CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE

CONTROVERSIES & UPDATES IN VASCULAR SURGERY

JANUARY 22-24 2015

MARRIOTT RIVE GAUCHE & CONFERENCE CENTER, PARIS, FRANCE

The role of foot vessels in CLI

Roberto Ferraresi

Peripheral Interventional Unit

HUMANITAS GAVAZZENI

Bergamo – Italy

www.robertoferraresi.it

Disclosure

Roberto Ferraresi, MD

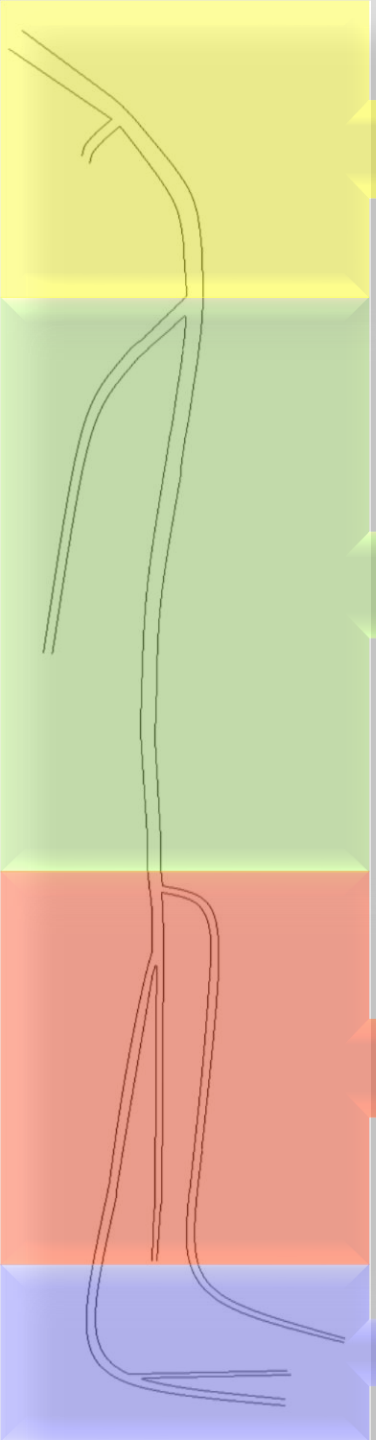
I have the following potential conflicts of interest to report: consulting, travel reimbursement, teaching courses, training, proctoring:

- **Medtronic**
- **Boston Scientific**
- **Abbott**
- **LimFlow**
- **Terumo**
- **Cook**
- **Biotronik**

No conflict with this lecture

The role of foot vessels in CLI

1. **Foot vessel disease: prevalence & risk factors**
2. **Role of foot vessel disease in CLI: innocent bystander or leading actor?**
3. **Treatable non-calcified foot vessel occlusive disease**
4. **Untreatable calcified foot vessel occlusive disease: what can we do?**



5% ATG

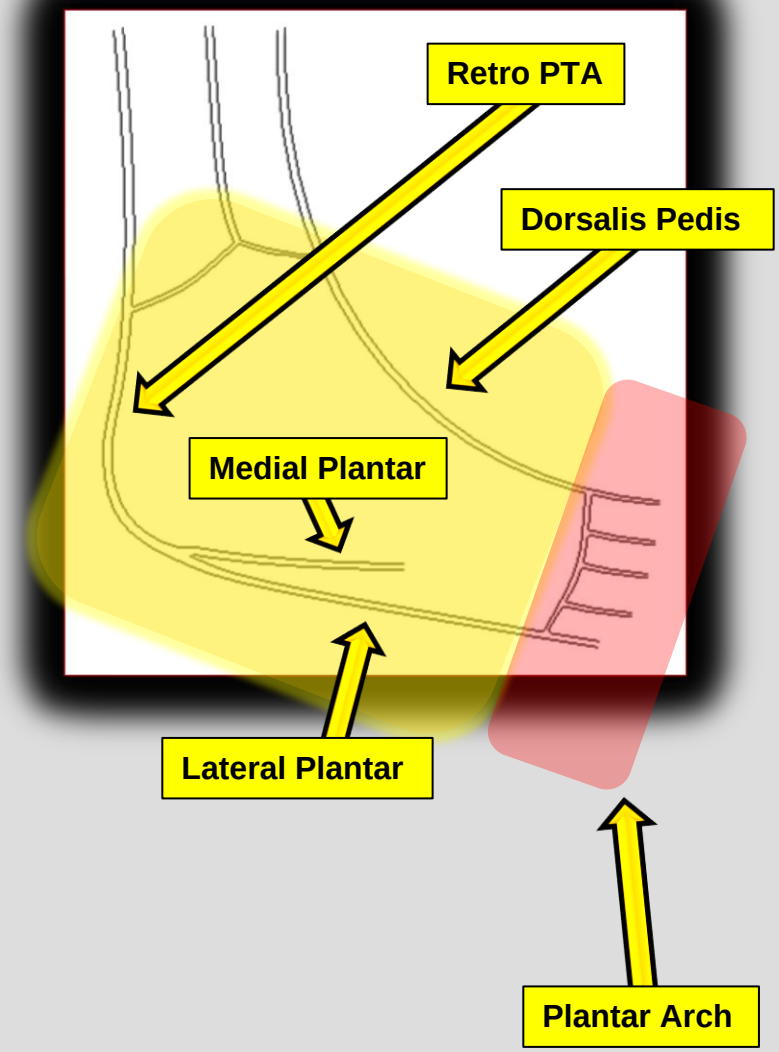
55% FEM-POP

93% BTK

71% Foot

Obstructive disease distribution in a series of 1624 pts with CLI (RTF 5-6)

"Below the Ankle Peripheral Artery Disease" Ferraresi R et Al PanVascular Medicine II edition, Lanzer P ed, Springer-Verlag, Heidelberg, 2014

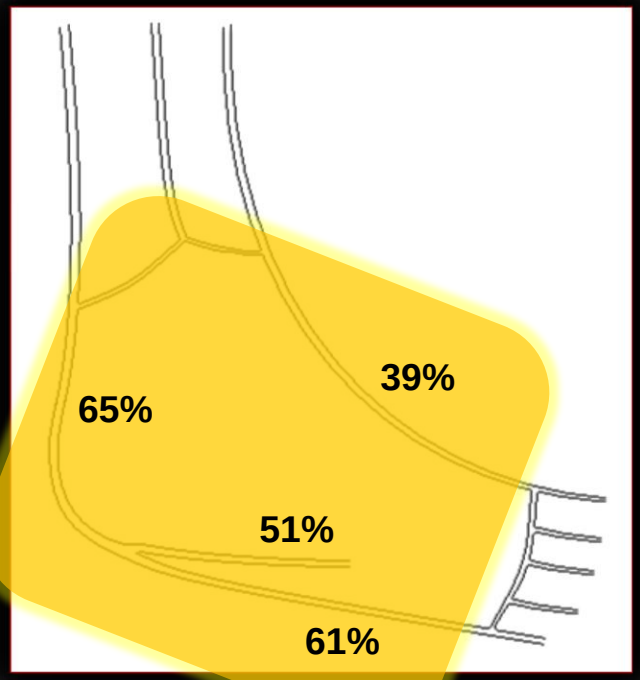


FOOT VESSEL CLASSIFICATION

We considered 4 big foot vessels:

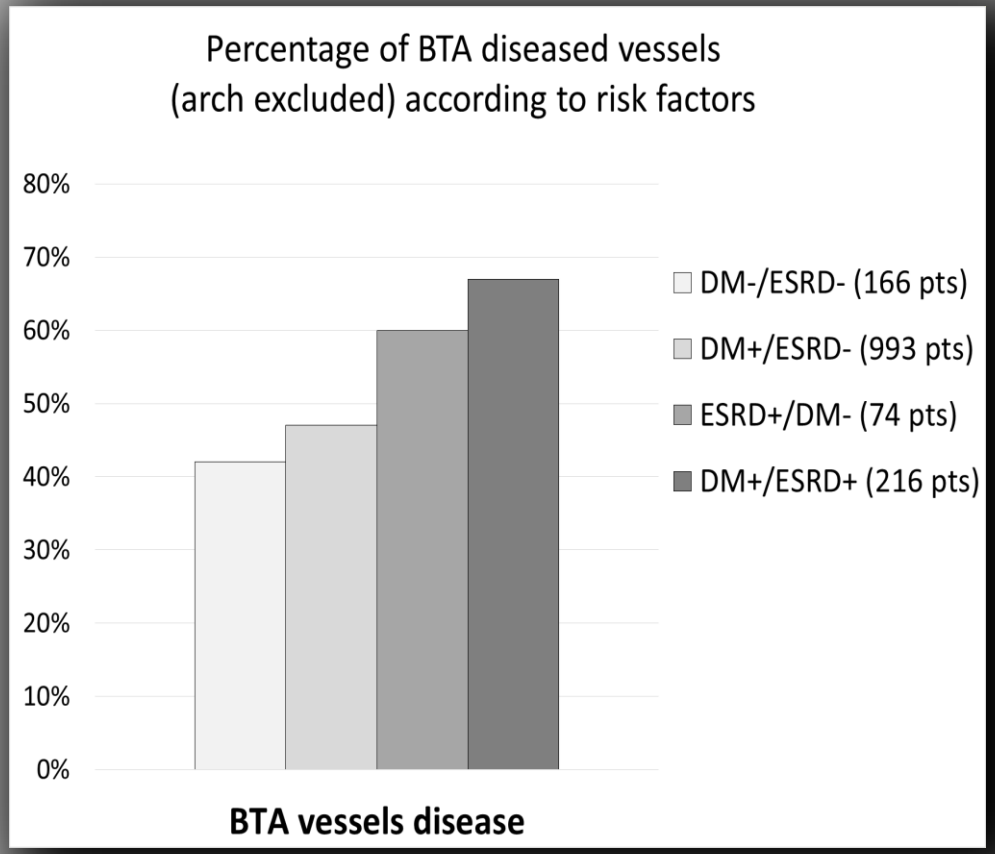
1. **retromalleolar posterior tibial artery**
2. **dorsalis pedis artery**
3. **lateral plantar artery**
4. **medial plantar artery**

Plantar arch was considered separately, as the distal arch originating from lateral plantar artery, giving the **forefoot distribution system** and connecting to dorsalis pedis artery through the 1st perforating branch



