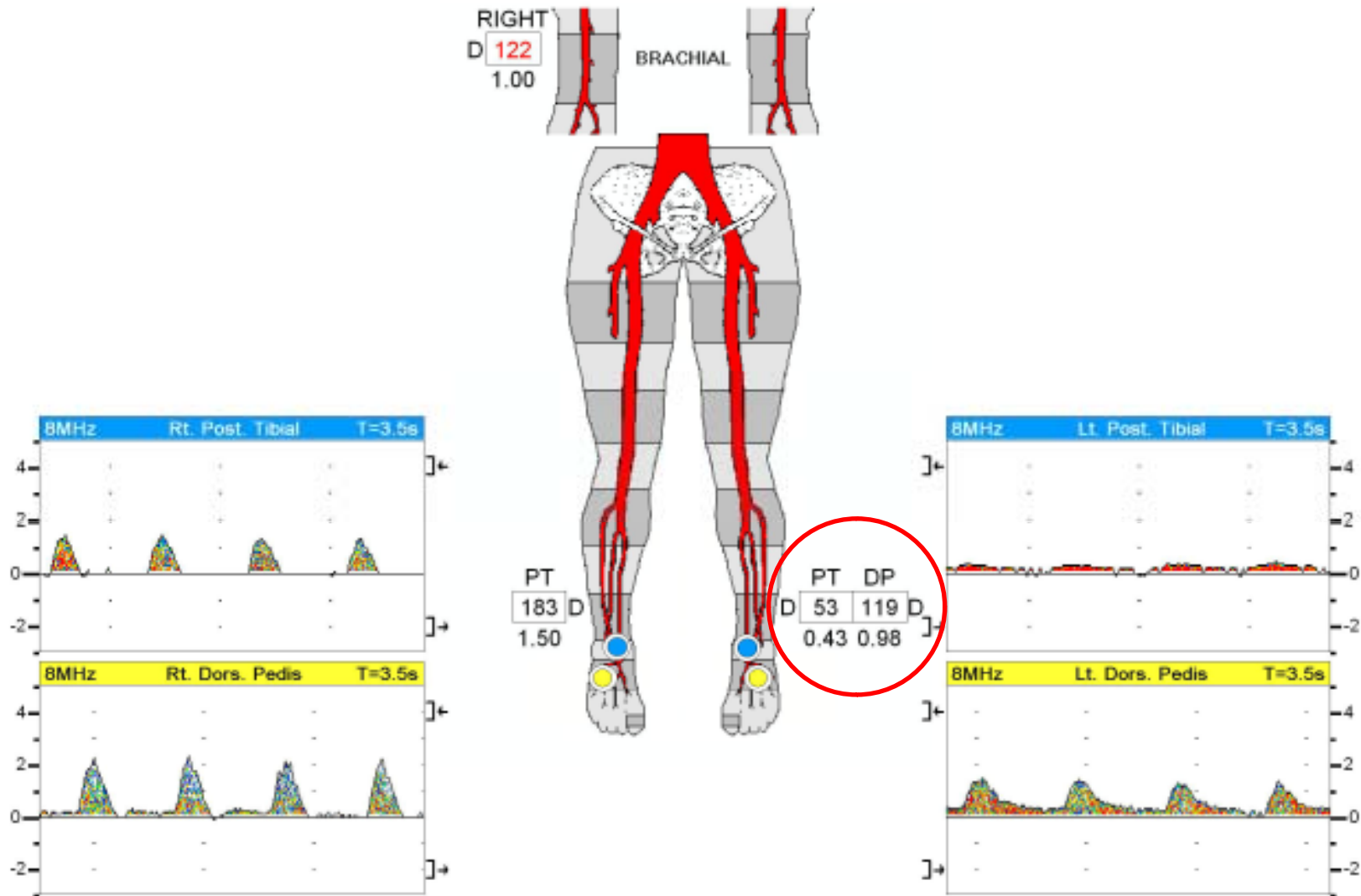
F/62

PKS 12466763

- C.C : Rt. great toe pain and gangrene (Fontaine IV, Rutherford 6)
- Risk Fx : DM ESRD on hemodialysis
- PHx : Angina pectoris s/p CABG at 2004, RCA stent



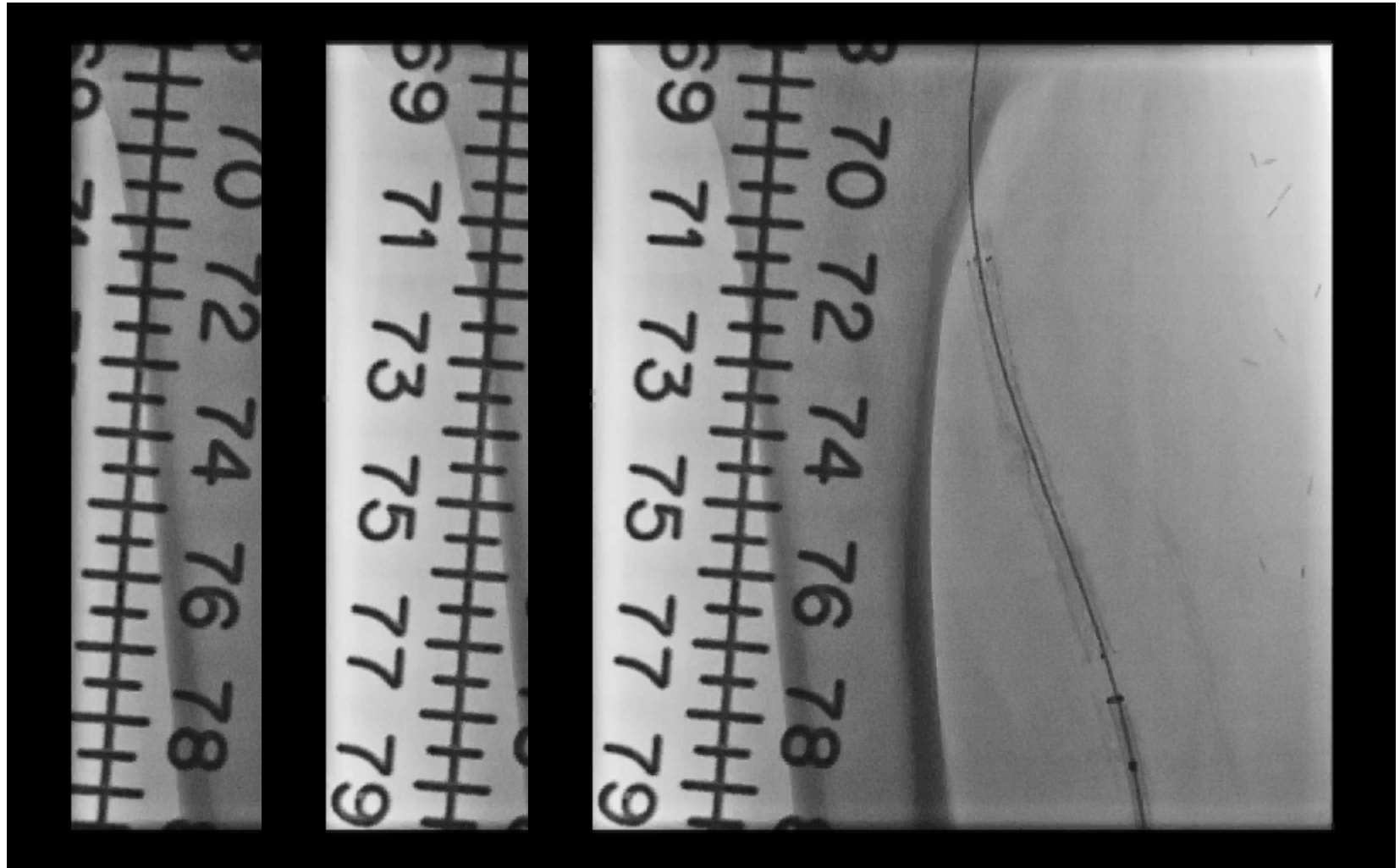
ABI test



Femoral CT angiography (2012.2)

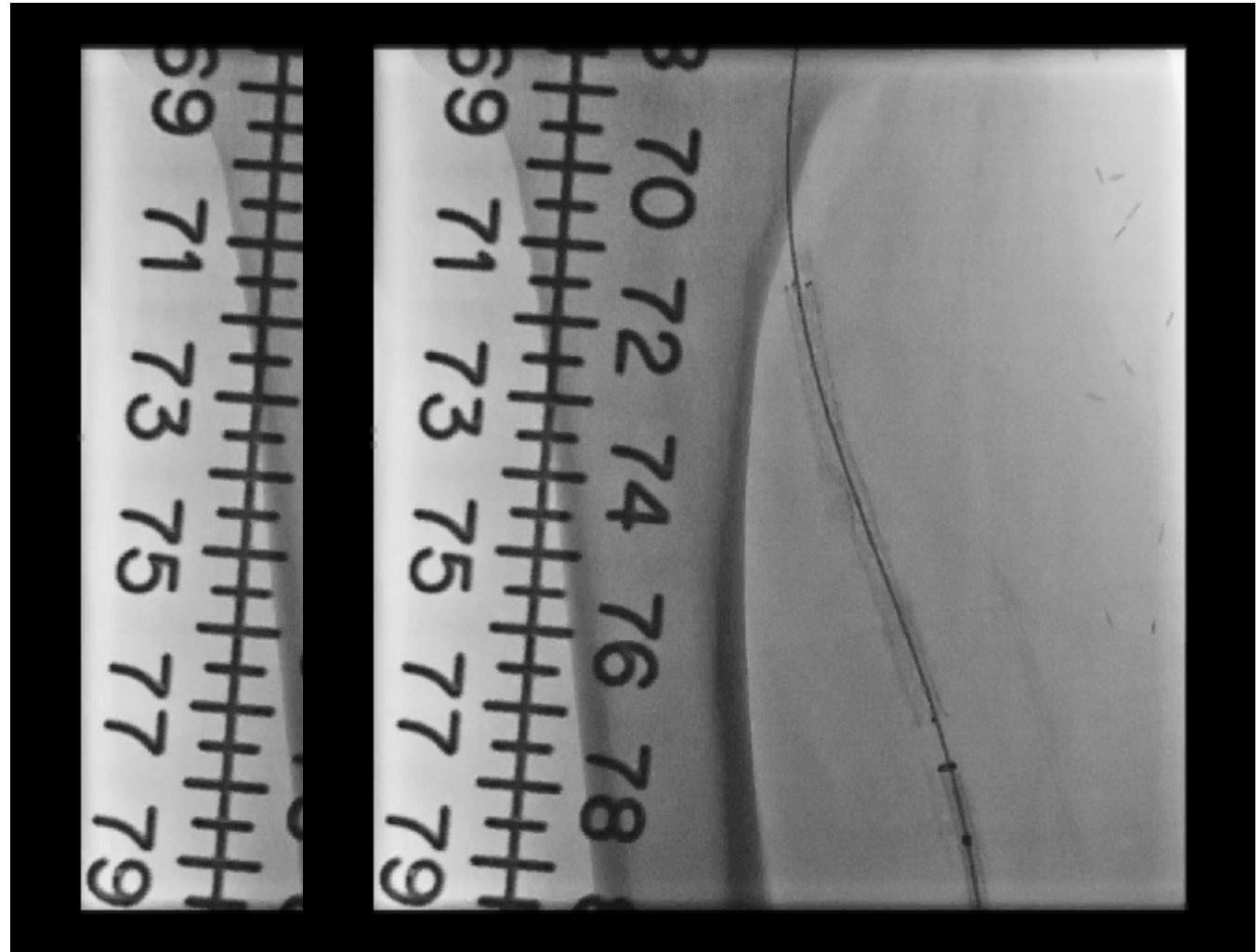


SFA (2012.2.20)



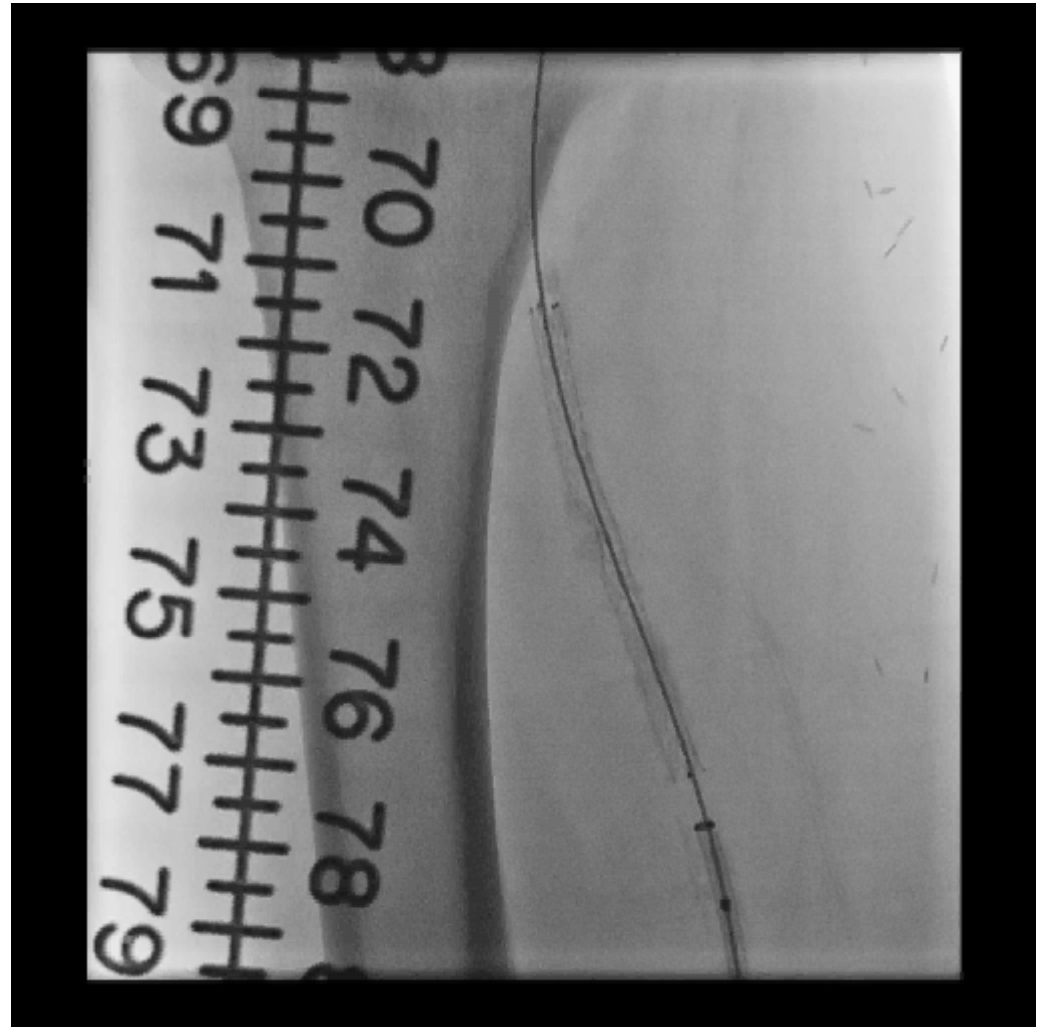
SAVVY 3 X 40 mm balloon

SFA (2012.2.20)



