



Desert foot

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HUMANITAS
GAVAZZENI

Vincenzo Foppa, 1462
“The miracle of the salvaged foot”
Cappella Portinari, S. Eustorgio Church
Milan, Italy

3 Small artery disease in critical limb ischemia: innocent bystander or leading actor?

Roberto Ferraresi, Roberto Nerla, Fabrizio Losurdo, Dorian Ferrara, Antonietta Cucci, Andrea Casini, Maurizio Caminiti, Giacomo Clerici

Piaggese A, Apelqvist J (eds): The Diabetic Foot Syndrome. Front Diabetes. Basel, Karger, 2018, vol 26, pp 60-69

Indications to ischemic foot revascularization

R. Ferraresi, F. Losurdo, R. Lorenzoni, M. Ferraris, M. Caminiti

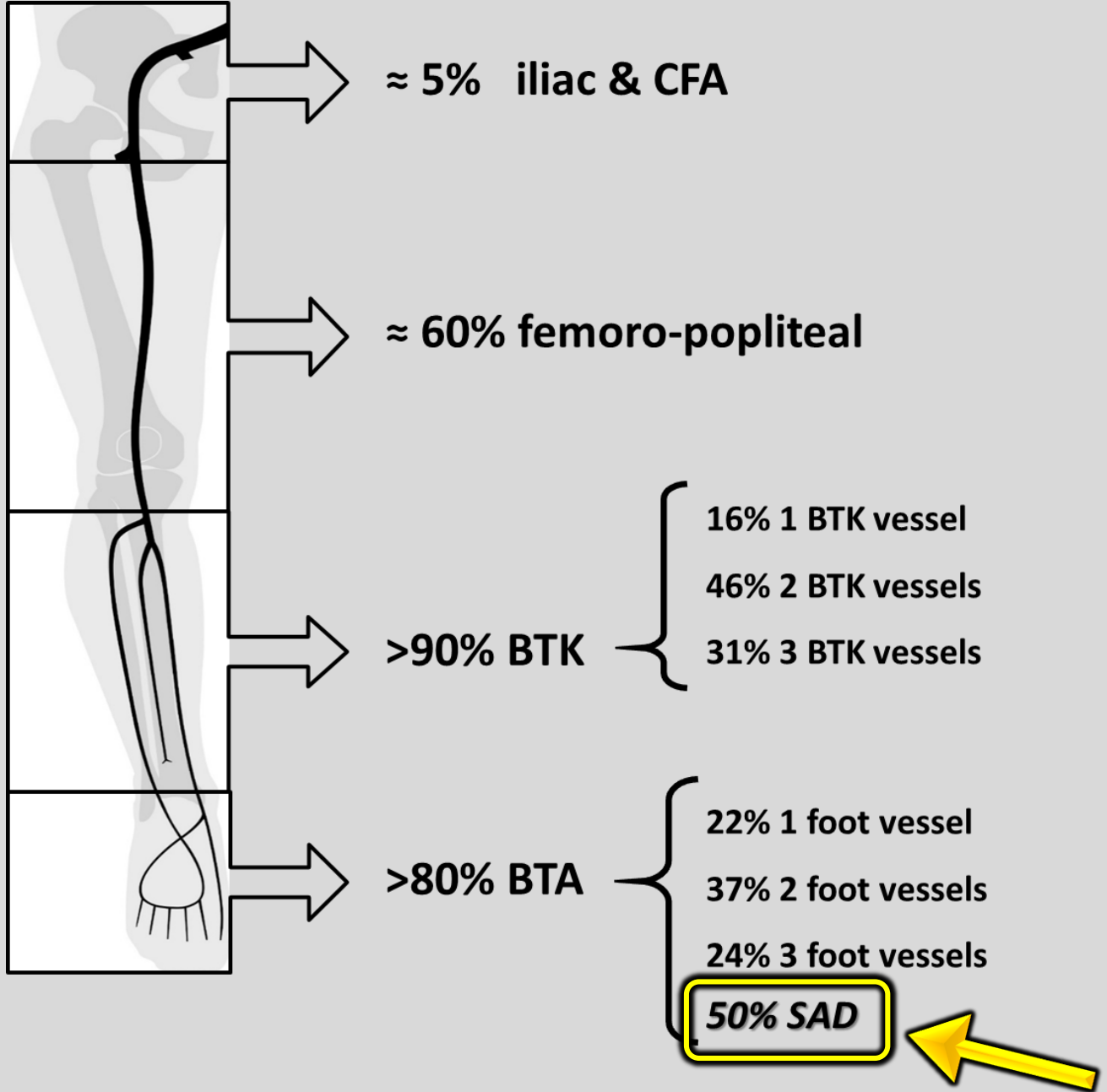
Interventional Treatment of the Below the Ankle Peripheral Artery Disease **119**