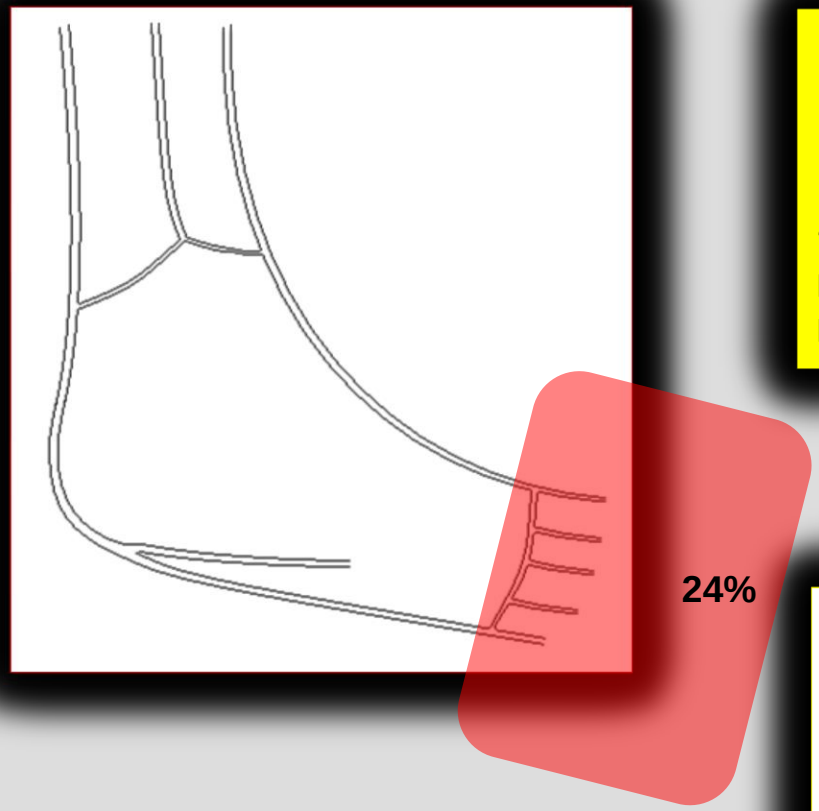
Obstructive disease distribution in a series of 1624 pts with CLI (RTF 5-6)

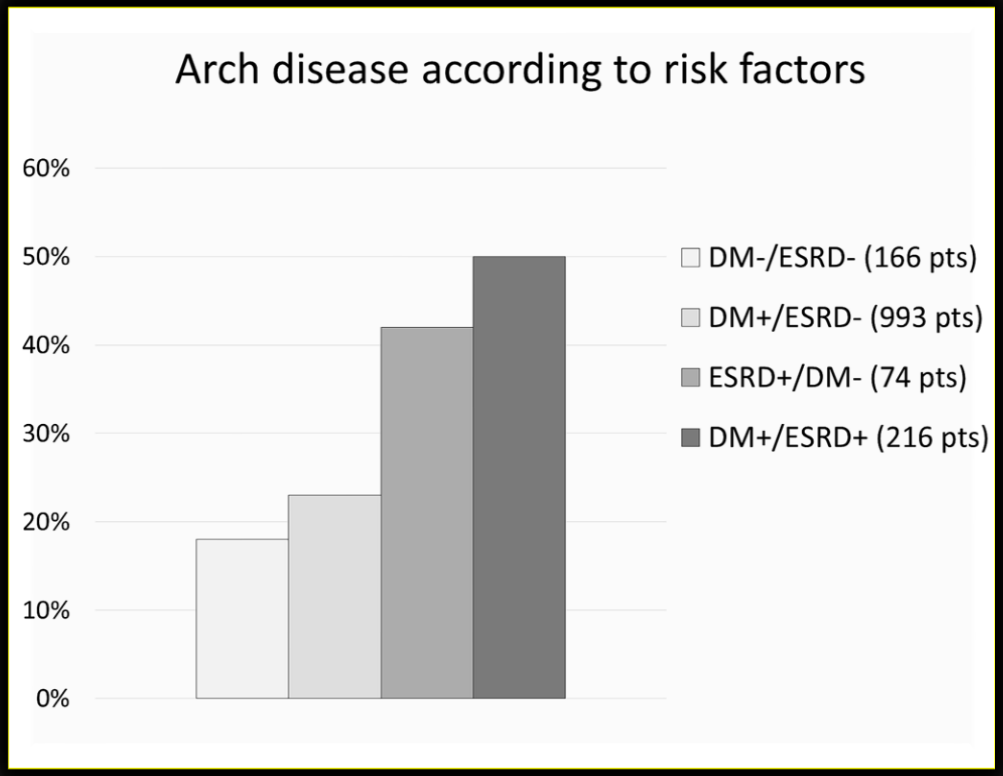
"Below the Ankle Peripheral Artery Disease" Ferraresi R et Al PanVascular Medicine II edition, Lanzer P ed, Springer-Verlag, Heidelberg, 2014

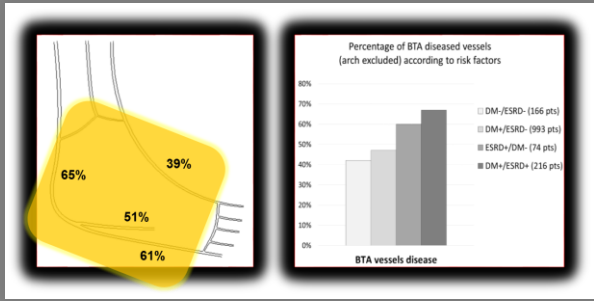


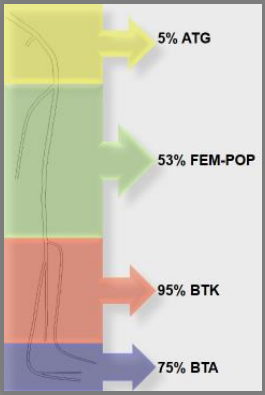
Obstructive disease distribution in a series of 1624 pts with CLI (RTF 5-6)

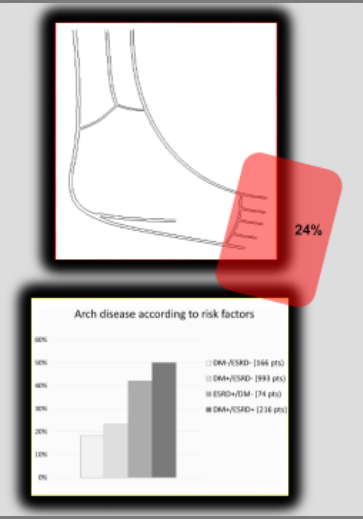
"Below the Ankle Peripheral Artery Disease" Ferraresi R et Al PanVascular Medicine II edition, Lanzer P ed, Springer-Verlag, Heidelberg, 2014











1° Conclusion:

BTA disease: prevalence & risk factors

1. **Foot vessel disease is present in >70% of patients with CLI**

2. **Foot vessel disease is particularly represented in DM-ESRD pts**

The role of foot vessels in CLI

1. Foot vessel disease: prevalence & risk factors
2. Role of foot vessel disease in CLI: innocent bystander or leading actor?
3. Treatable non-calcified foot vessel occlusive disease
4. Untreatable calcified foot vessel occlusive disease: what can we do?

Disease distribution in a series of 1915 with PAD and a ***complete angiographic study of foot vessels***

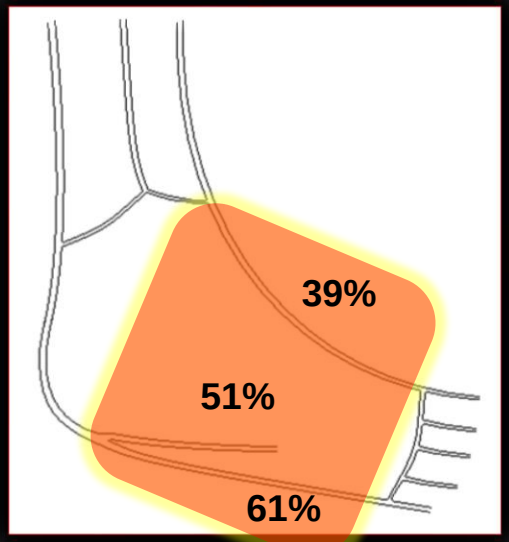
PAD symptoms	*N°*	*%*
Asymptomatic	6	0.3
Claudication	177	9.2
Ischemic Rest Pain	90	4.7
Ulceration or Gangrene	1642	85.7
Total	1915	100

"Below-the-ankle vessel disease in CLI patients: innocent bystander or leading actor?" Ferraresi R et Al, submitted for publication 2015

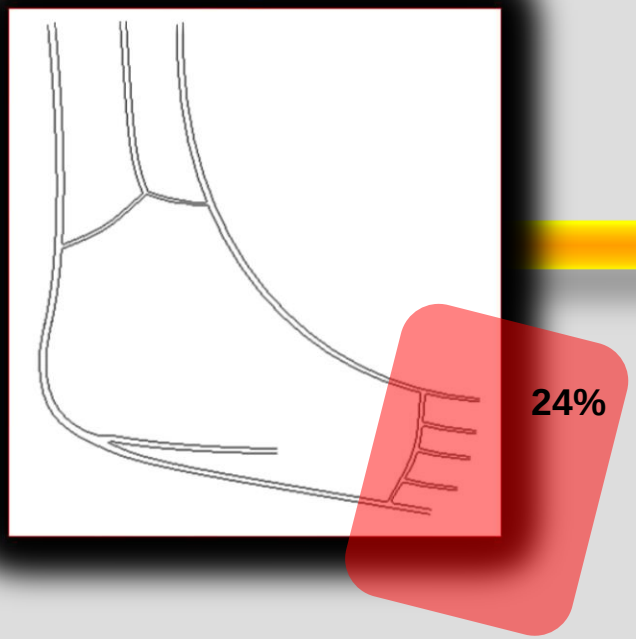
Risk Factor for CLI	OR (p)
Above the ankle vessel disease	1,20 (<.05)
Foot vessel disease (arch excluded)	1,58 (<.05)
Arch = small vessel disease	7,83 (<.01)