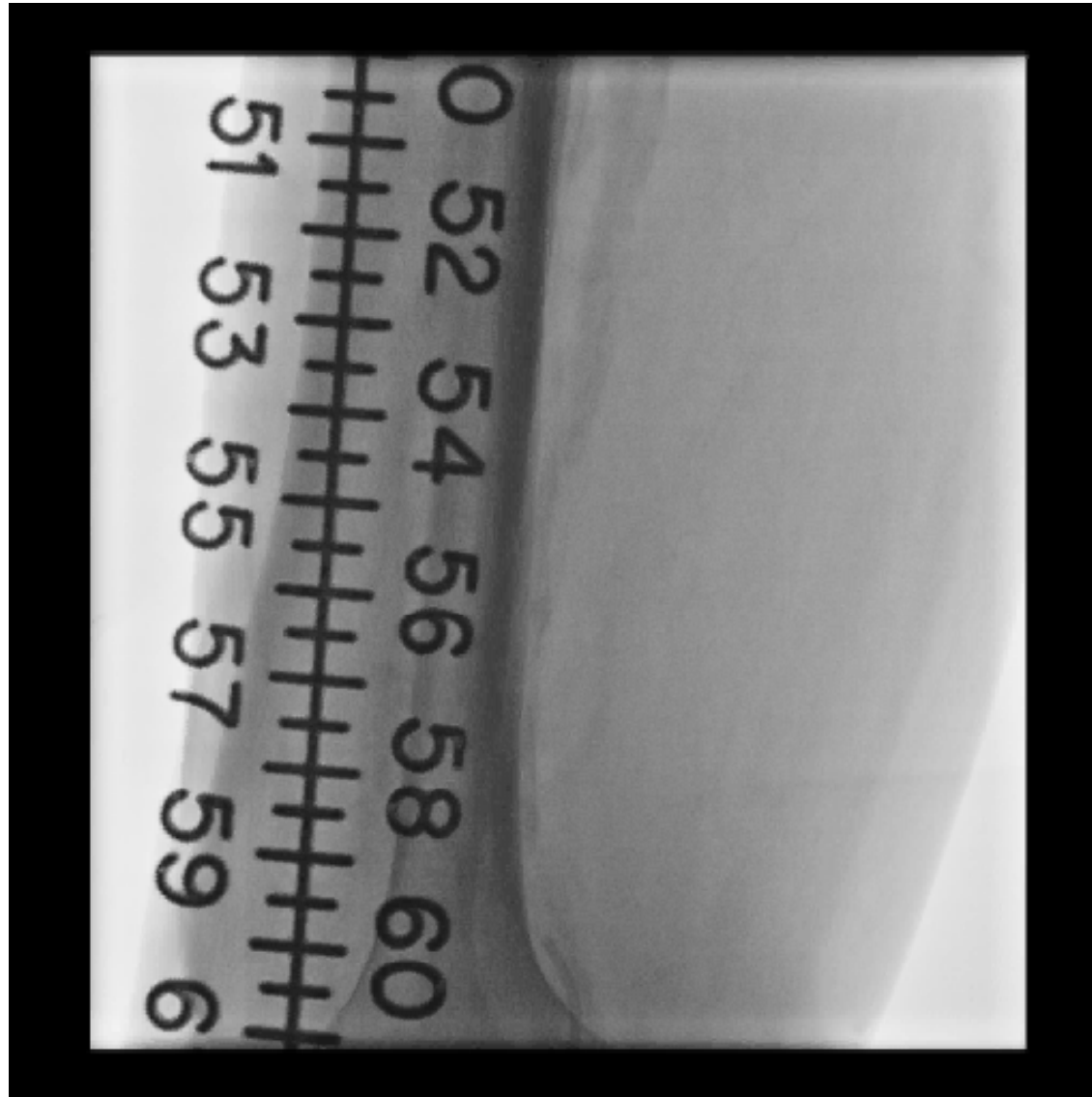
Complete SE 6 X 60 mm stent, UT 4 X 20 mm balloon

SFA (2012.2.20)

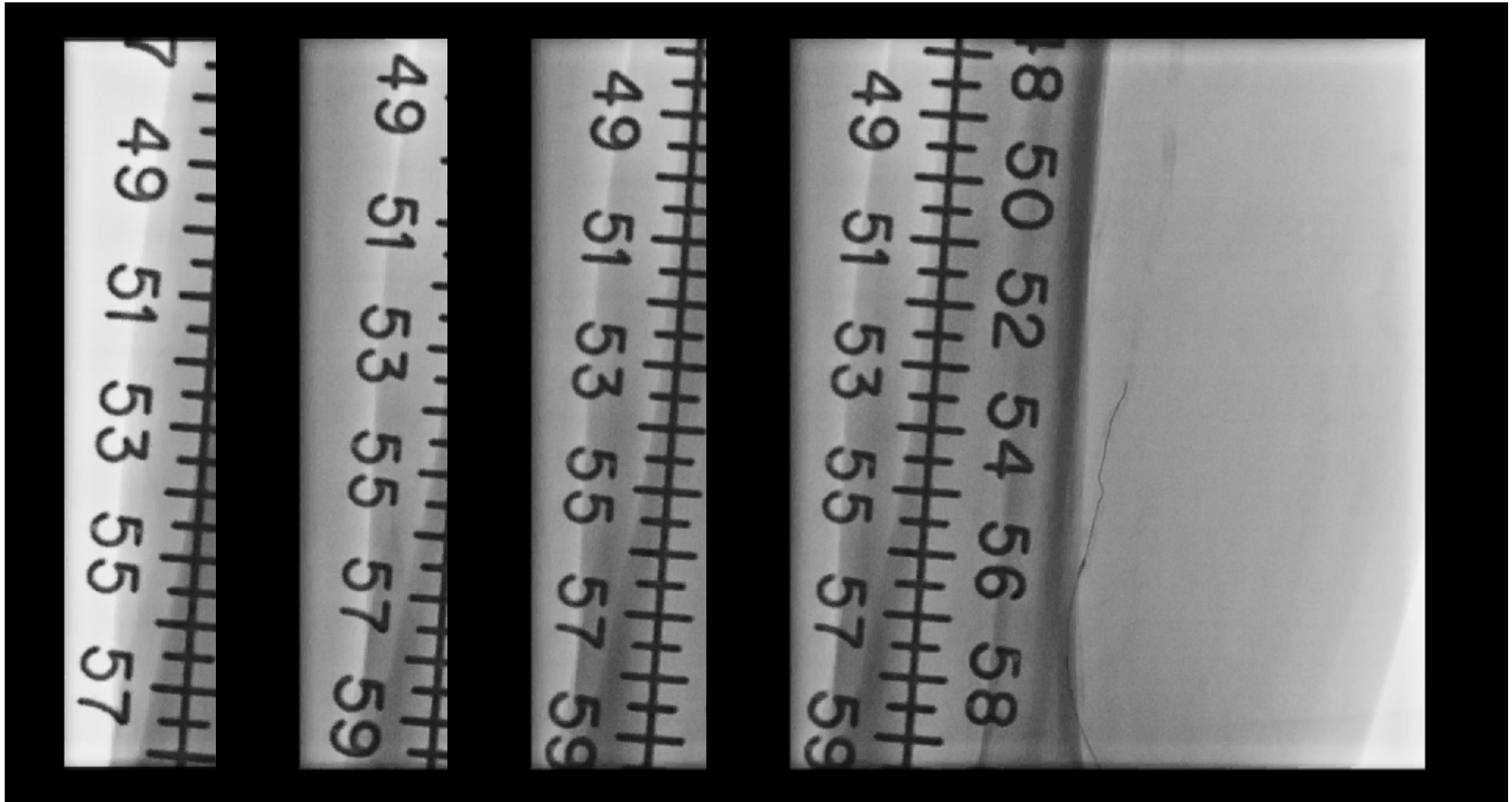


Complete SE 6 X 60 mm stent

BTK Angiography (2012.2.20)

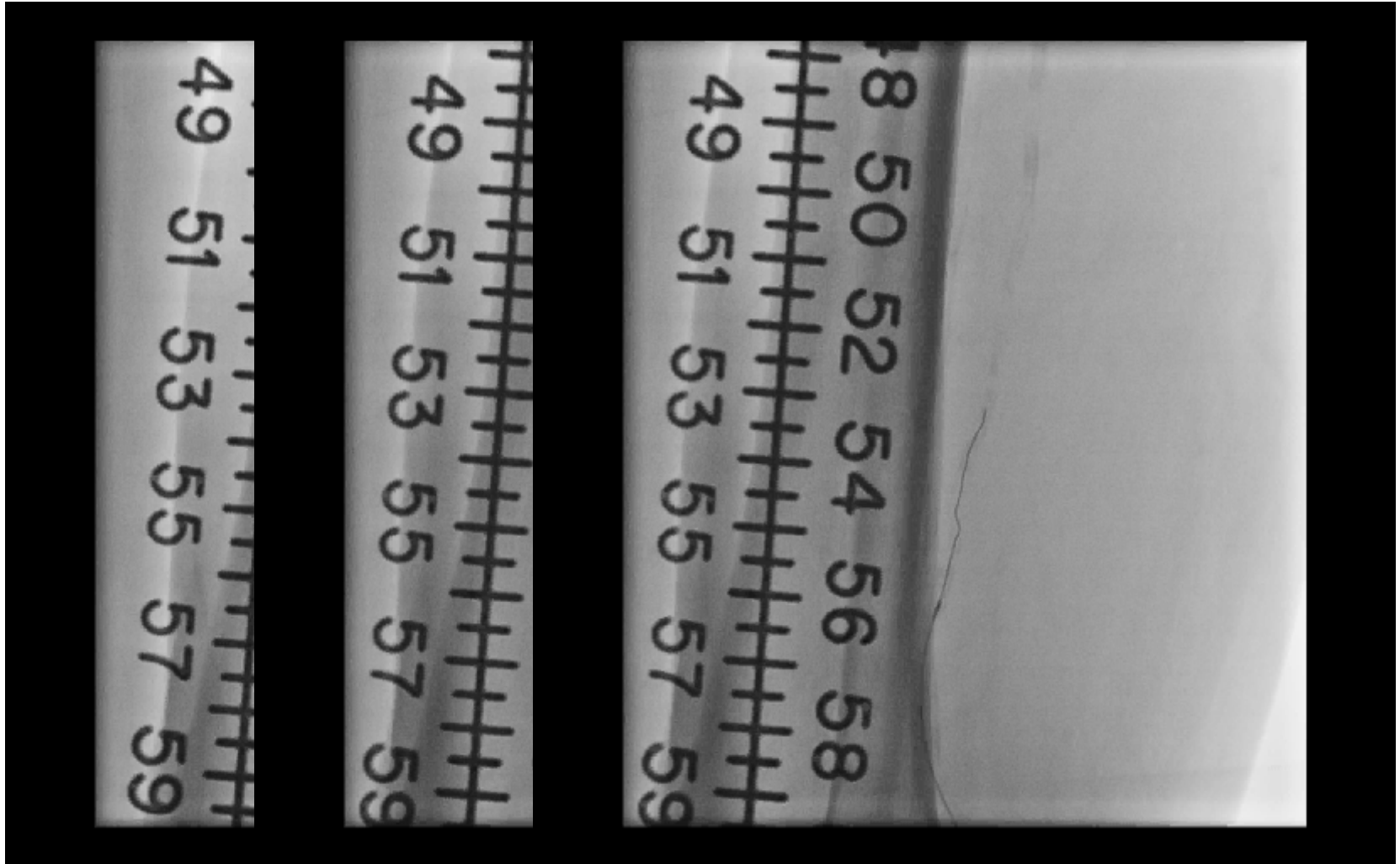


PTA (2012.2.20)



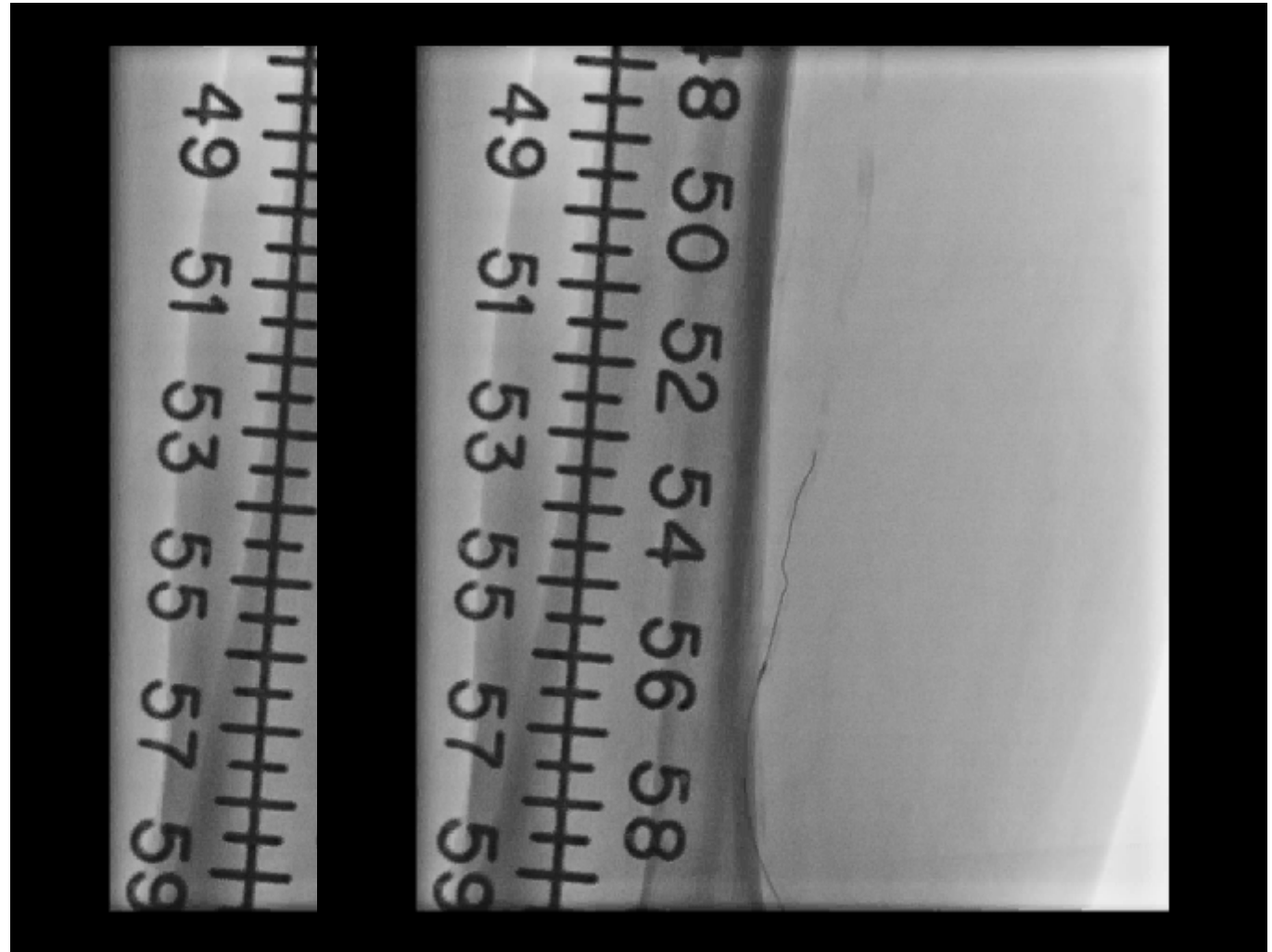
0.014" Skipper wire

PTA (2012.2.20)