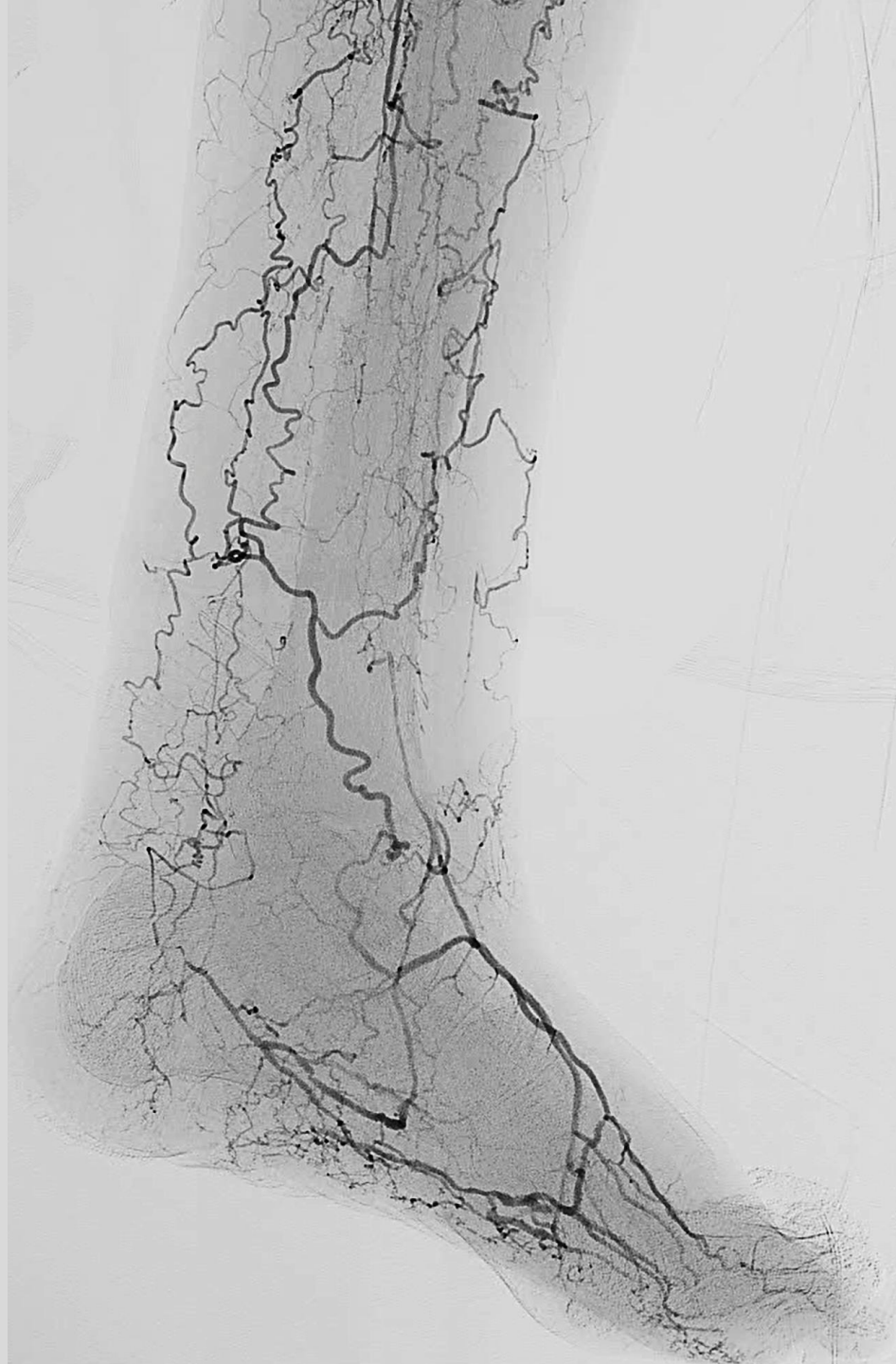
Roberto Ferraresi, Luis Mariano Palena, Giovanni Mauri, and Marco Manzi