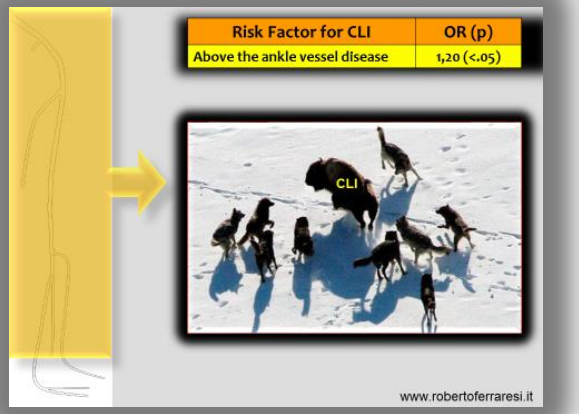
Risk Factor for CLI	OR (p)
Above the ankle vessel disease	1,20 (<.05)

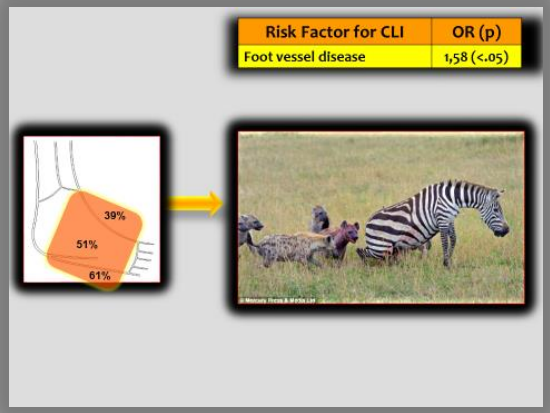
Risk Factor for CLI	OR (p)
Foot vessel disease	1,58 (<.05)

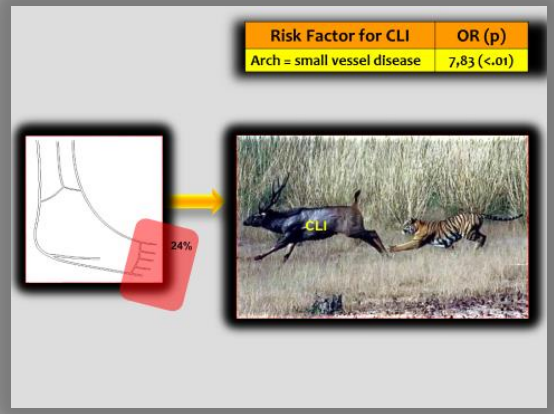


Risk Factor for CLI	OR (p)
Arch = small vessel disease	7,83 (<.01)









2° Conclusion:

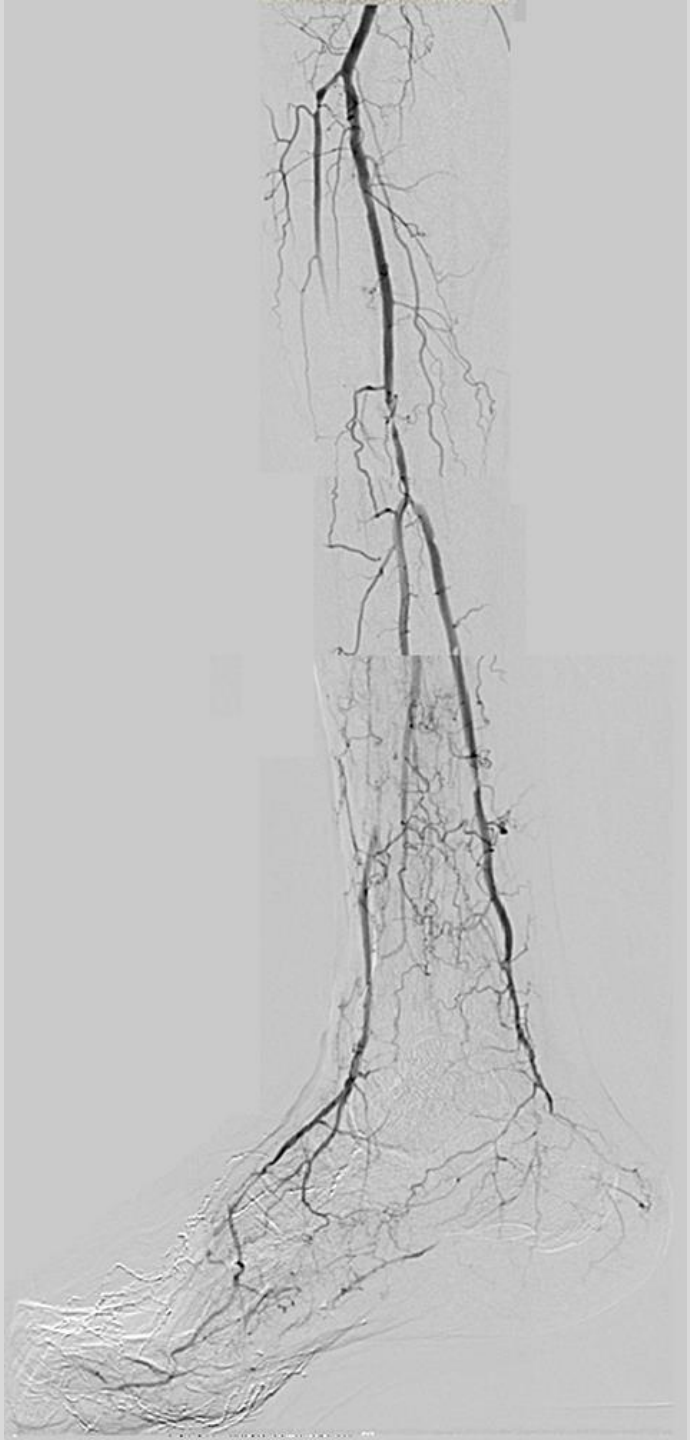
Role of foot vessel disease in CLI: innocent bystander or leading actor?

1. **The disease of every above-the-ankle vessel segment has a weak association with CLI: we need many of them to get CLI**

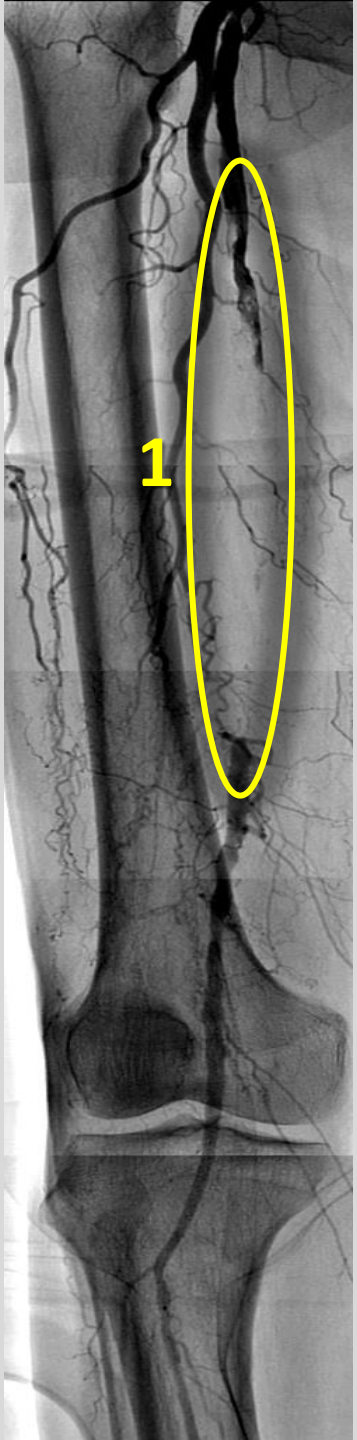
2. **Foot vessel disease has the strongest association with CLI, particularly the small vessel disease of the arch *(the tiger of CLI!)***