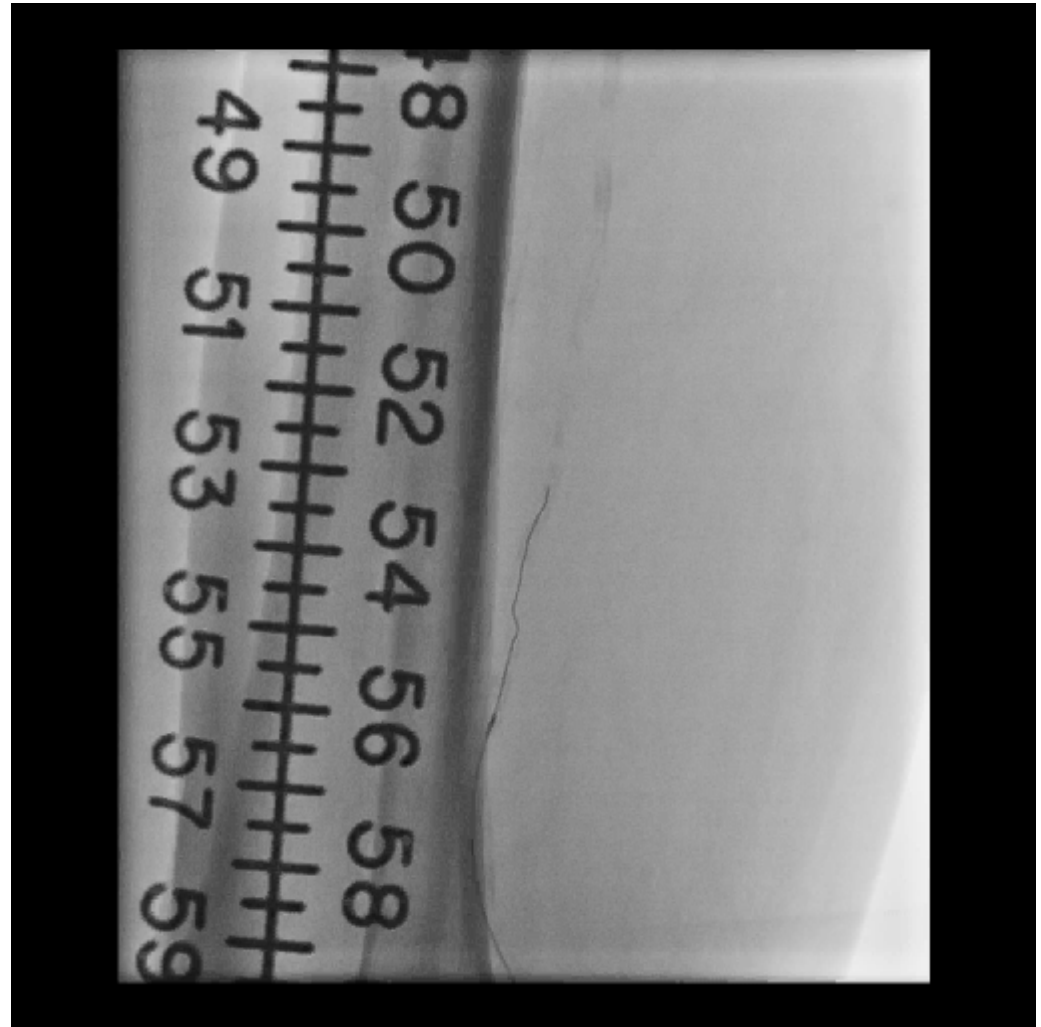
0.014" Skipper wire

PTA (2012.2.20)



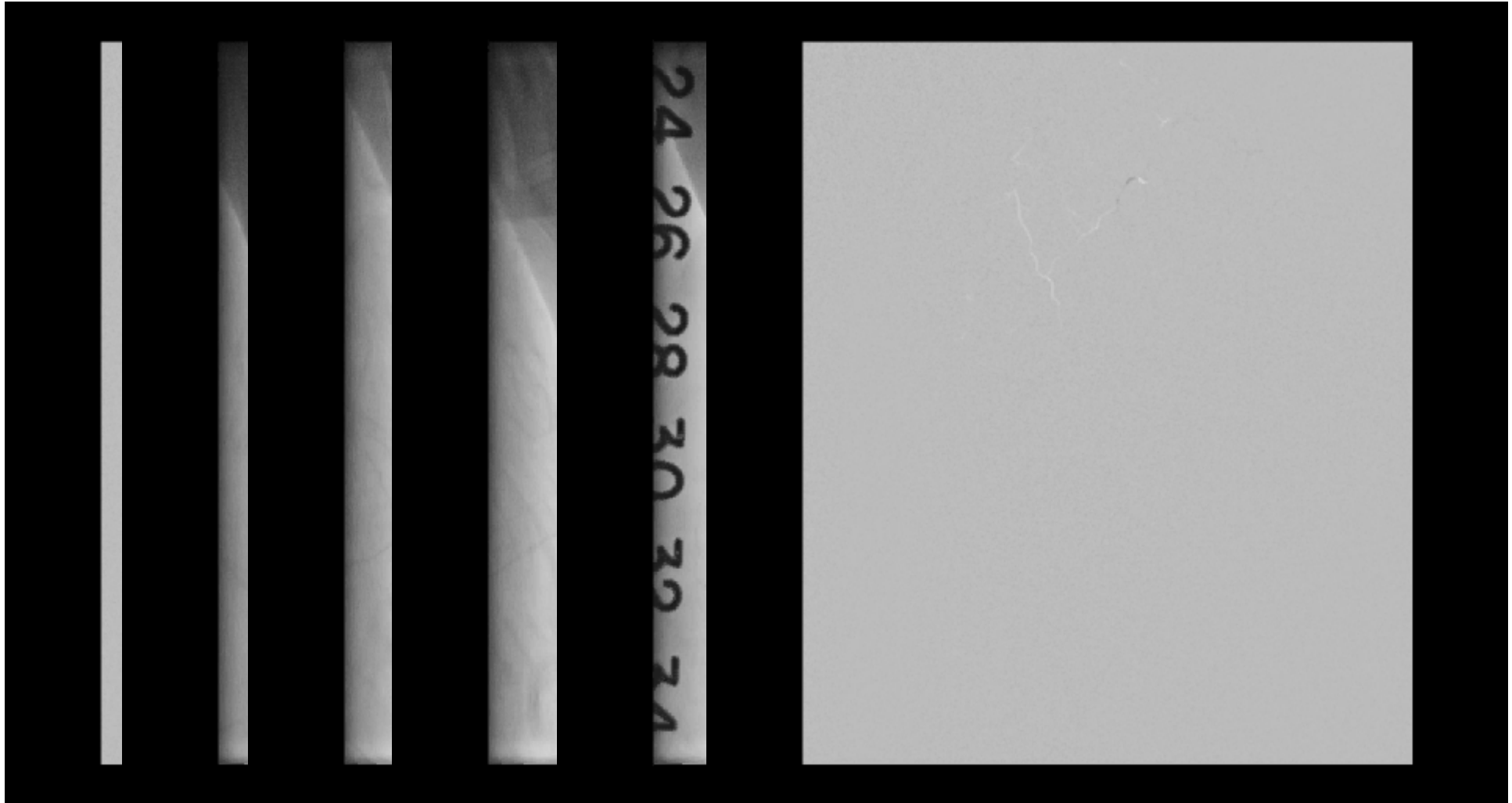
0.014" Skipper wire

PTA (2012.2.20)



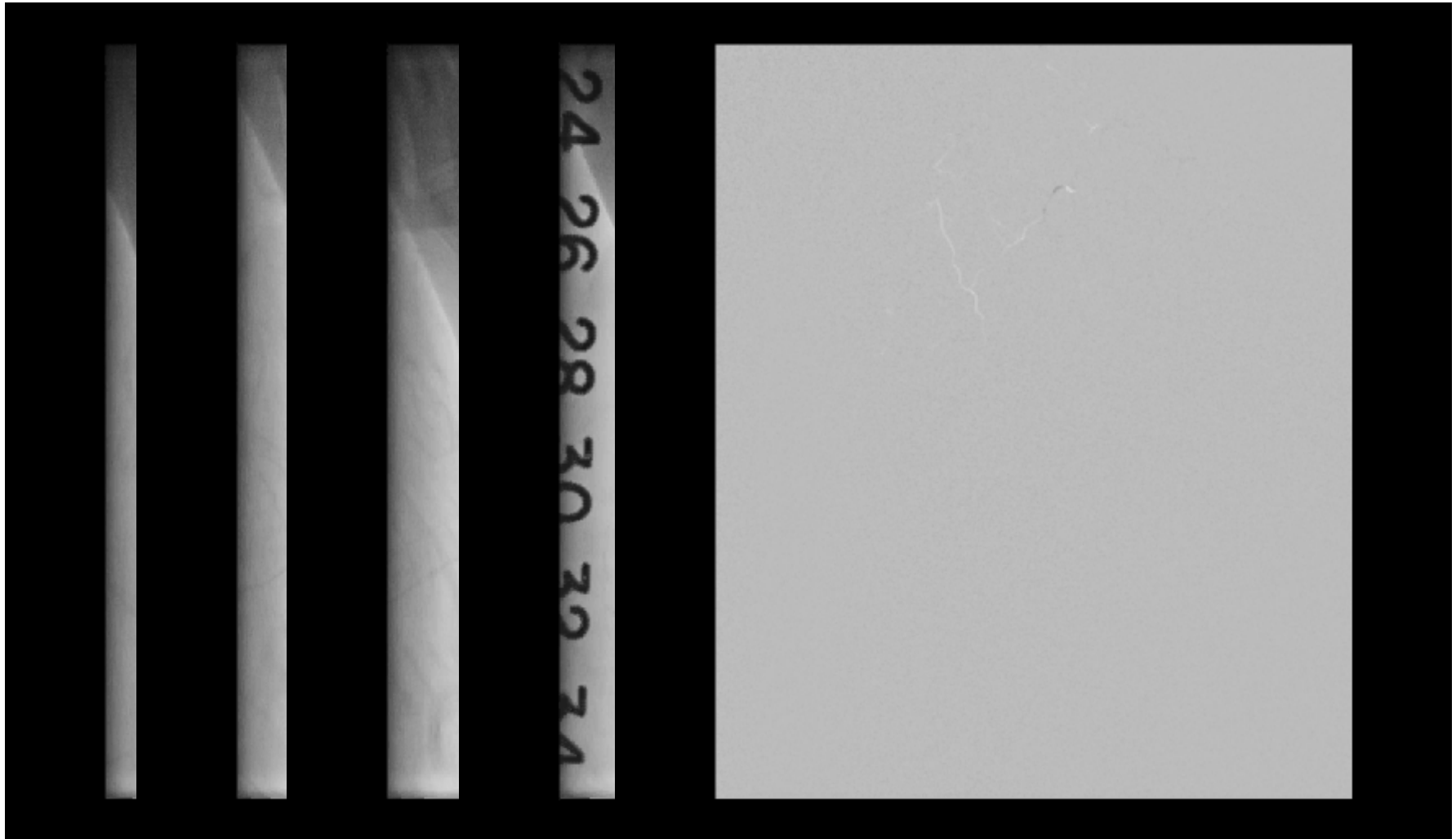
0.014" Skipper wire

ATA (2012.2.20)



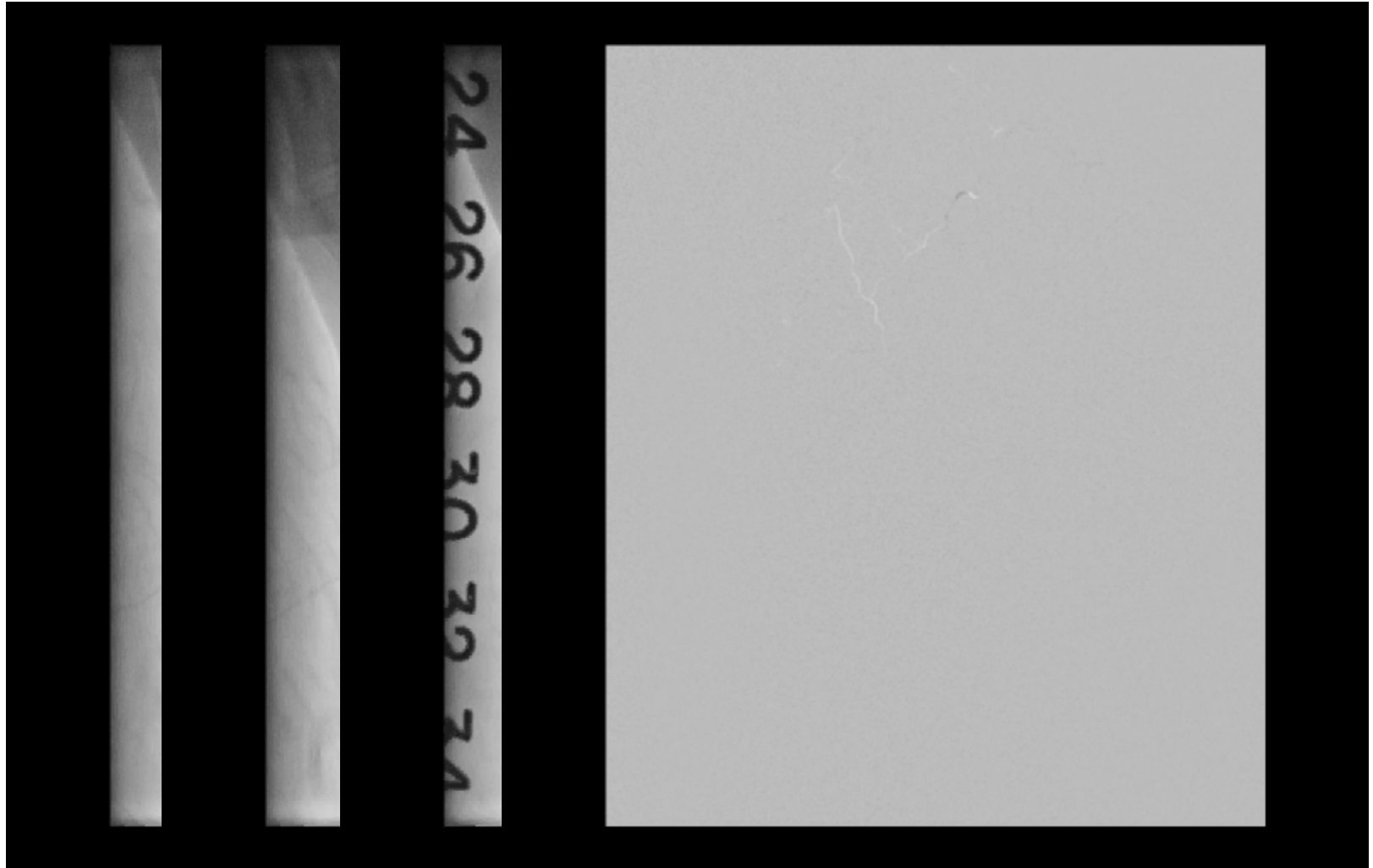
0.014" Skipper wire

ATA (2012.2.20)