Piaggese A, Apelqvist J (eds): The Diabetic Foot Syndrome. Front Diabetes. Basel, Karger, 2018, vol 26, pp 60-69 (DOI: 10.1159/000480046)

Diabetic Peripheral Arteriopathy: A Tale of Two Diseases

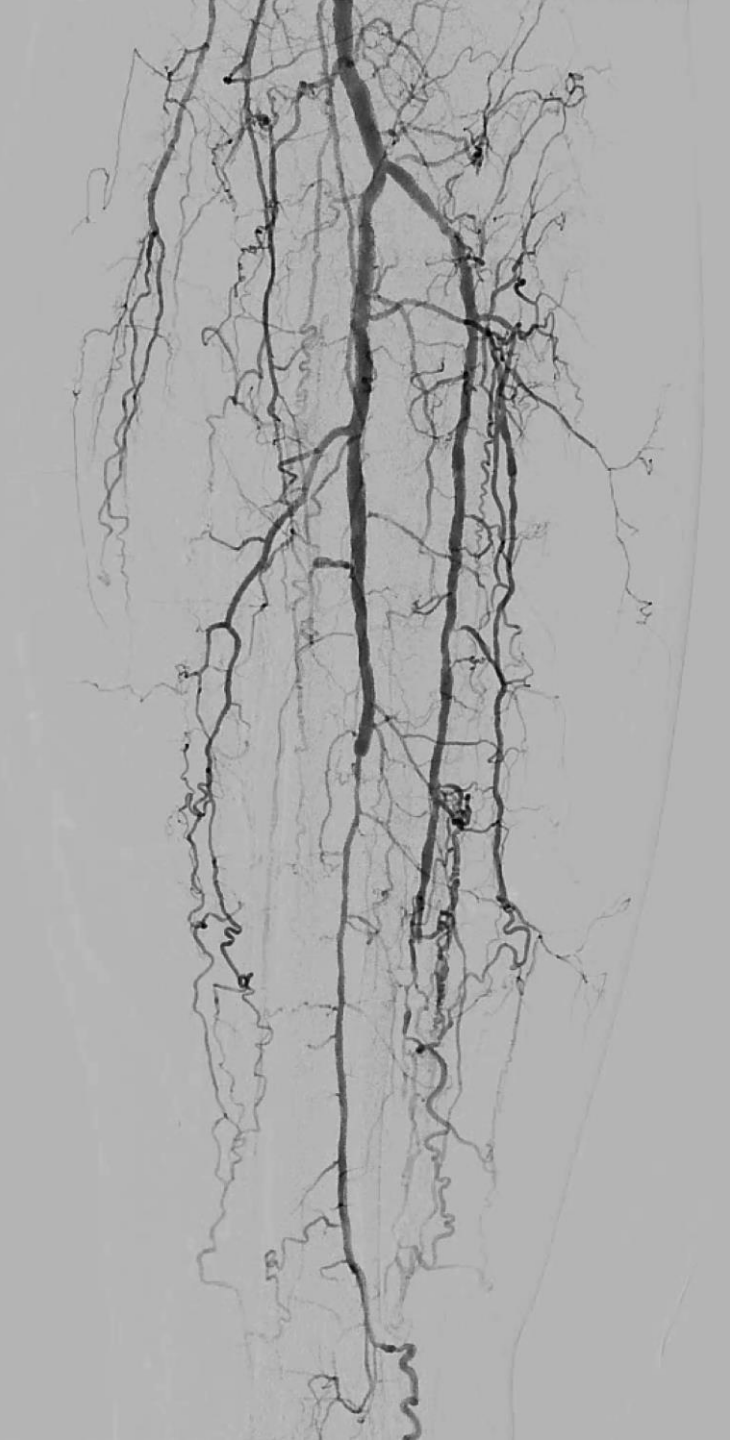
Michael E. Edmonds^a · C. Shanahan^b · Nina L. Petrova^a