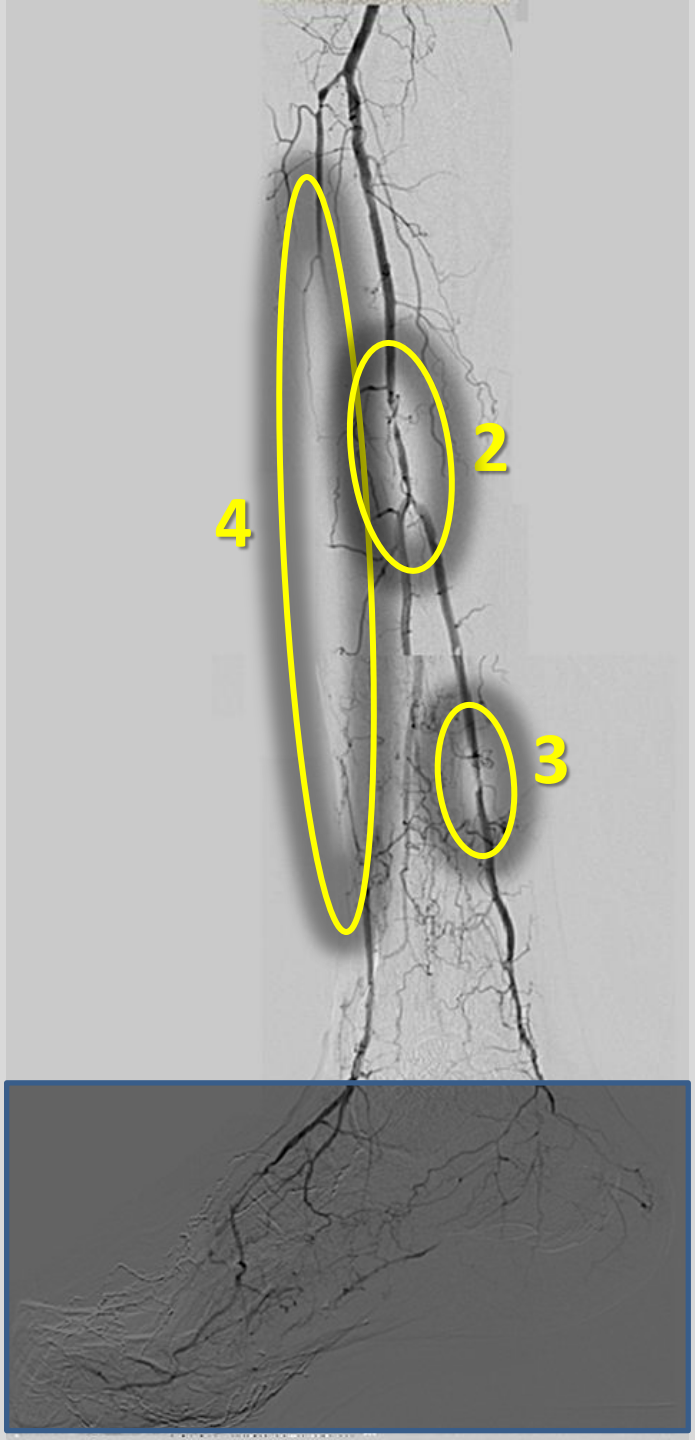
The role of foot vessels in CLI

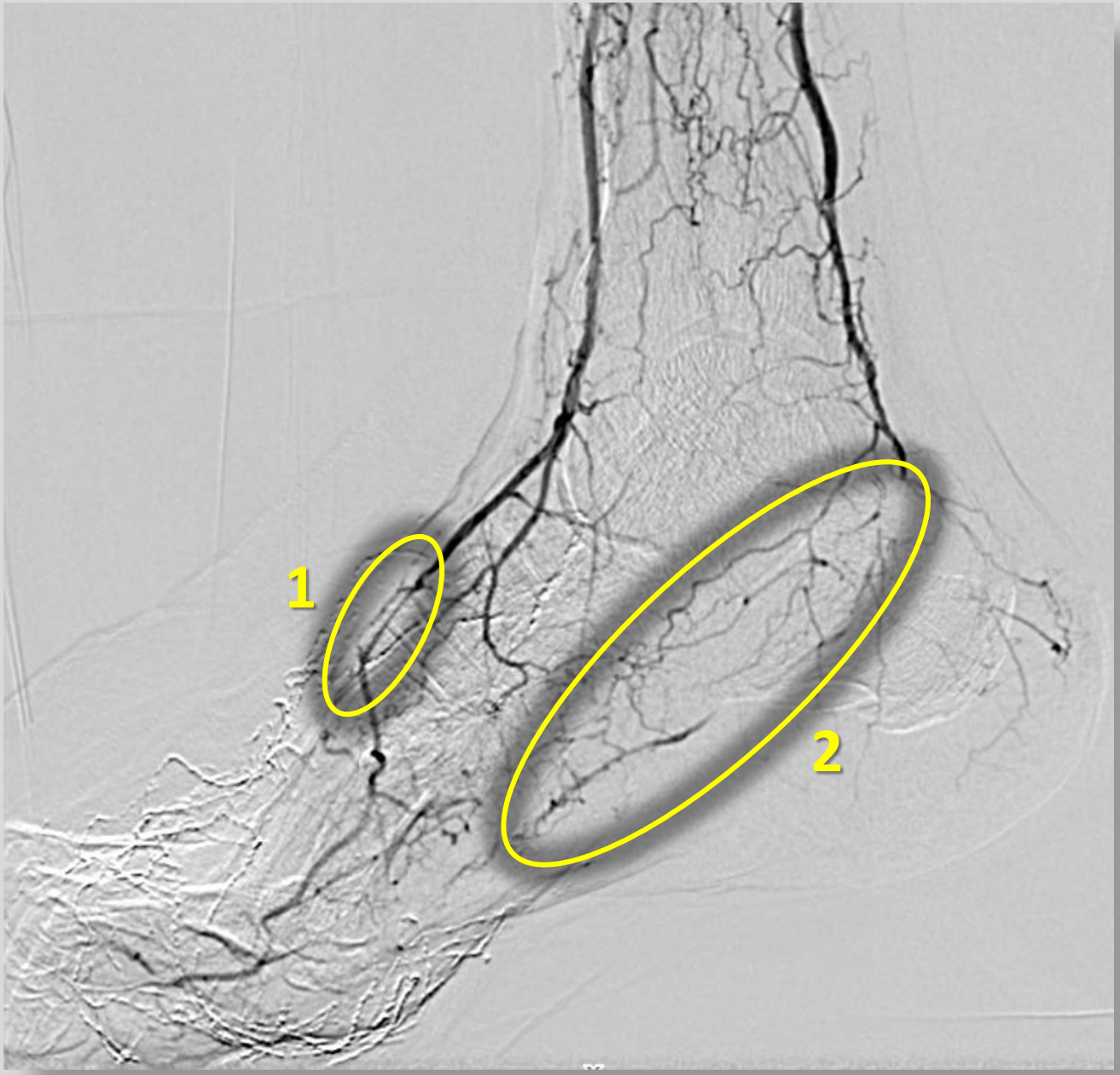
1. Foot vessel disease: prevalence & risk factors
2. Role of foot vessel disease in CLI: innocent bystander or leading actor?
3. Treatable non-calcified foot vessel occlusive disease
4. Untreatable calcified foot vessel occlusive disease: what can we do?



Above the ankle vessel disease

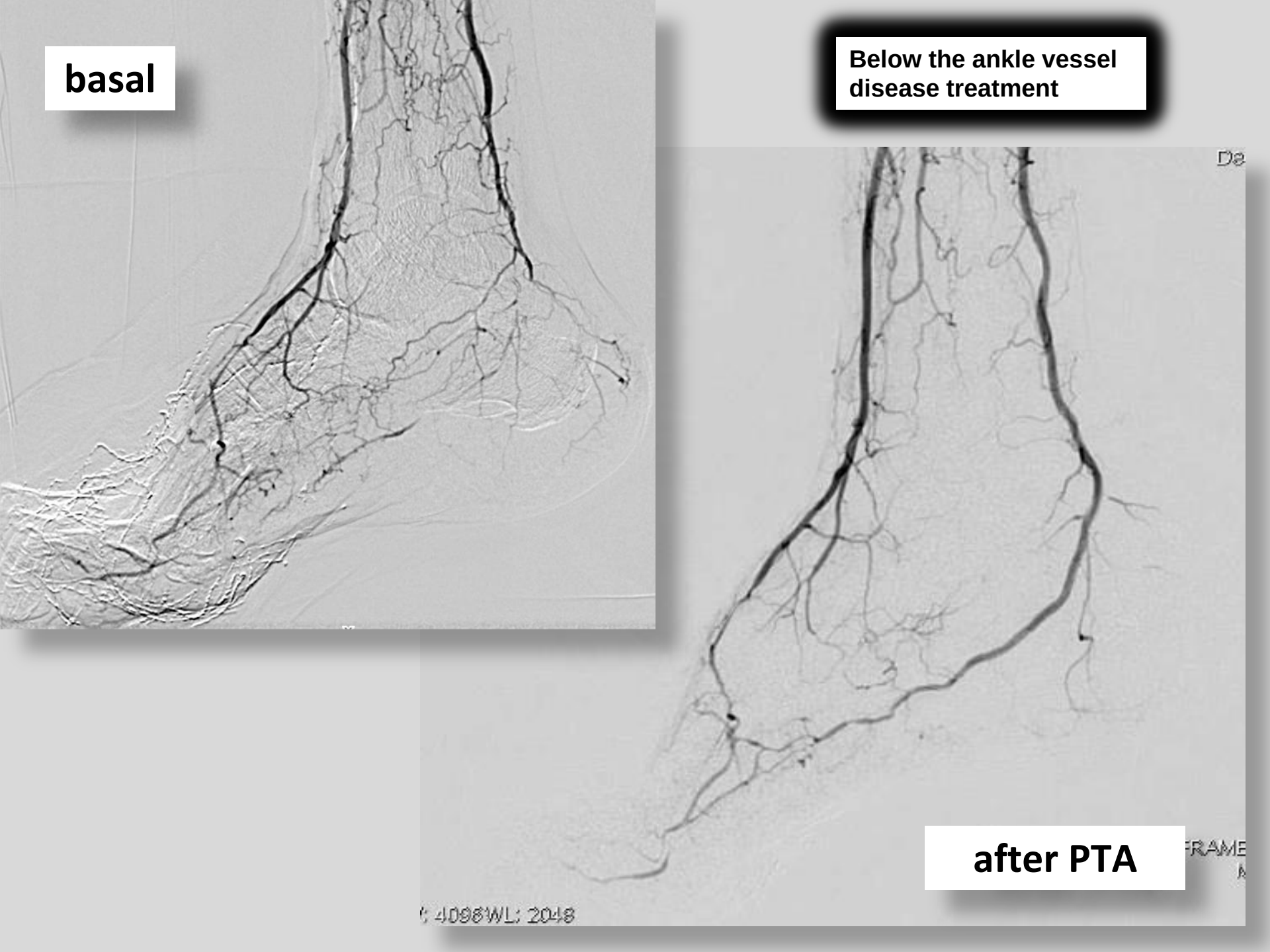






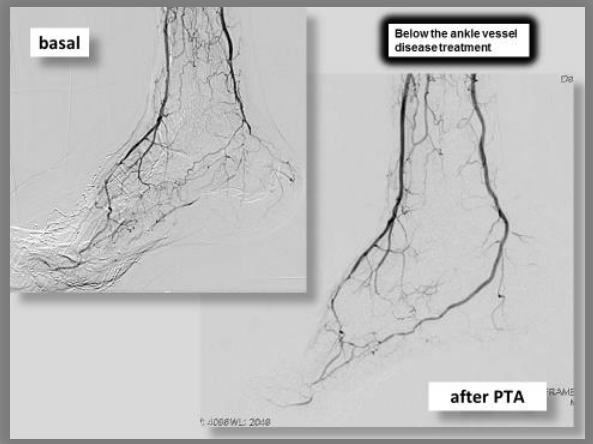
Below the ankle vessel disease

Above the ankle vessel disease treatment


basal
Below the ankle vessel disease treatment
after PTA

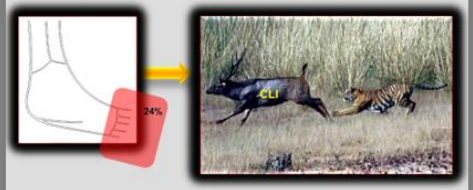
Direct blood flow on the dorsal and plantar side of the foot

6 months later



Risk Factor for CLI	OR (p)
Foot vessel disease	1,58 (<.05)

Risk Factor for CLI	OR (p)
Arch = small vessel disease	7,83 (<.01)



3° Conclusion:

Treatable non-calcified foot vessel disease

In my opinion we cannot treat CLI without considering and facing in every patient foot vessel disease

The role of foot vessels in CLI

1. Foot vessel disease: prevalence & risk factors
2. Role of foot vessel disease in CLI: innocent bystander or leading actor?
3. Treatable non-calcified foot vessel occlusive disease
4. Untreatable calcified foot vessel occlusive disease: what can we do?