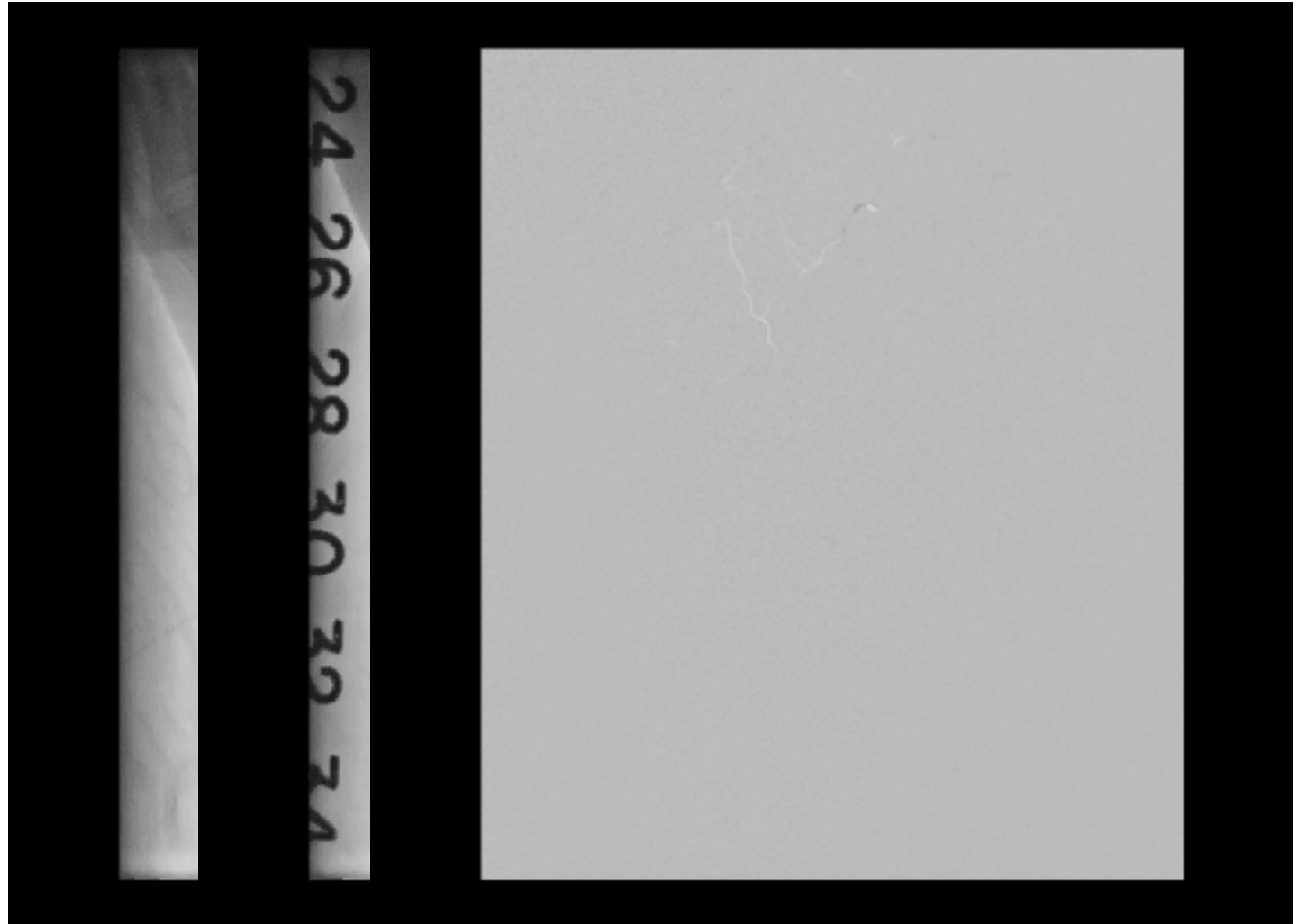
0.014" Skipper wire

ATA (2012.2.20)



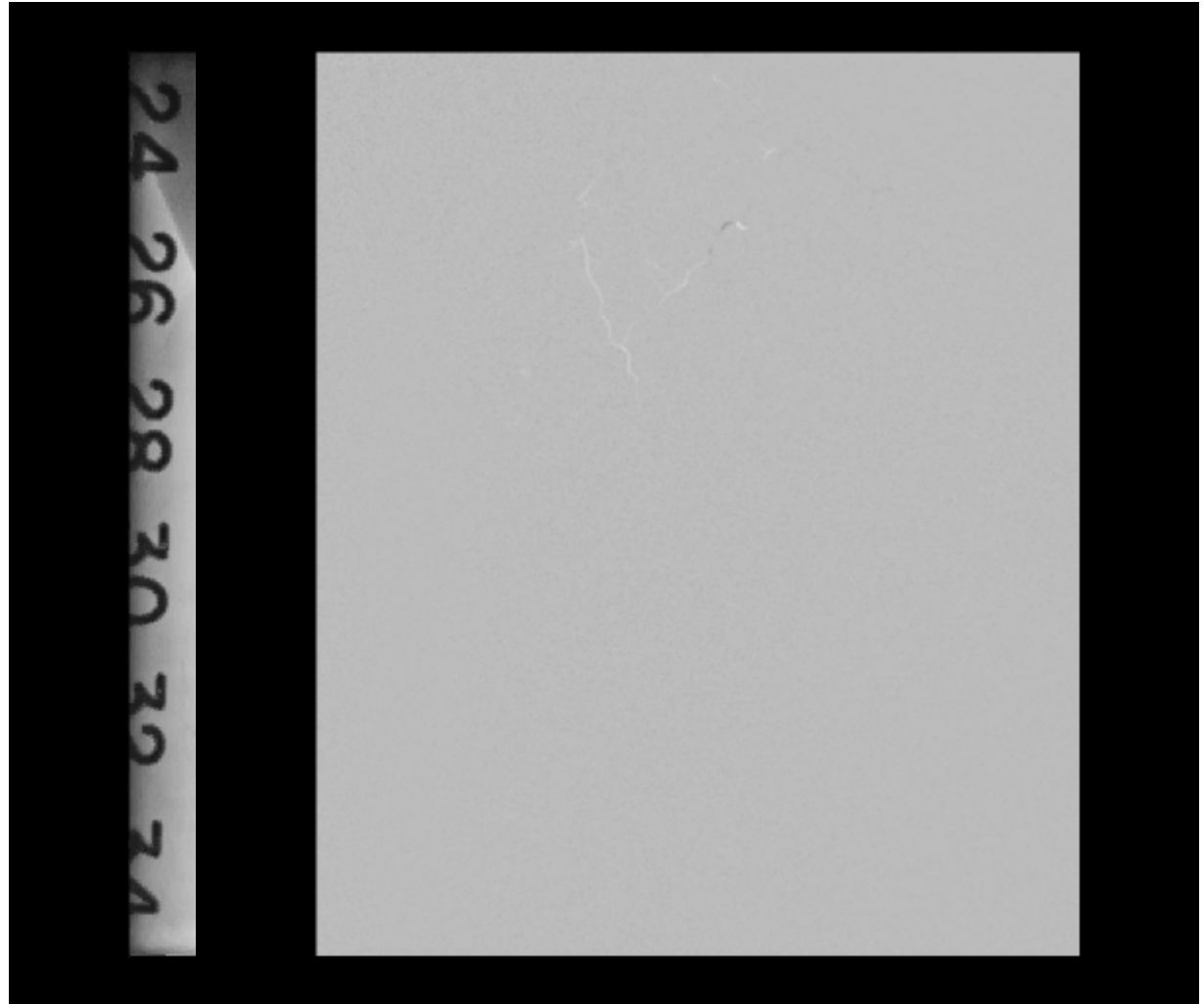
0.014" Skipper wire

ATA (2012.2.20)



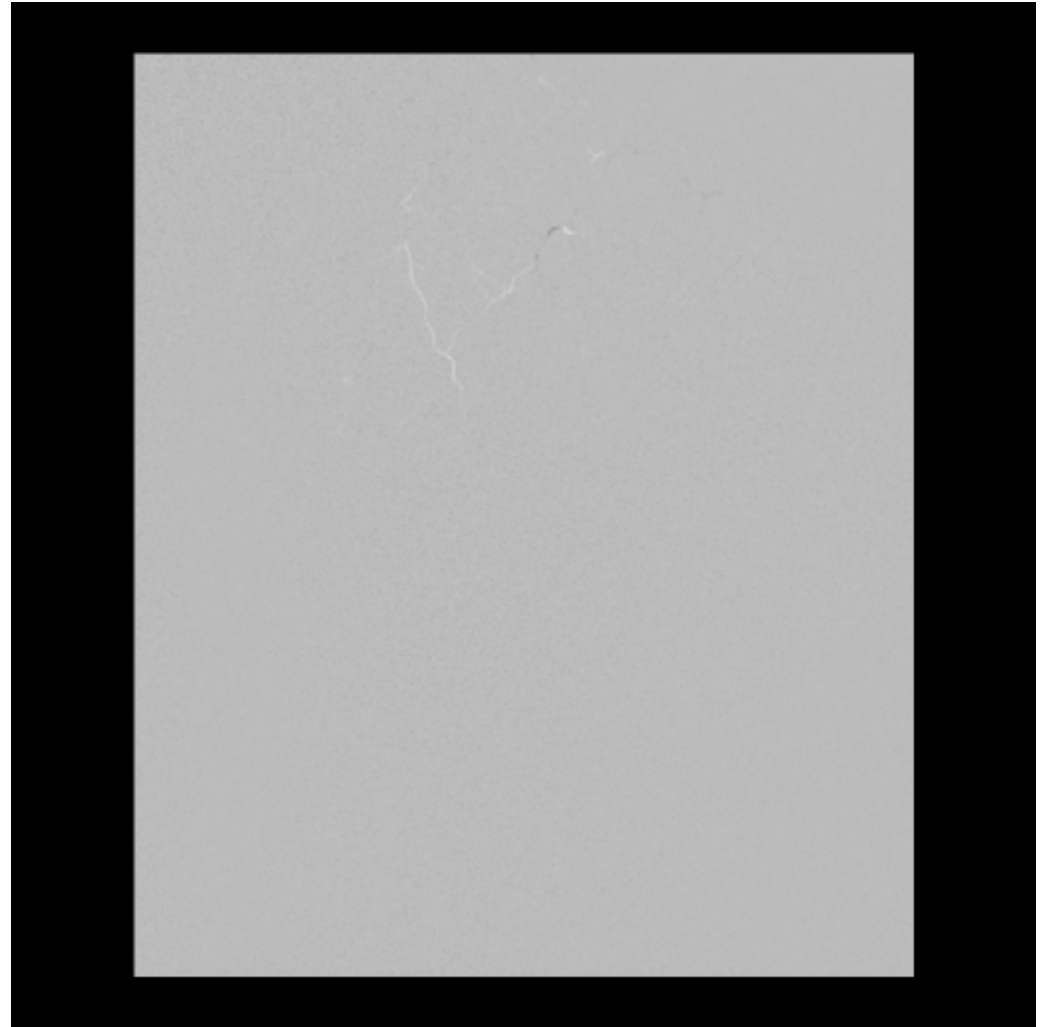
0.014" Skipper wire

ATA (2012.2.20)

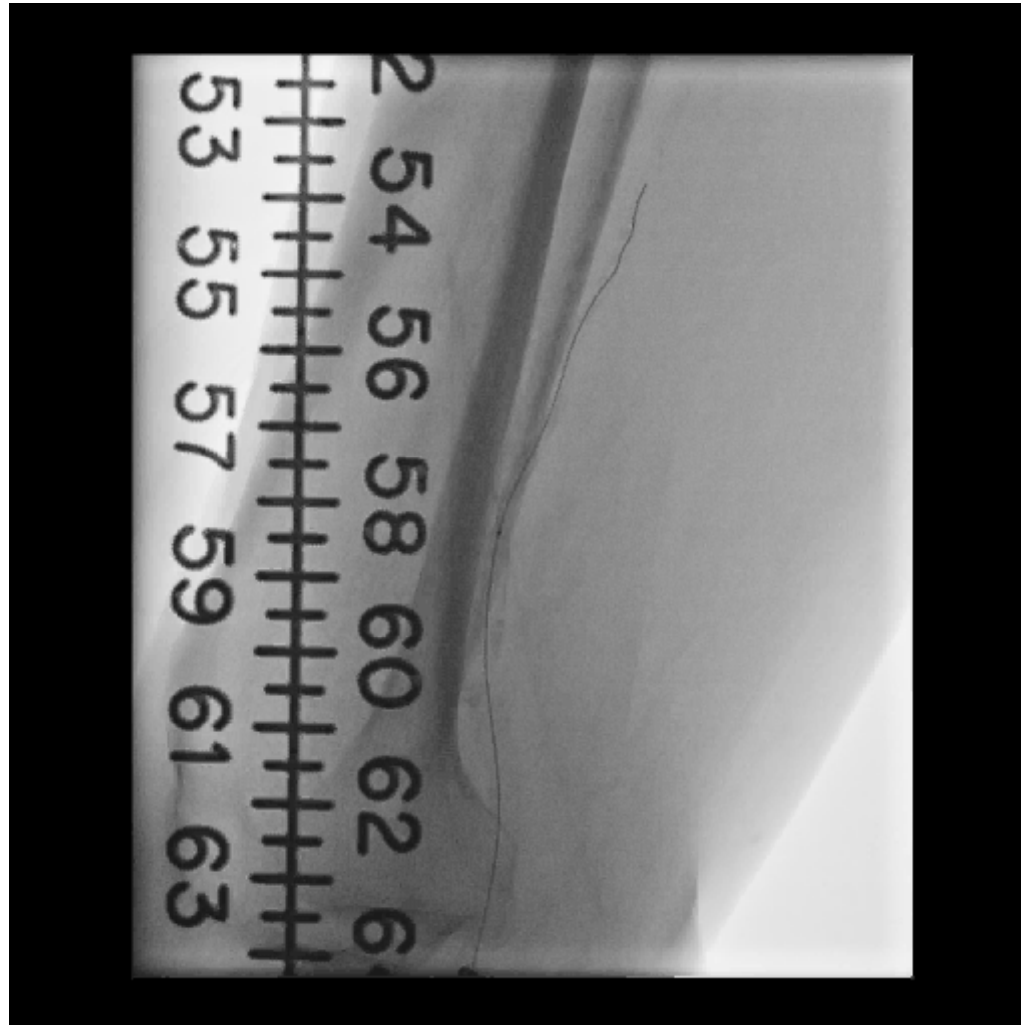


0.014" Skipper wire

ATA (2012.2.20)