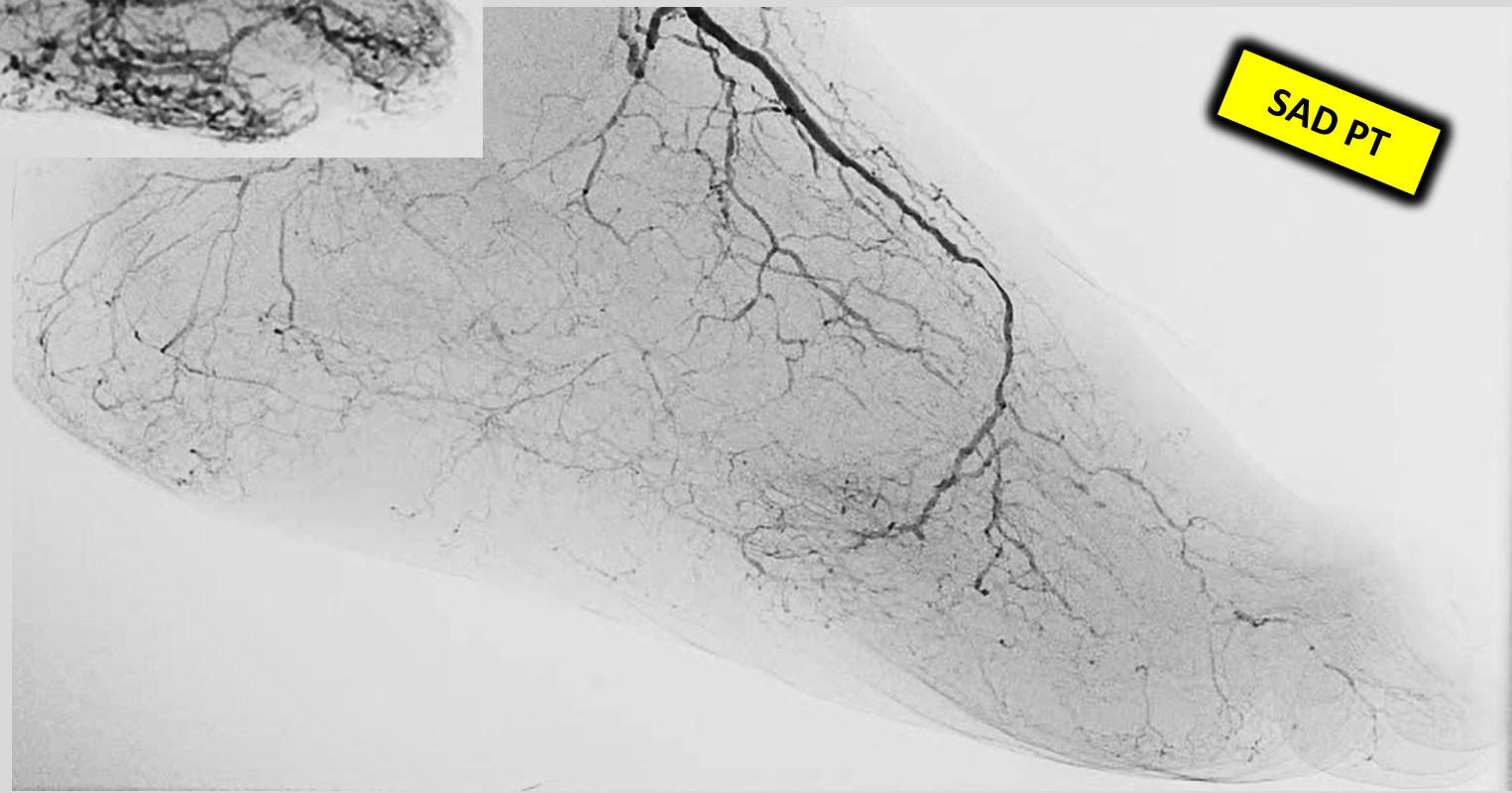