Meta-analysis of the Clinical Effectiveness of Venous Arterialization for Salvage of Critically Ischaemic Limbs

X.W. Lu,[1] M.M. Idu,[1] D.T. Ubbink[1,2] and D.A. Legemate[1*]

Eur J Vasc Endovasc Surg **31**, 493–499 (2006)

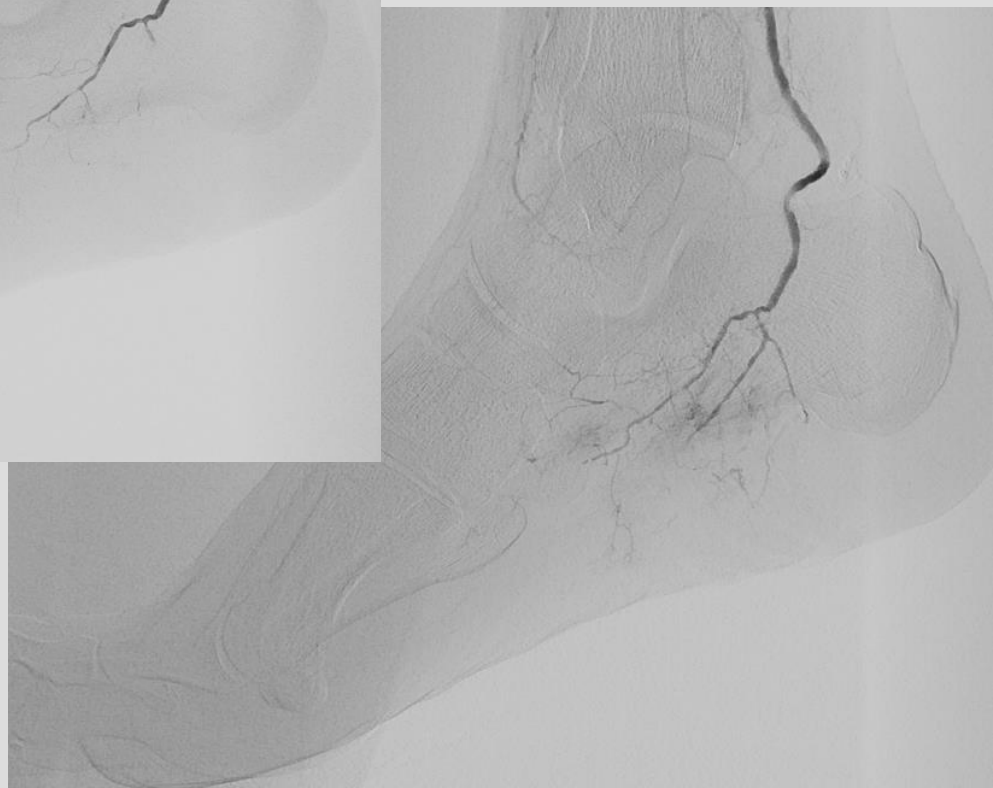
Objective. The aim of this study is to assess the clinical effectiveness of venous arterialization in patients with critical limb ischaemia not reconstructable by conventional bypass.

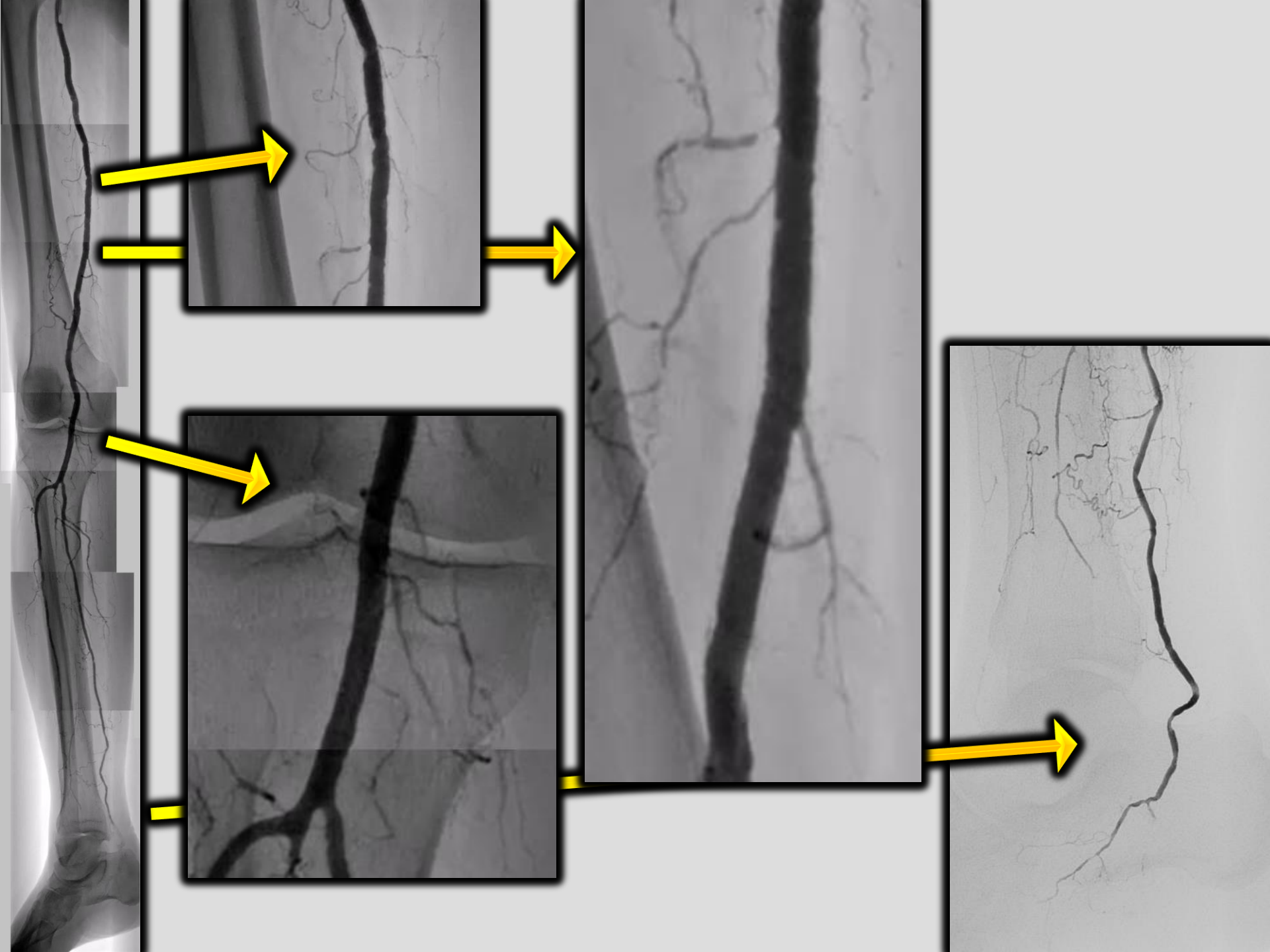
Design. Meta-analysis of observational studies.

Results. A total of 56 studies were selected. No RCTs were identified. Seven patient series, comprising 228 patients, matched the selection criteria. Overall 1-year foot preservation was 71% (95% CI: 64–77%) and 1-year secondary patency was 46% (95% CI: 39–53%). The large majority of patients in whom major amputation was avoided experienced successful wound healing, disappearance of rest pain and absence of serious complications.

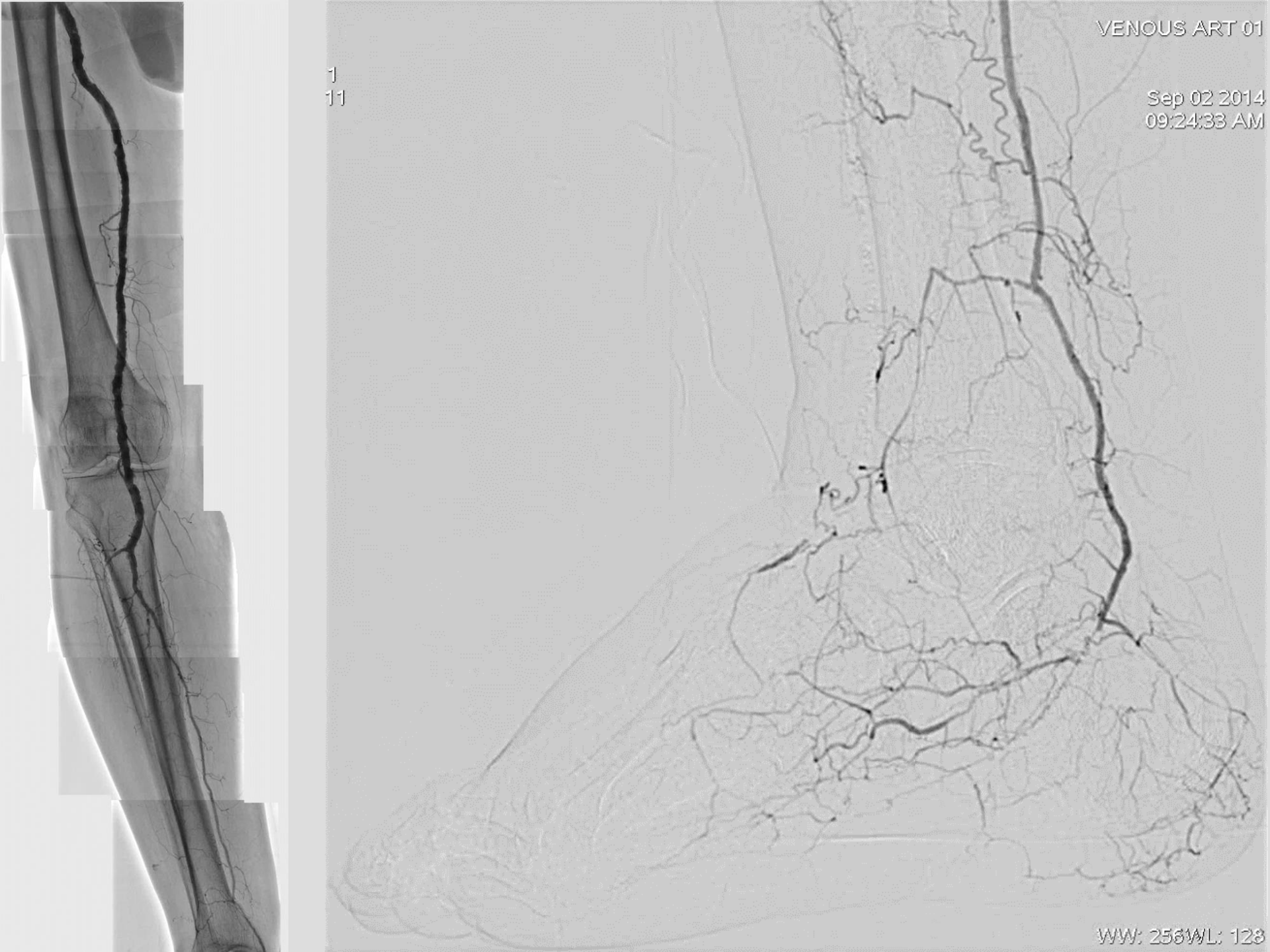
Conclusion: on the basis of limited evidence, venous arterialization may be considered as a viable alternative before major amputation is undertaken in patients with ‘inoperable’ chronic critical leg ischaemia.