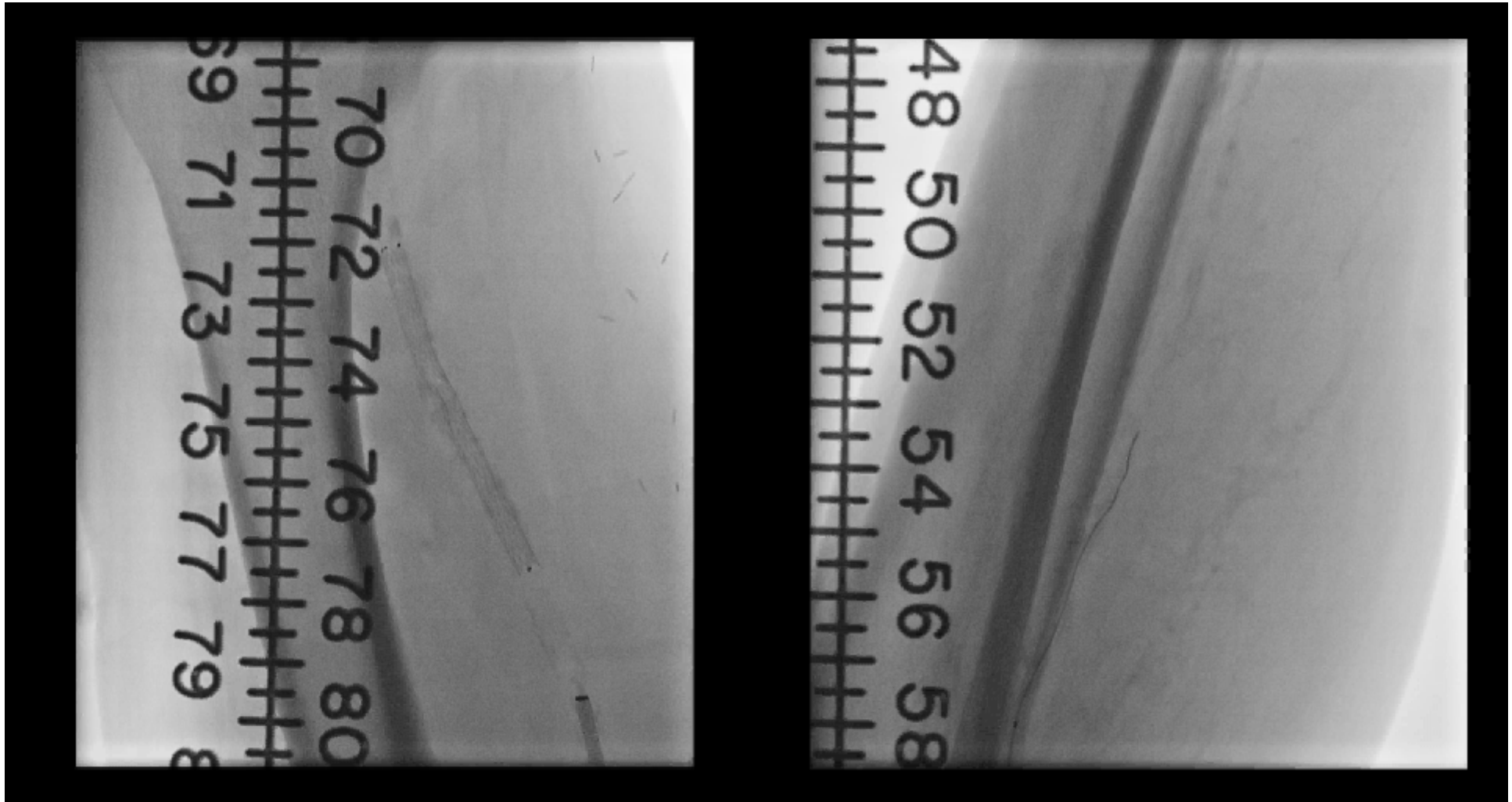


PTA wire (2012.2.20)

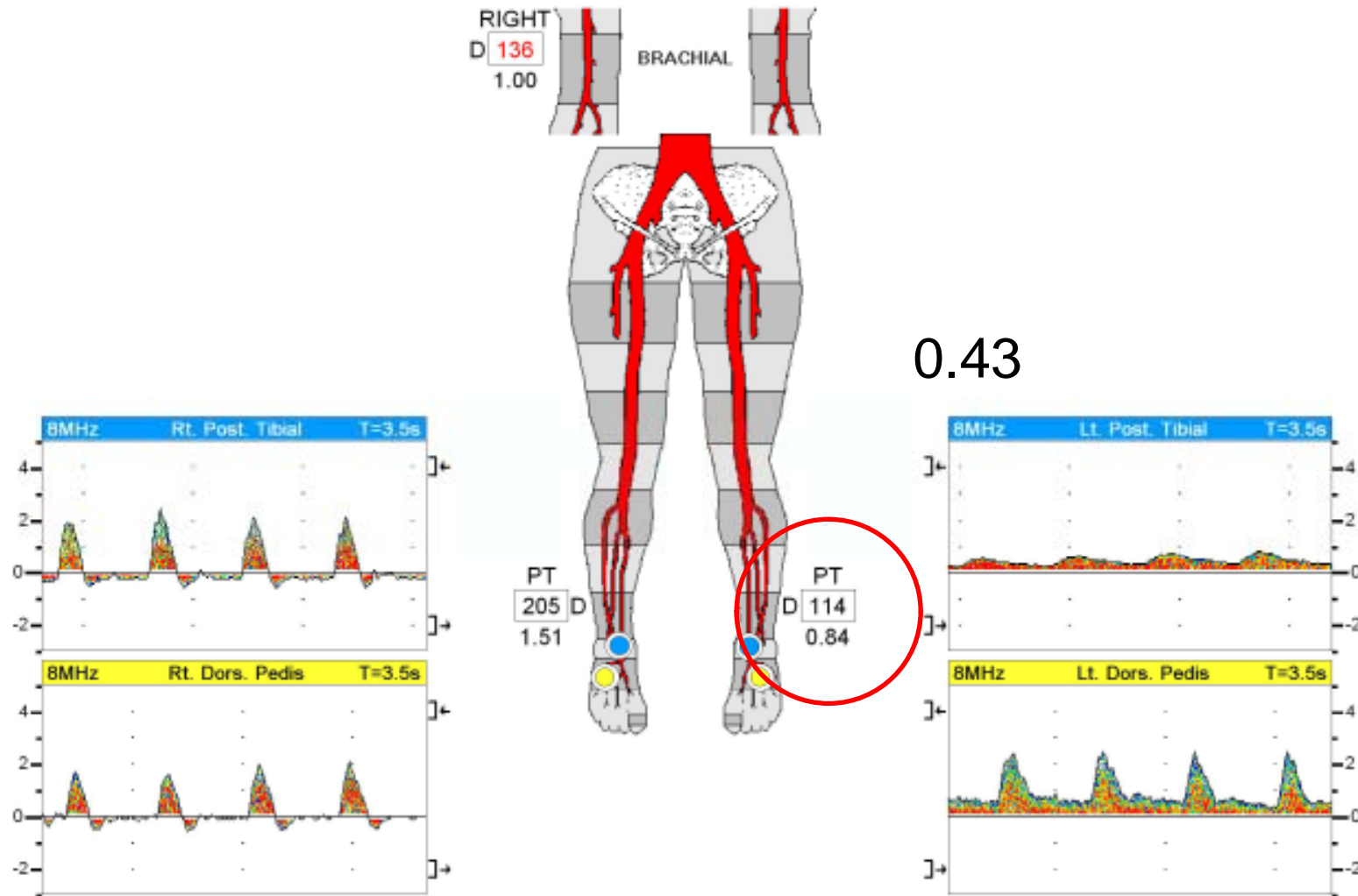


0.014" Skipper wire

Final angiography (2012.2.20)

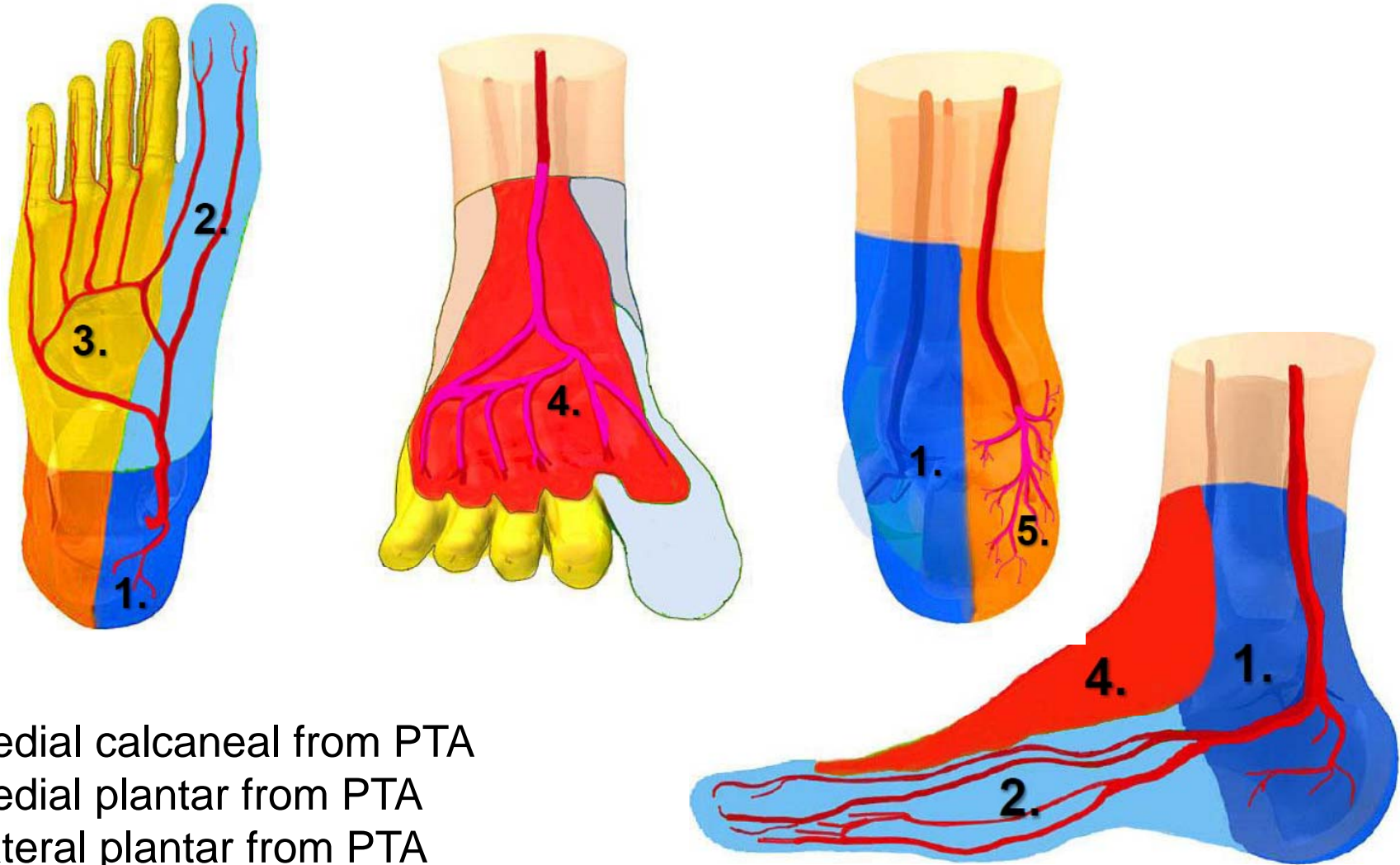


ABI test after PTA (2012.2.21)



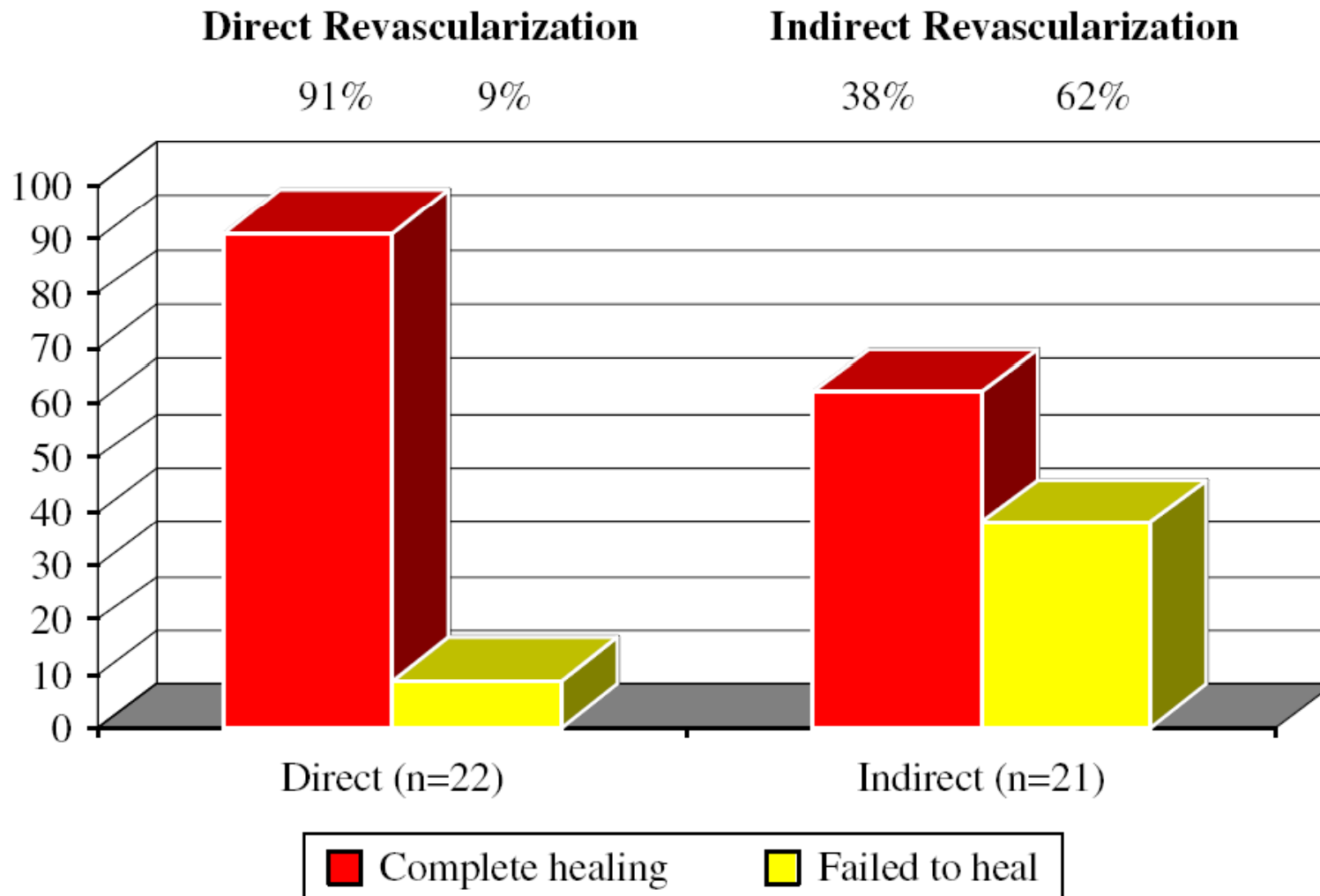


Angiosome of foot and ankle



1. Medial calcaneal from PTA
2. Medial plantar from PTA
3. Lateral plantar from PTA
4. Doralis pedis from ATA
5. Lateral calcaneal and ant perforating from PeA

Revascularization of a specific angiosome for limb salvage



Conclusions

- Revascularization plays a crucial role in the treatment of ischemic lower extremity wounds.
- Based on several studies, DR of the angiosome specific to the anatomy of the nonhealing wound leads to a higher rate of healing and limb salvage.
- So, although many factors are involved in the choice of target artery for revascularization, consideration should be given to revascularization of the artery directly feeding the ischemic angiosome.