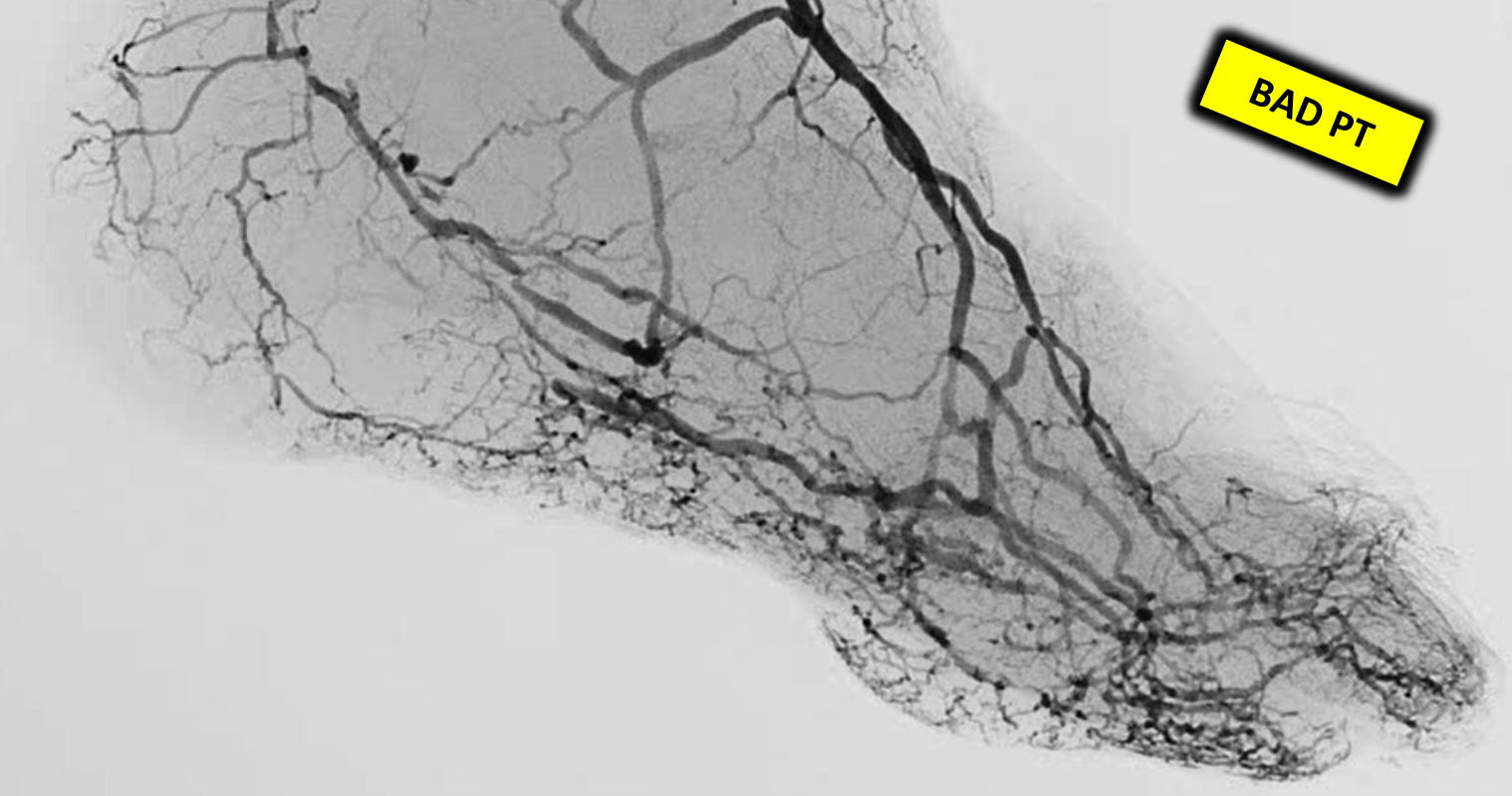
BAD PT