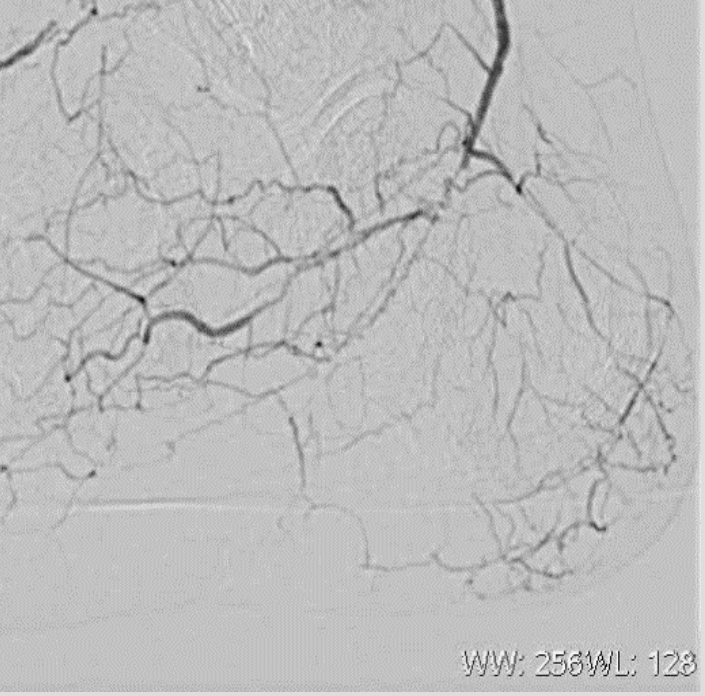
Patient 1

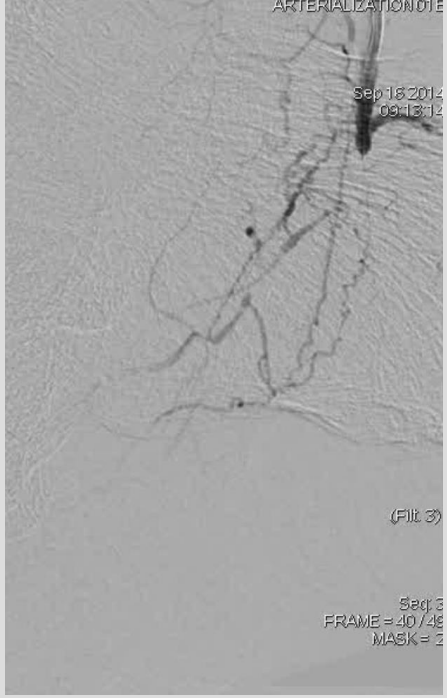


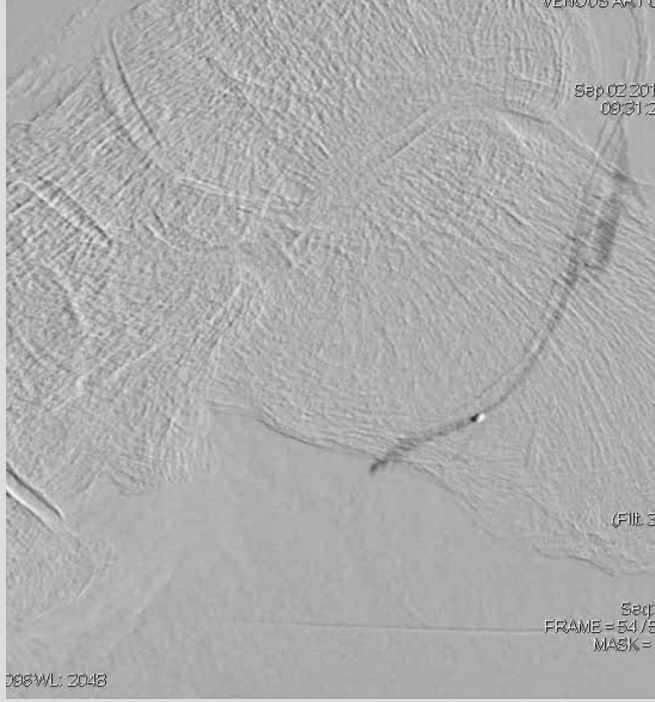


Patient 2


VENOUS ART 01
1
11
Sep 02 2014
09:24:33 AM
WW: 256WL: 128

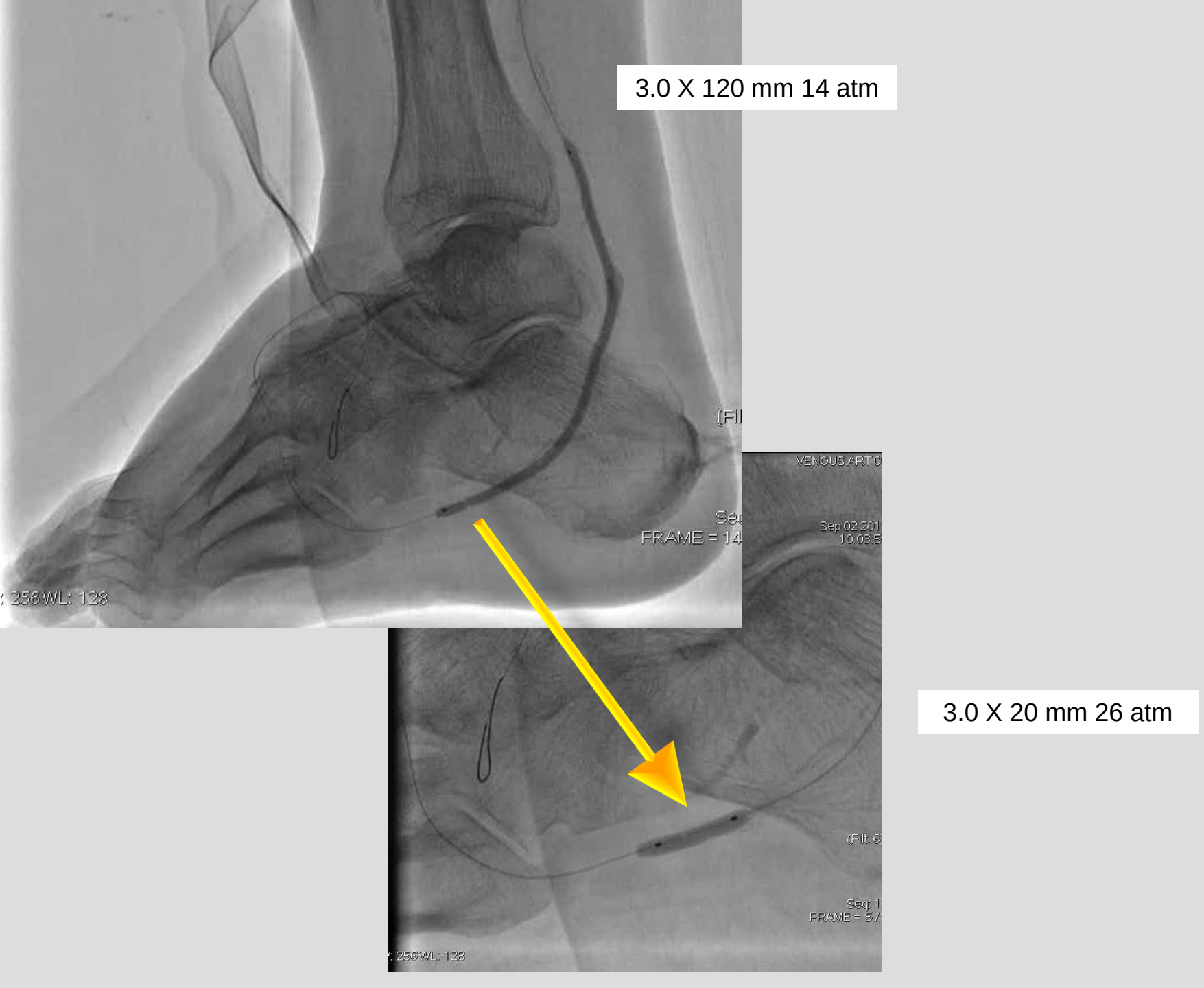

WW: 256WL: 128

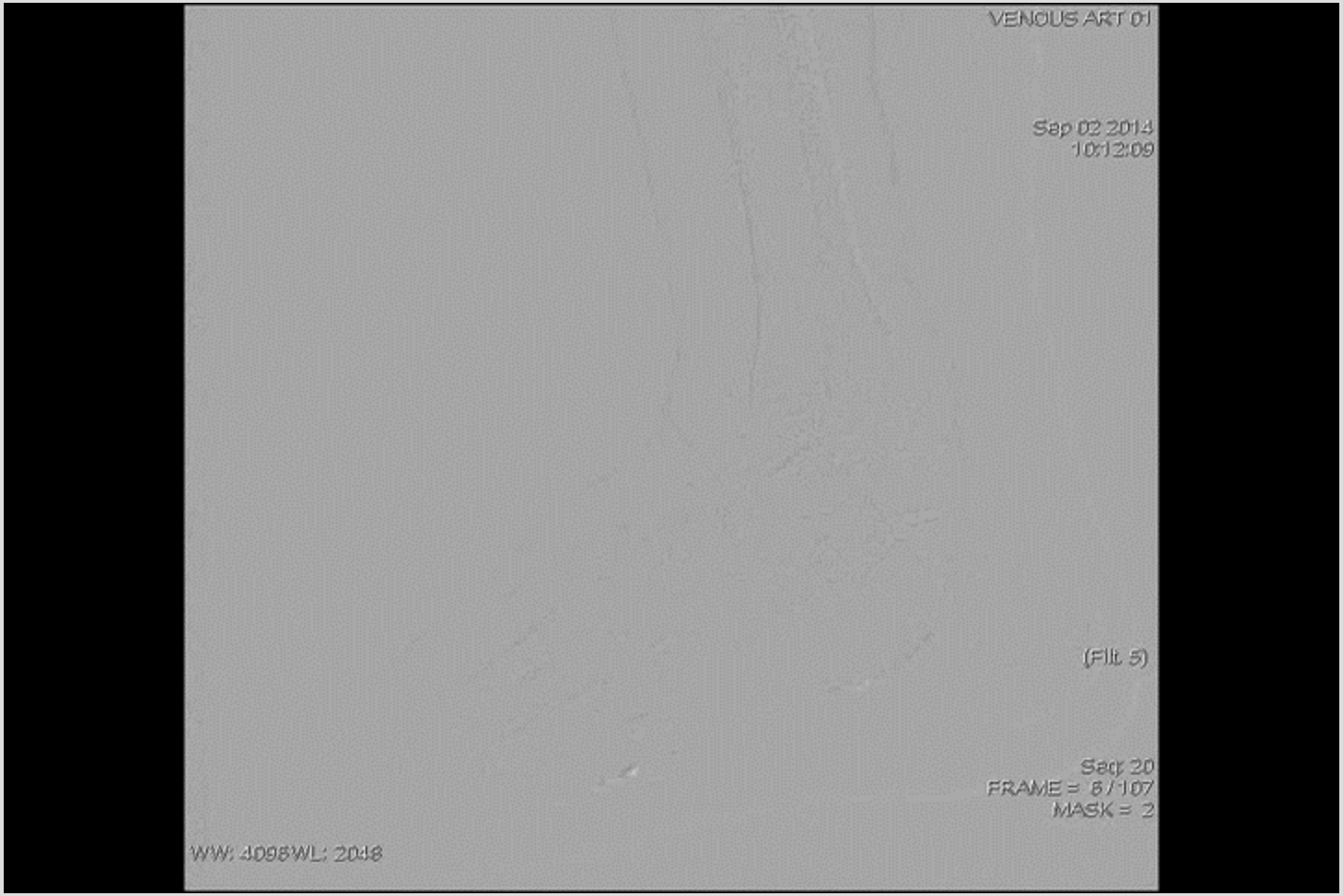

ARTERIALIZATION DE
Sep 18 2014
09:13:12
(Filt. 3)