Thank you for attention !

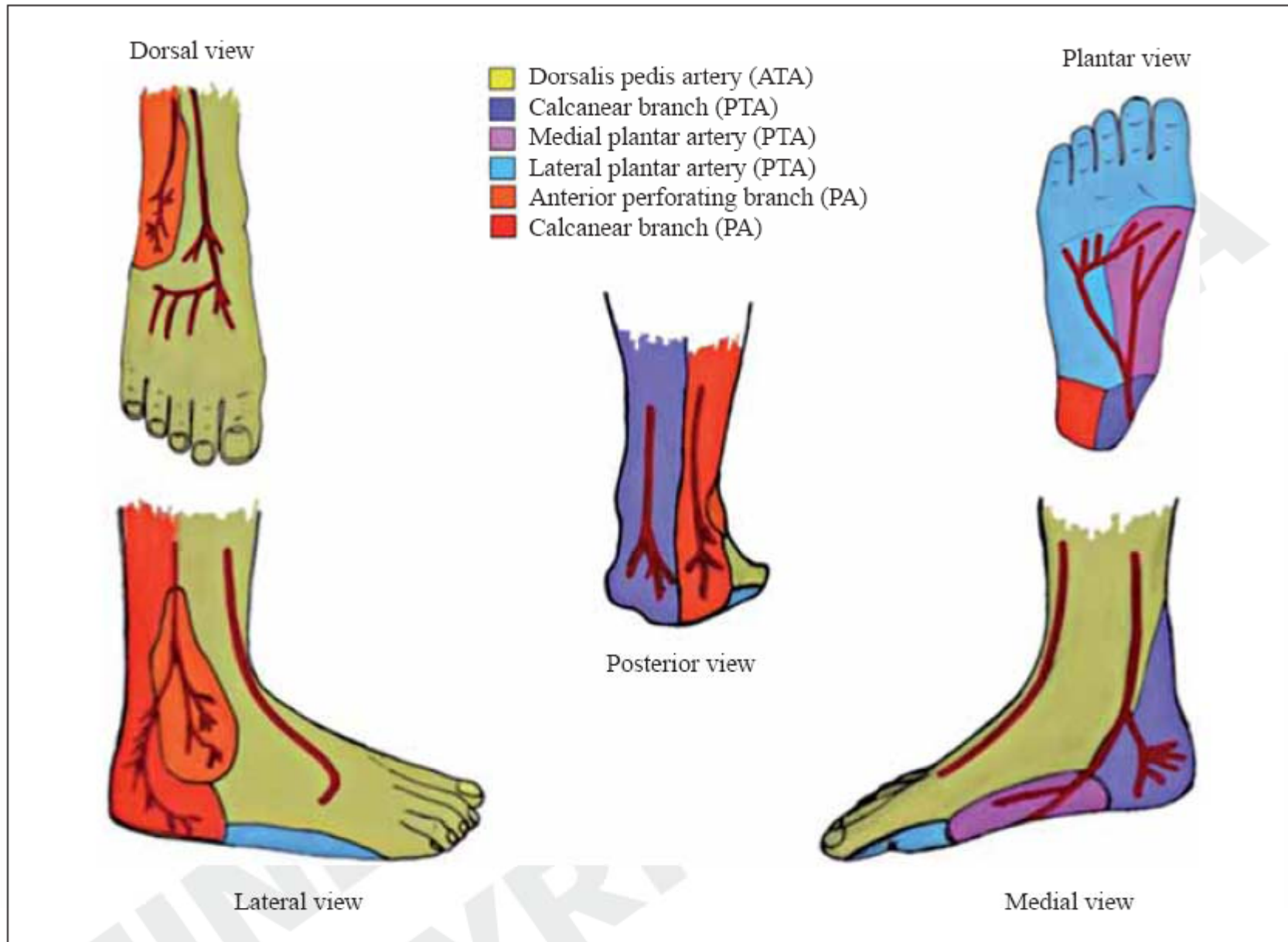


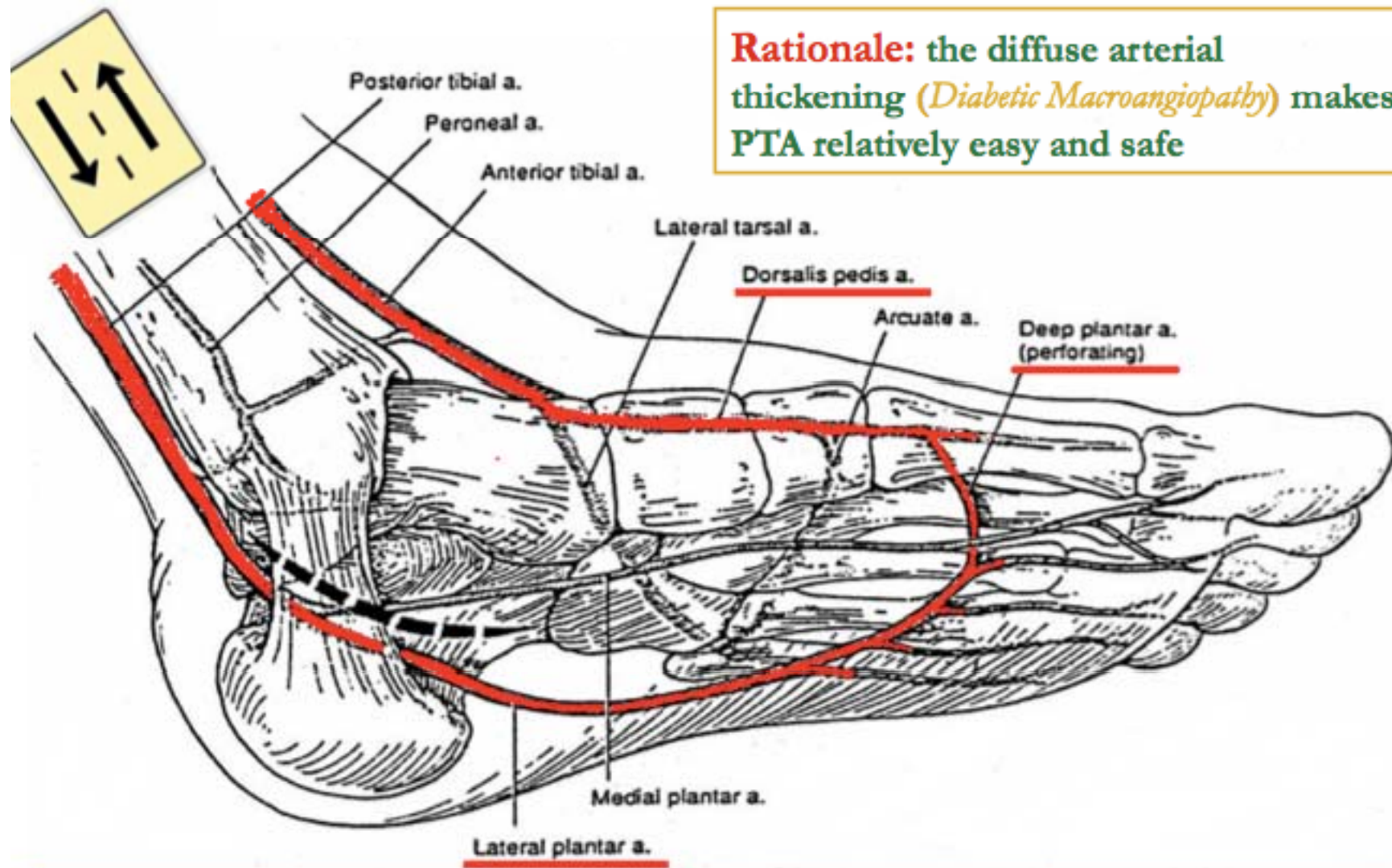
Figure 1.—The six angiosomes of ankle and foot (PTA: posterior tibial artery; ATA: anterior tibial artery; PA: peroneal artery).



Figure 1.—A simplified illustration of the cited angiosomes of the foot and lower ankle: 1: medial calcaneal artery angiosome; 2: medial plantar artery angiosome; 3: lateral plantar artery angiosome; 4: *dorsalis pedis* artery angiosome continuing the anterior tibial artery angiosome. 5: lateral calcaneal artery angiosome.

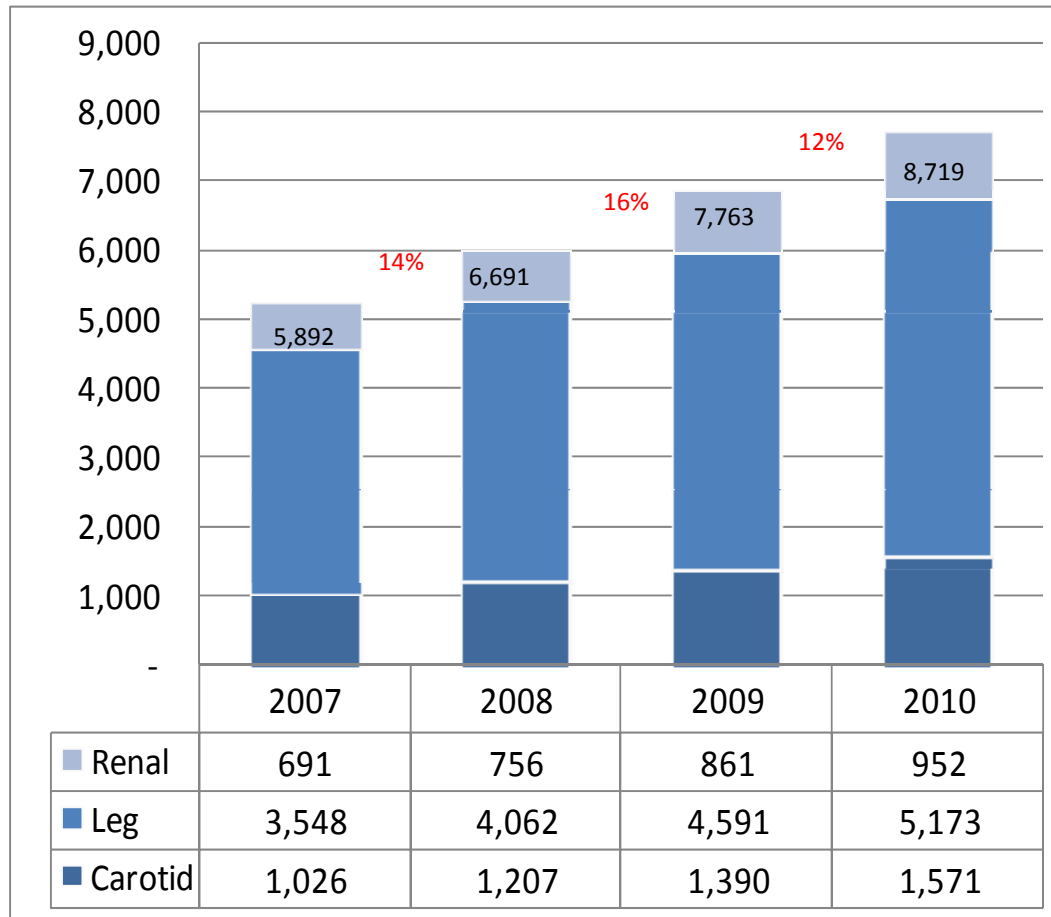
The Plantar Arch: a Two-Way Route

Rationale: the diffuse arterial thickening (*Diabetic Macroangiopathy*) makes PTA relatively easy and safe



Overview of the lower limb intervention in Korea

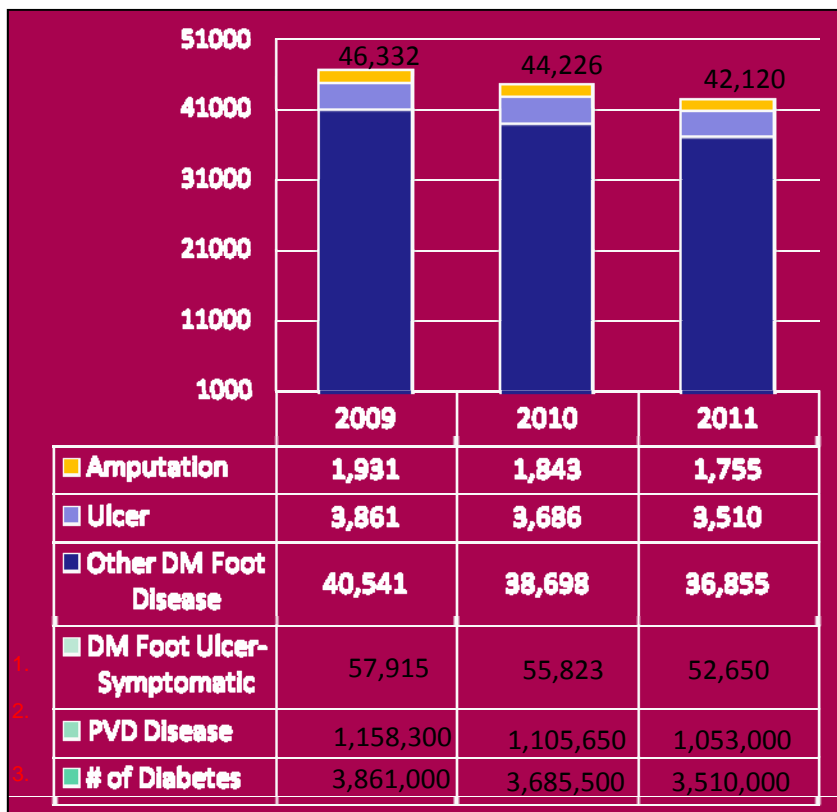
Procedure by Disease Type



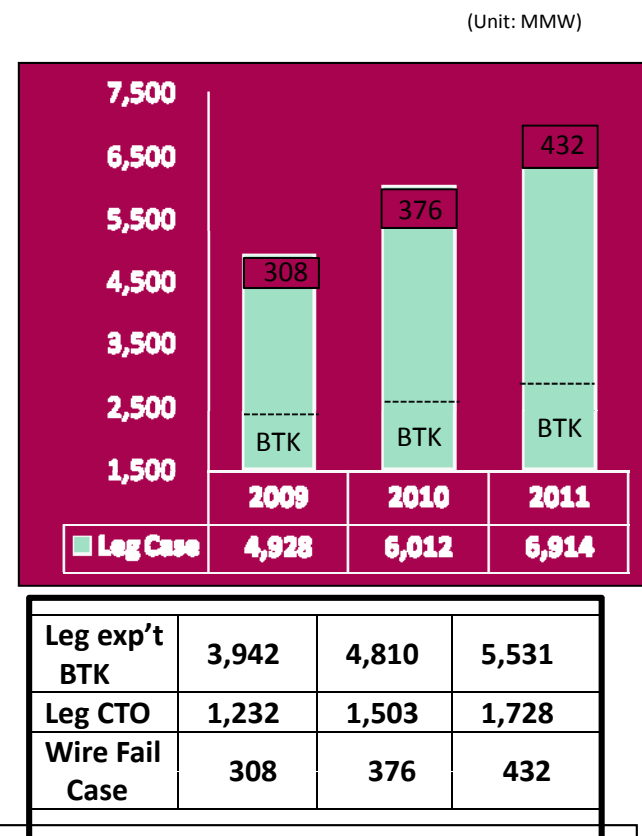
KEY FINDINGS

- Total Market AGR '07~'10 is 14%
- Leg segment continuously takes large portion in total PVD market