SAD PT



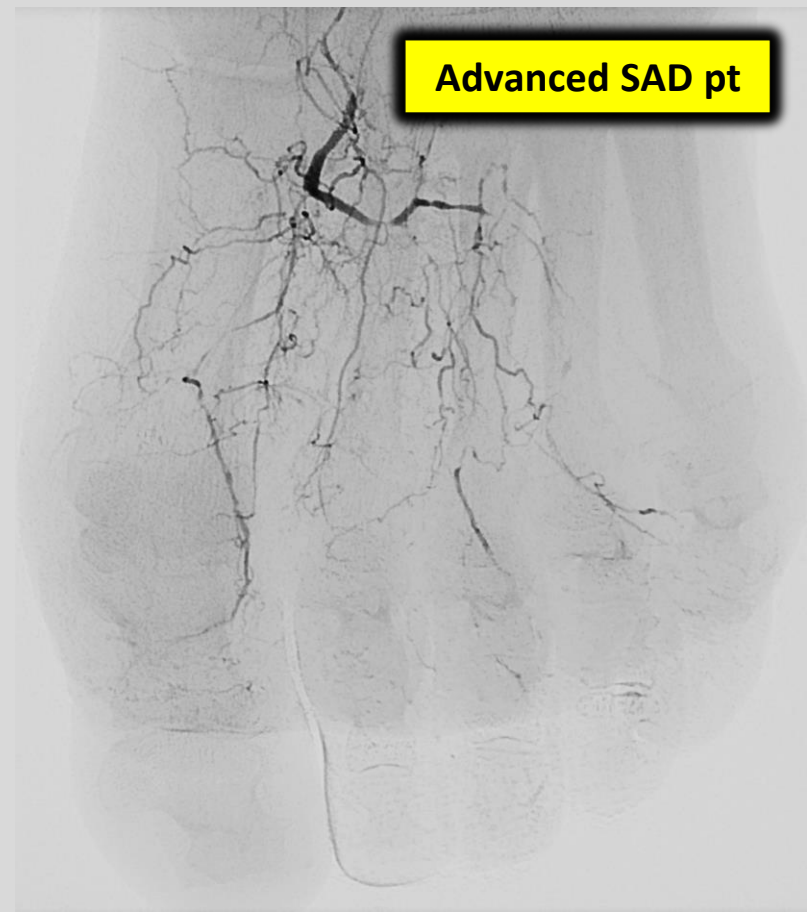
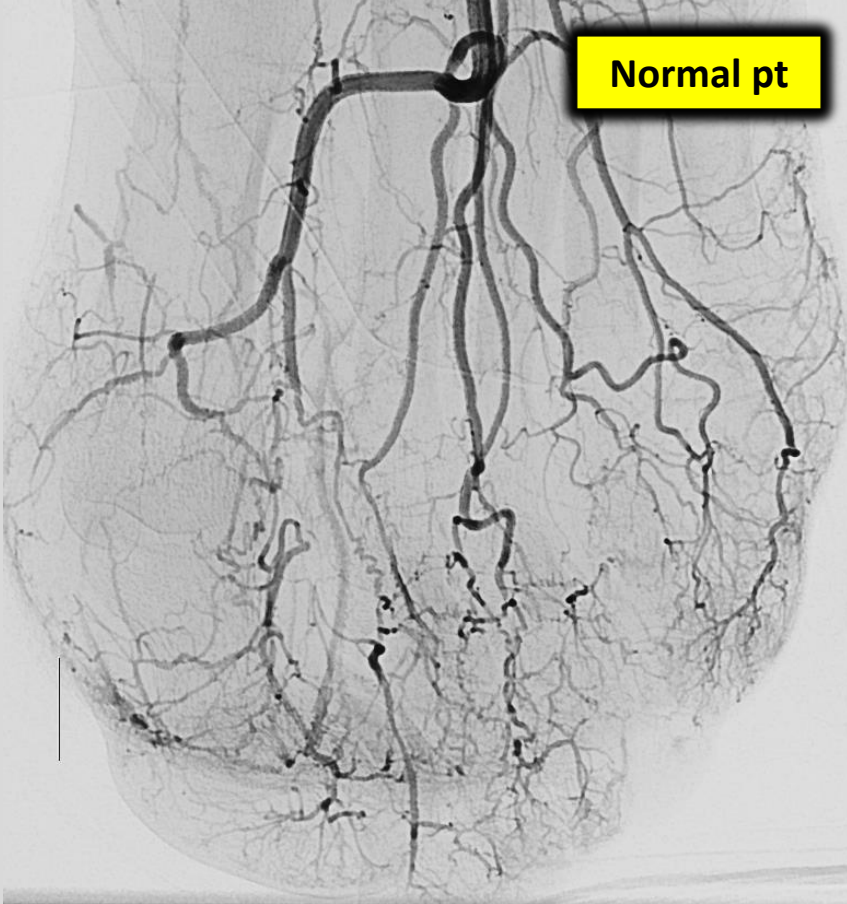