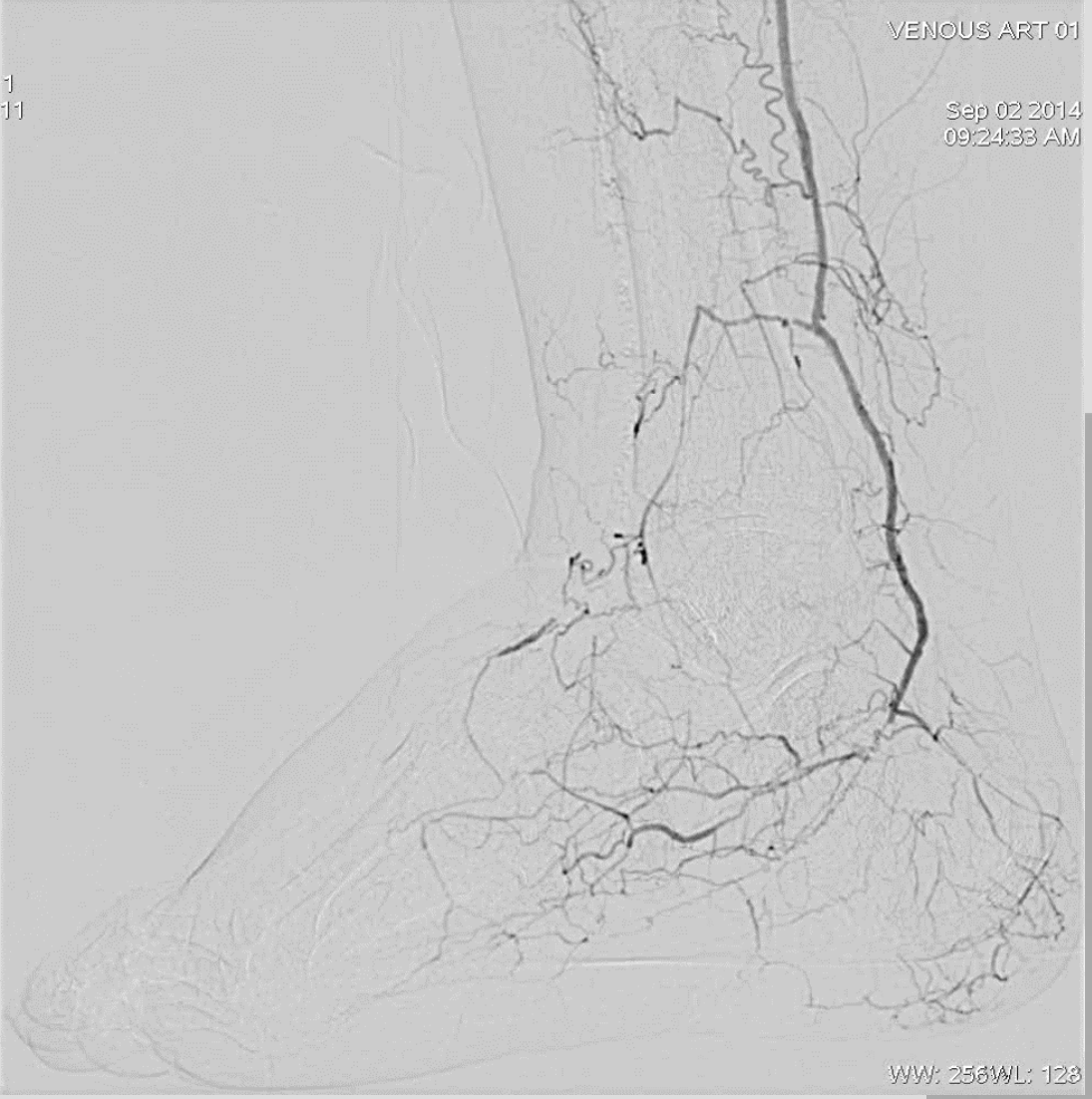

VENOUS ART
Sep 02 201
09:31:2
(Filt. 3
Seq:
FRAME = 54 / 5
MASK =
096WL: 2048

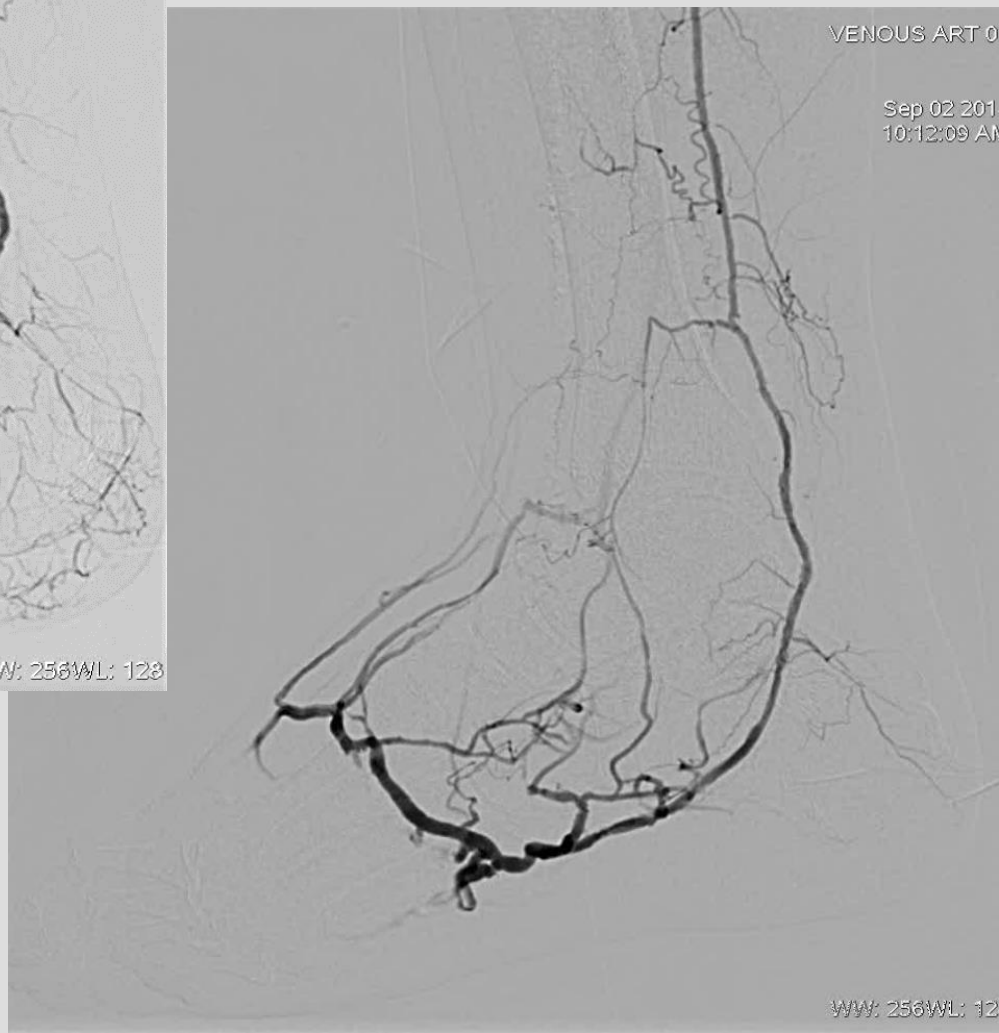

Sep 02 201
09:33:3
(Filt. 6
Seq:
FRAME = 19 / 8
L: 128


VENOUS ART 01
Sep 02 2014
09:34:06
(Filt. 6)
Seq: 7
FRAME = 25 / 27
56WL: 128


3.0 X 120 mm 14 atm
3.0 X 20 mm 26 atm

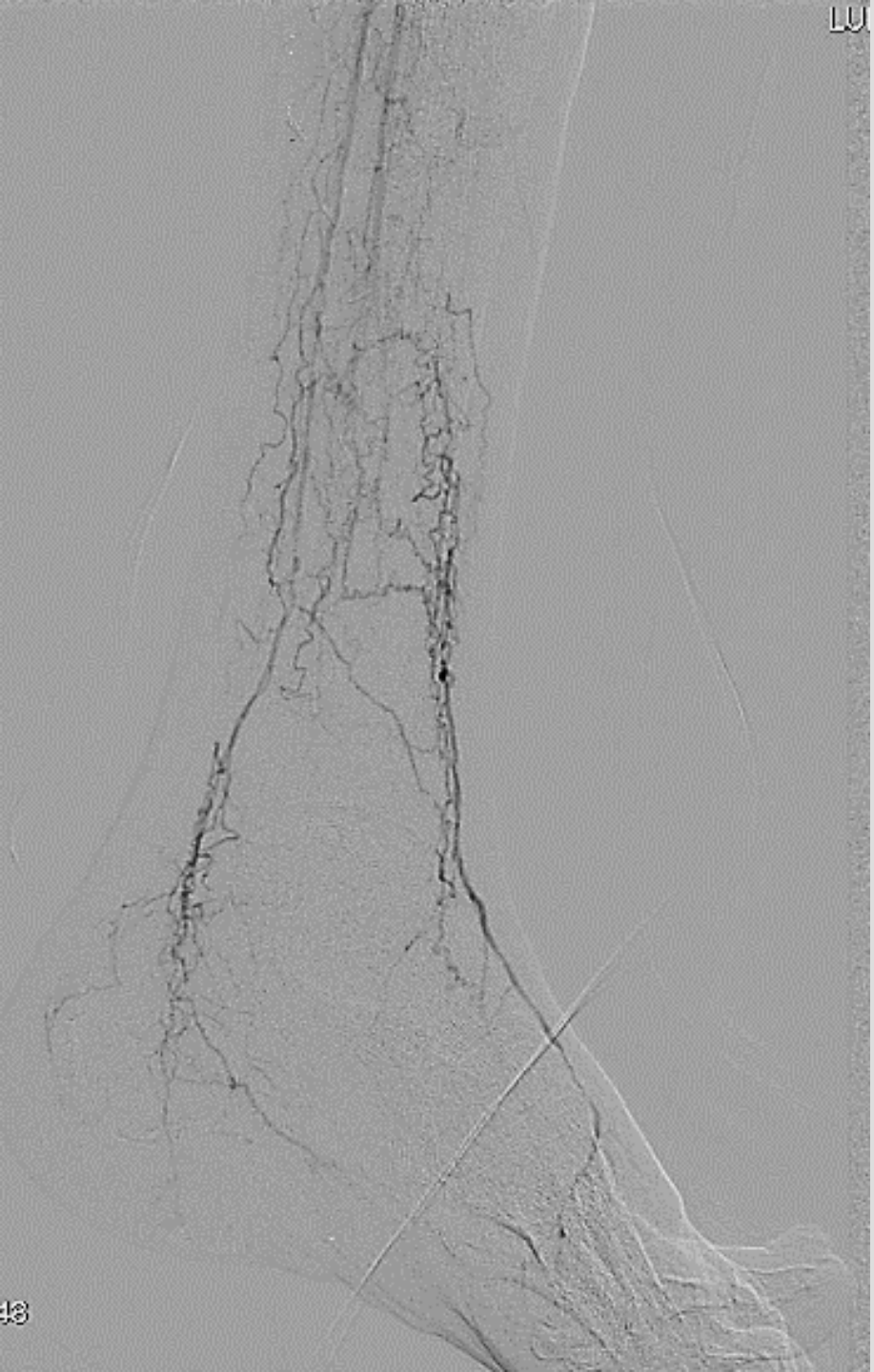

VENOUS ART 01
Sep 02 2014
10:12:09
(Flt 5)
Seq: 20
FRAME = 6 / 107
MASK = 2
WW: 4096WL: 2048


VENOUS ART 01
Sep 02 2014
09:24:33 AM
WW: 256WL: 128

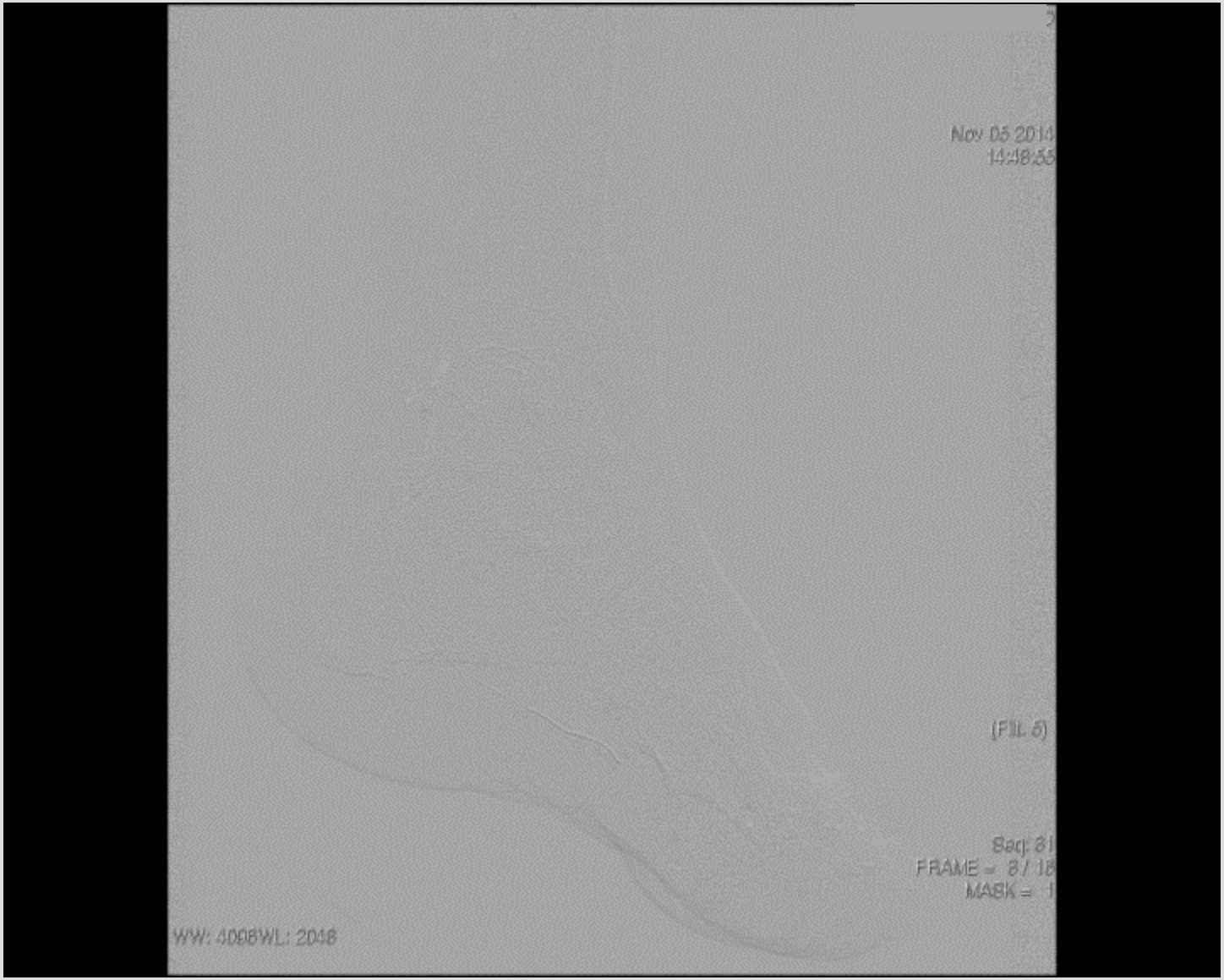

VENOUS ART 0
Sep 02 201
10:12:09 A