DM Foot Disease State



Endovascular CTO Size



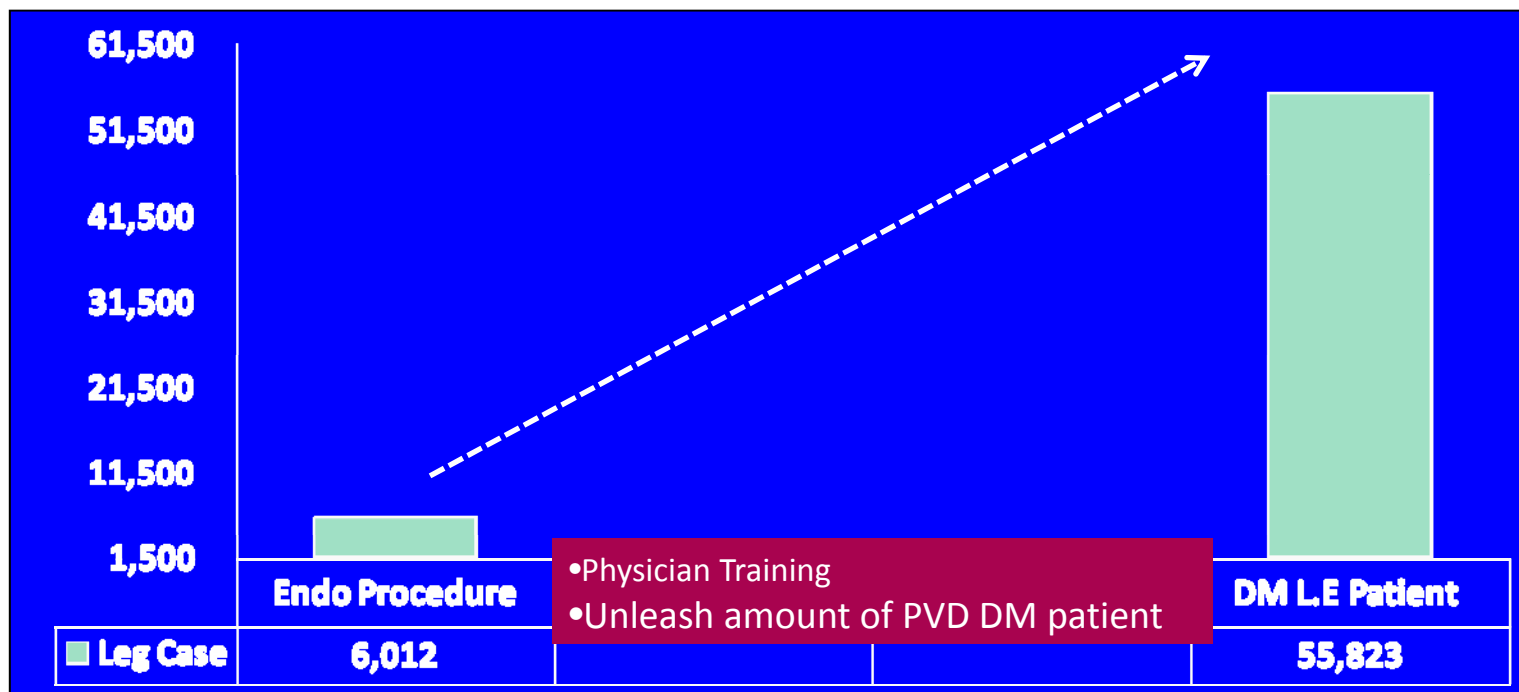
Key Findings

- Big DM Foot Patient Pool undiscovered => How to lead them to the treatment?

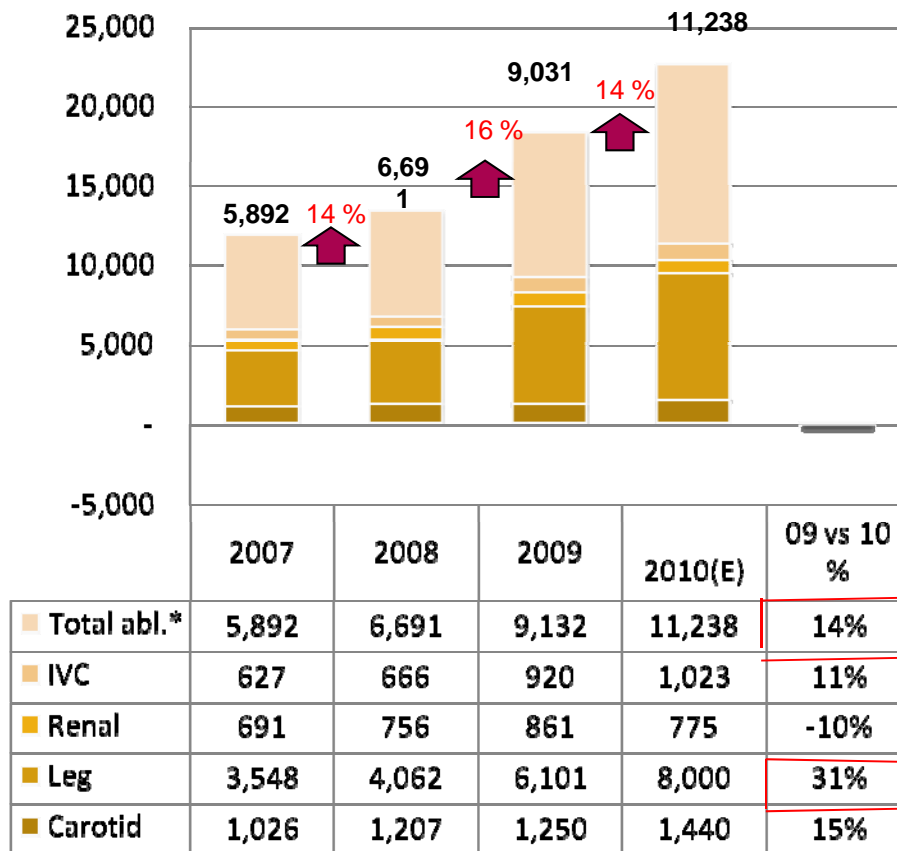
1. 5% of Total PVD in DM patient 2. 30% of Total DM population 3. 2006 Data

Patient Numbers [2010]

(Unit: MMW)



Procedure by Disease



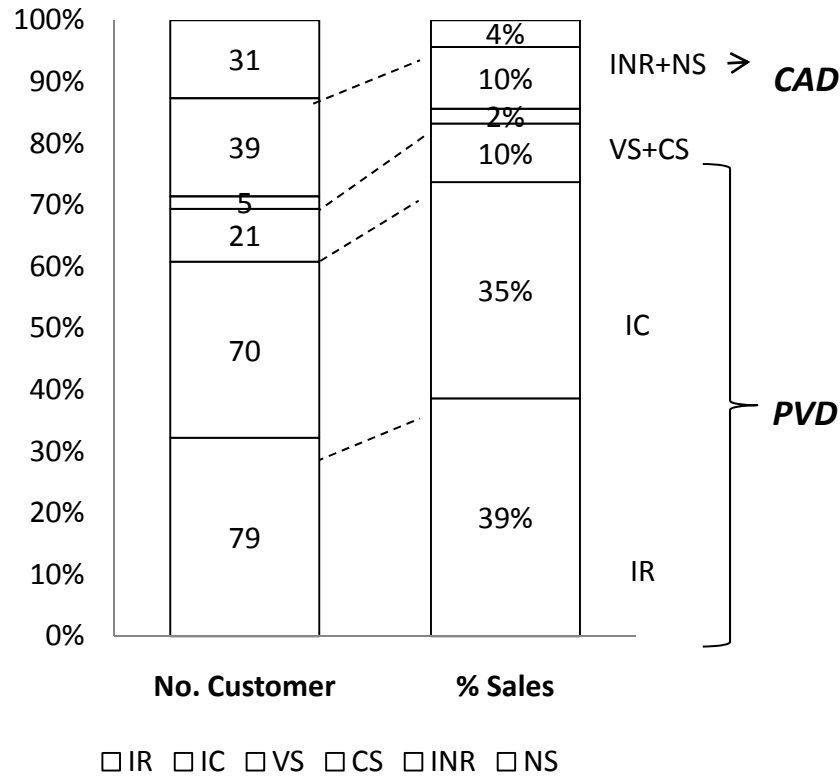
Source: Internal Estimate

KEY FINDINGS

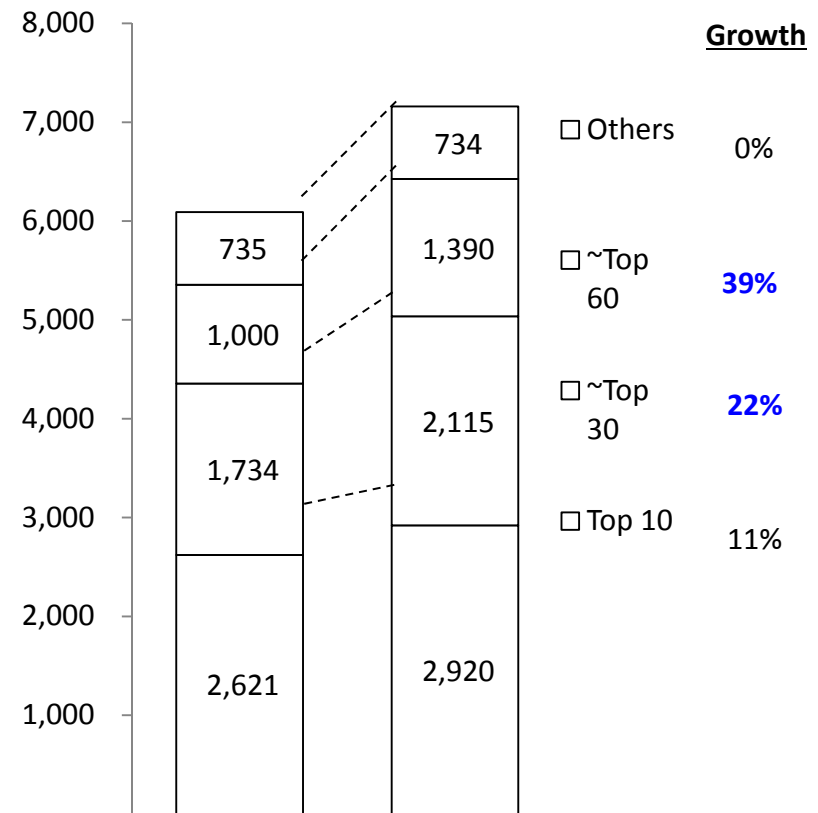
- Market CAGR '07~'10 is 14%
- Leg segment continuously takes large portion in total EV market. 24 ~31% growth
- Carotids market is expected to grow very conservatively because of most procedure doing by INR/Negative Clinical Outcome in EU
- Renal market fell down due to evidence of no clinical benefit of stenting _Lancet 2009

EVT Specialty Segments in Korea

EV Procedure By Specialty



(Unit: M KRW)

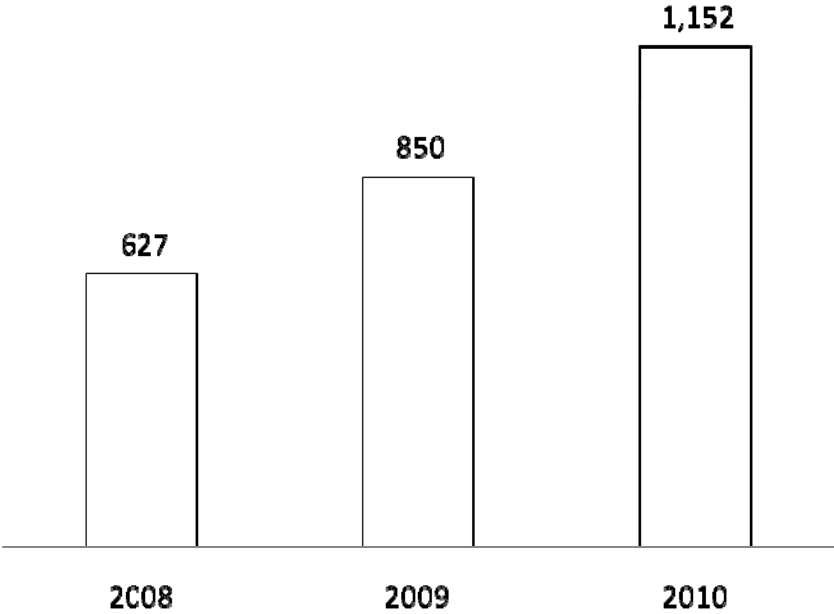


No. of Hospital : 108

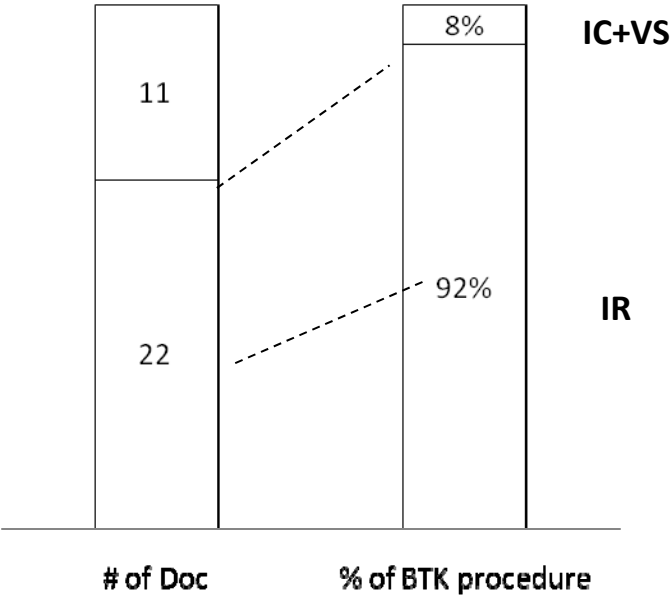
No. of Doctors : 245

Growth Driver – BTK Intervention

BTK procedure



BTK Sales by Specialty



Stent; 290 cases

Contribution by Specialty

No. Total EV Customer

Specialty	No. Customer		Contribution
VS	21		10%
NS	31		4%
IR	79		39%
INR	39		10%
IC	70		35%
CS	5		2%
TTL	245		
No. Hospital	108		