BAD PT

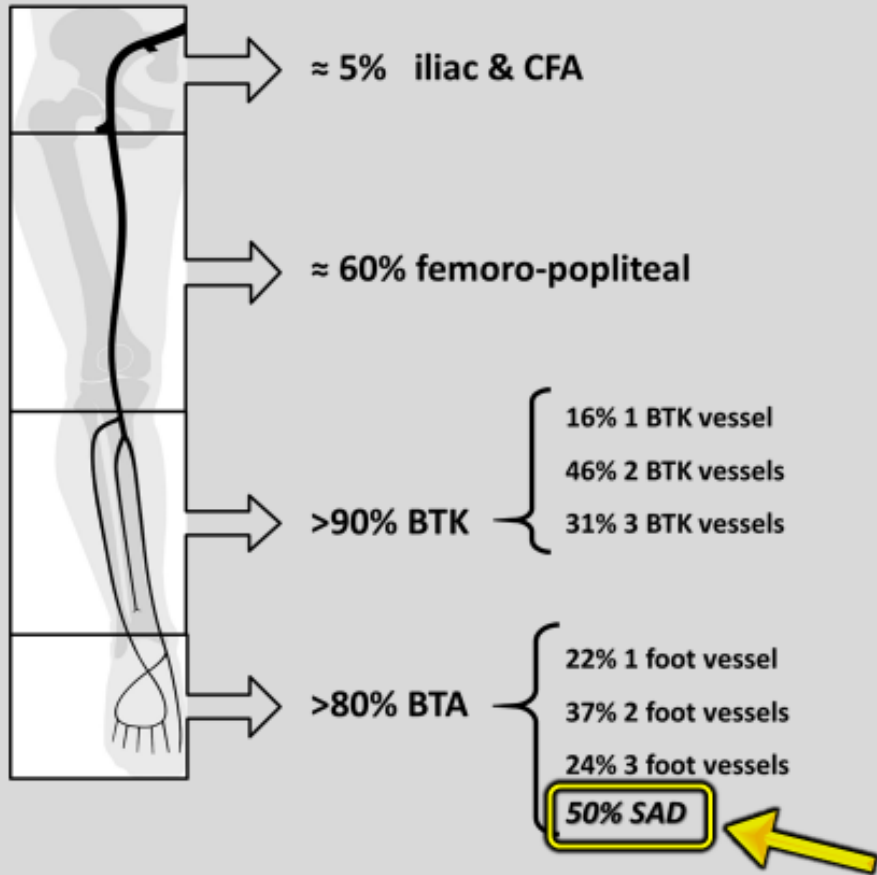


SAD PT





Who is a no-option CLI pt?