WW: 256WL: 12

Patient 3

Courtesy Dr. Cesare Massa Saluzzo
Pavia - Italy

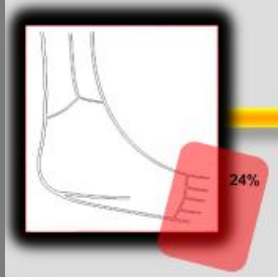


Courtesy Dr. Cesare Massa Saluzzo
Pavia - Italy



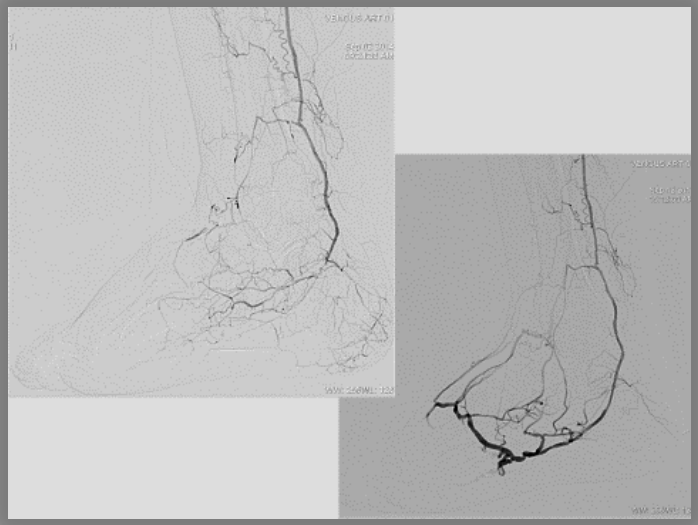
Courtesy Dr. Cesare Massa Saluzzo
Pavia - Italy

Risk Factor for CLI	OR (p)
Arch = small vessel disease	7,83 (<.01)



4° Conclusion:

Untreatable calcified foot disease



In my opinion the arterialization of the venous system of the foot is the only hope that we have today for limb salvage in CLI patients with the calcific small vessel disease of the arch *(the tiger of CLI!).*

But we need more studies….