No. of Customer up to 80%

Specialty	No. Customer		Contribution %
VS	9		10%
NS	5		3%
IR	34		40%
INR	10		9%
IC	20		36%
CS	3		2%
TTL	81		

Angiosome guided Revascularization

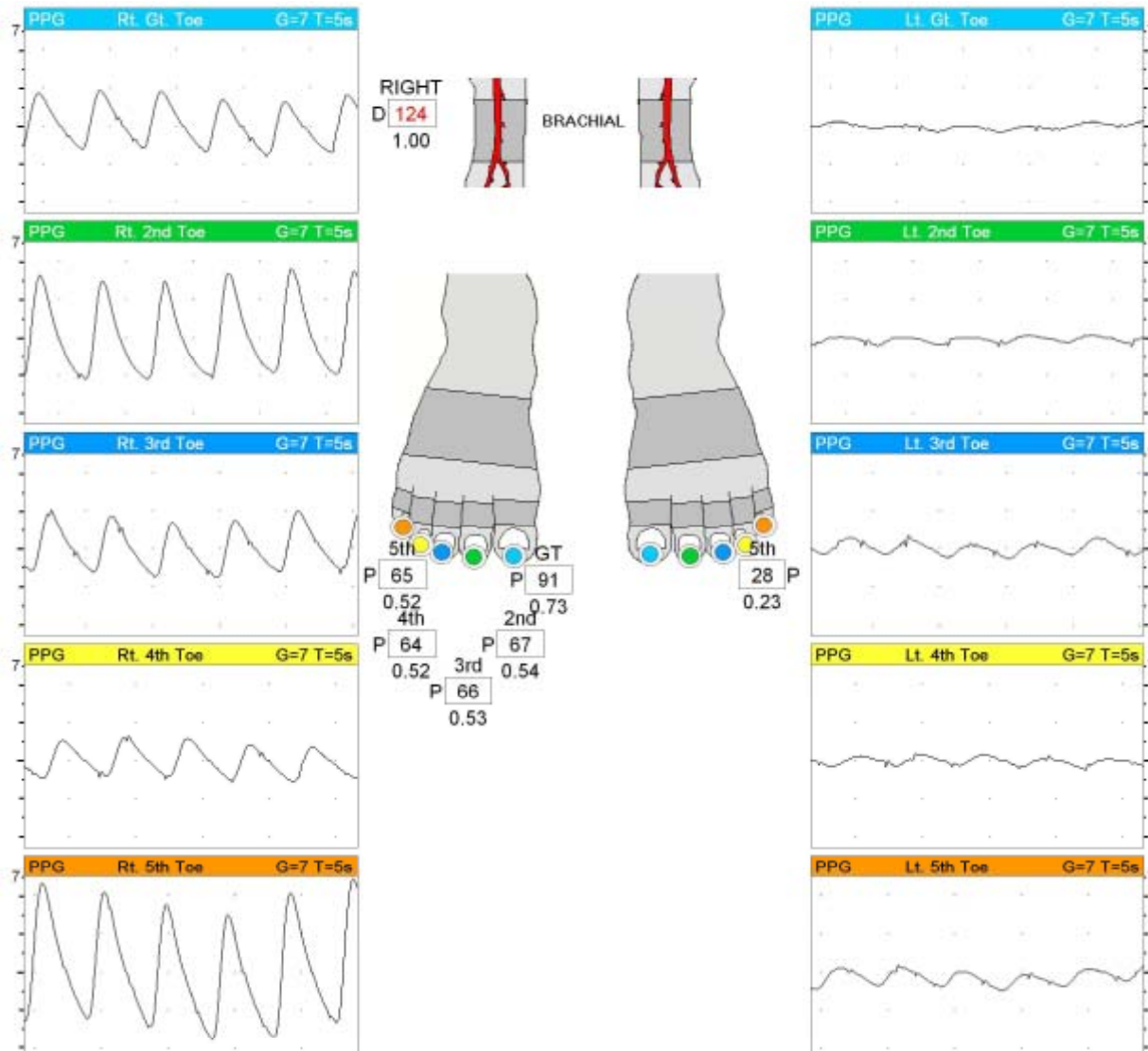
Location

- Dorsal foot ulcer
- Plantar foot ulcer
- Lateral foot ulcer
- Calcaneal ulcer

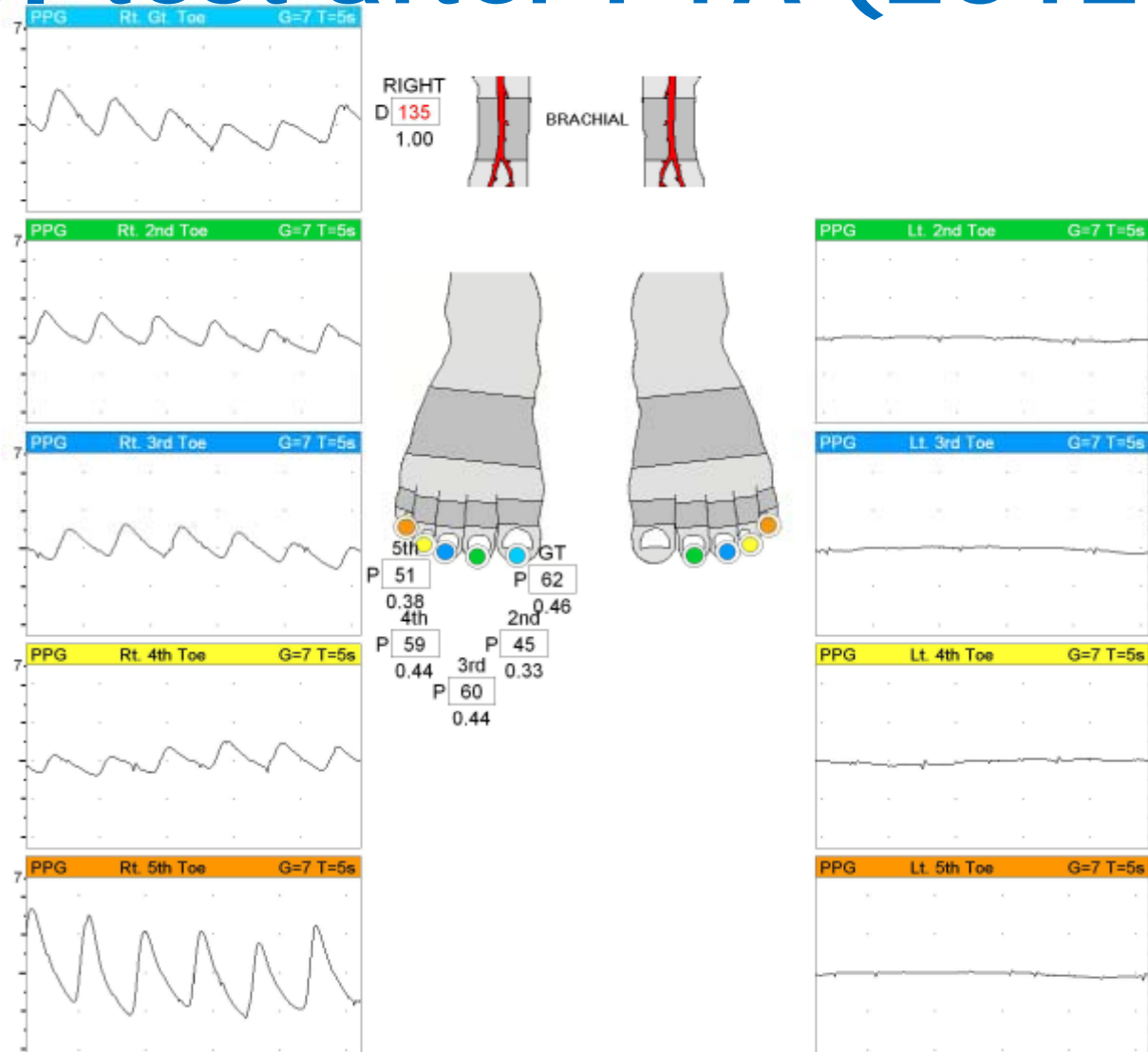
Revascularization

- Anterior tibial artery
- Posterior tibial artery
- Peroneal artery
- Posterior tibial or peroneal artery

(2012.2.14)



ABI test after PTA (2012.2.21)



1st metatarsal transmetatarsal
amputation 시행함



**Proc
edure**

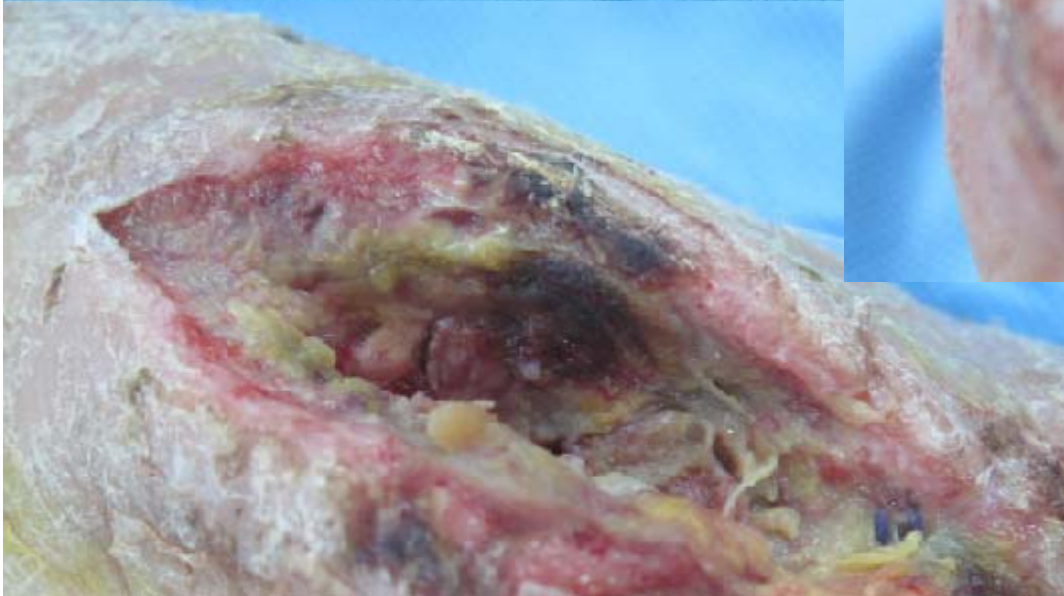
척추 마취하에 1st metatarsal shaft 가운데에서 osteotomy
후 margin rounding 후 Primary repair 시행함



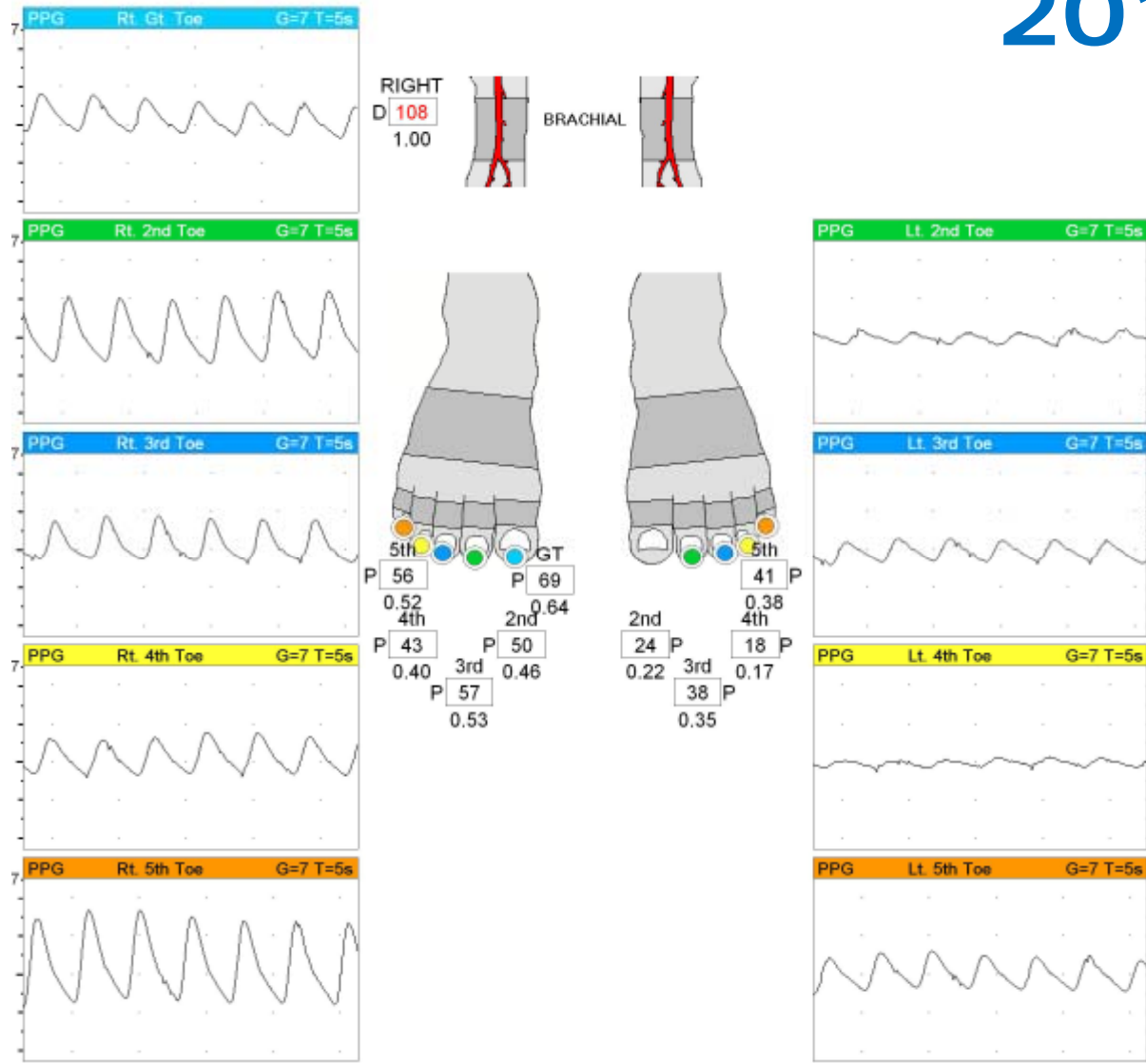
2012.3.7



2012.3.15



2012.3.20



2012.3.26)



ABI test after PTA (2012.3.20)