- ***A no-option CLI patient is a patient without a target foot vessel***
- ***Today SAD (desert foot) is the most common cause of no-option CLI (old/DM/ESRD)***
- ***at least 50% of CLI pts present some degree of SAD***
- ***At least 10% of CLI pts (maybe more...) present the final failure of the foot distribution system***

Percutaneous Deep Venous Arterialization

A brief technical overview of a new therapy for treating end-stage “no-option” critical limb ischemia.

BY STEVEN KUM, MD; YIH KAI TAN, MD; TJUN TANG, MD; ANDREJ SCHMIDT, MD; DIERK SCHEINERT, MD; AND ROBERTO FERRARESI, MD

Clinical Investigation

JOURNAL OF
ENDOVASCULAR
THERAPY
A SAGE PUBLICATION
ISEVS

Midterm Outcomes From a Pilot Study of Percutaneous Deep Vein Arterialization for the Treatment of No-Option Critical Limb Ischemia

Journal of Endovascular Therapy
1–8
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SAGE

Steven Kum, MBBS, FRCS¹, Yih Kai Tan, MBBS, FRCS¹, Michiel A. Schreve², Roberto Ferraresi, MD³, Ramon L. Varcoe, MBBS, FRACS, PhD^{4,5}, Andrej Schmidt, MD⁶, Dierk Scheinert, MD⁶, Jihad A. Mustapha, MD⁷, Darryl M. Lim, MBBS, FRCS¹, Derek Ho, MBBS, FRCS¹, Tjun Y. Tang, MBBS, FRCS¹, Vlad-Adrian Alexandrescu, MD⁸, and Pramook Mutirangura, MD⁹

Clinical Investigation

JOURNAL OF
ENDOVASCULAR
THERAPY
A SAGE PUBLICATION
ISEVS

Hybrid Foot Vein Arterialization in No-Option Patients With Critical Limb Ischemia: A Preliminary Report

Journal of Endovascular Therapy
1–11
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Roberto Ferraresi, MD¹, Andrea Casini, MD², Fabrizio Losurdo, MD³, Maurizio Caminiti, MD³, Alessandro Ucci, MD⁴, Matteo Longhi, MD⁵, Michiel Schreve, MD⁶, Michael Lichtenberg, MD⁷, Steven Kum, MBBS, FRCS⁸, and Giacomo Clerici, MD³

Cardiovasc Intervent Radiol
https://doi.org/10.1007/s00270-018-2020-2

CIRSE CrossMark

CLINICAL INVESTIGATION

ARTERIAL INTERVENTIONS

Percutaneous Deep Venous Arterialization for Severe Critical Limb Ischemia in Patients With No Option of Revascularization: Early Experience From Two European Centers

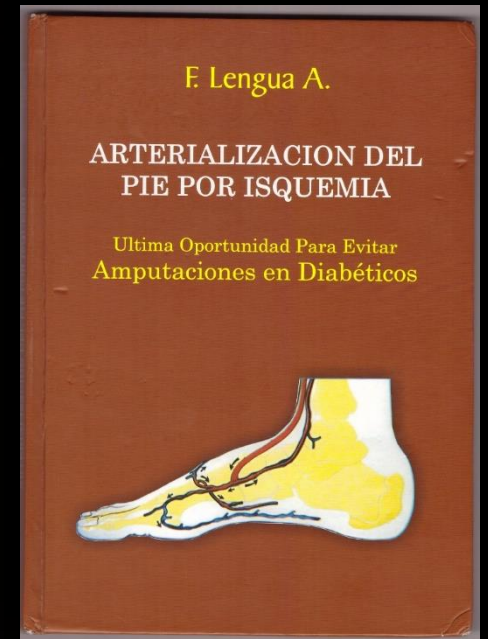
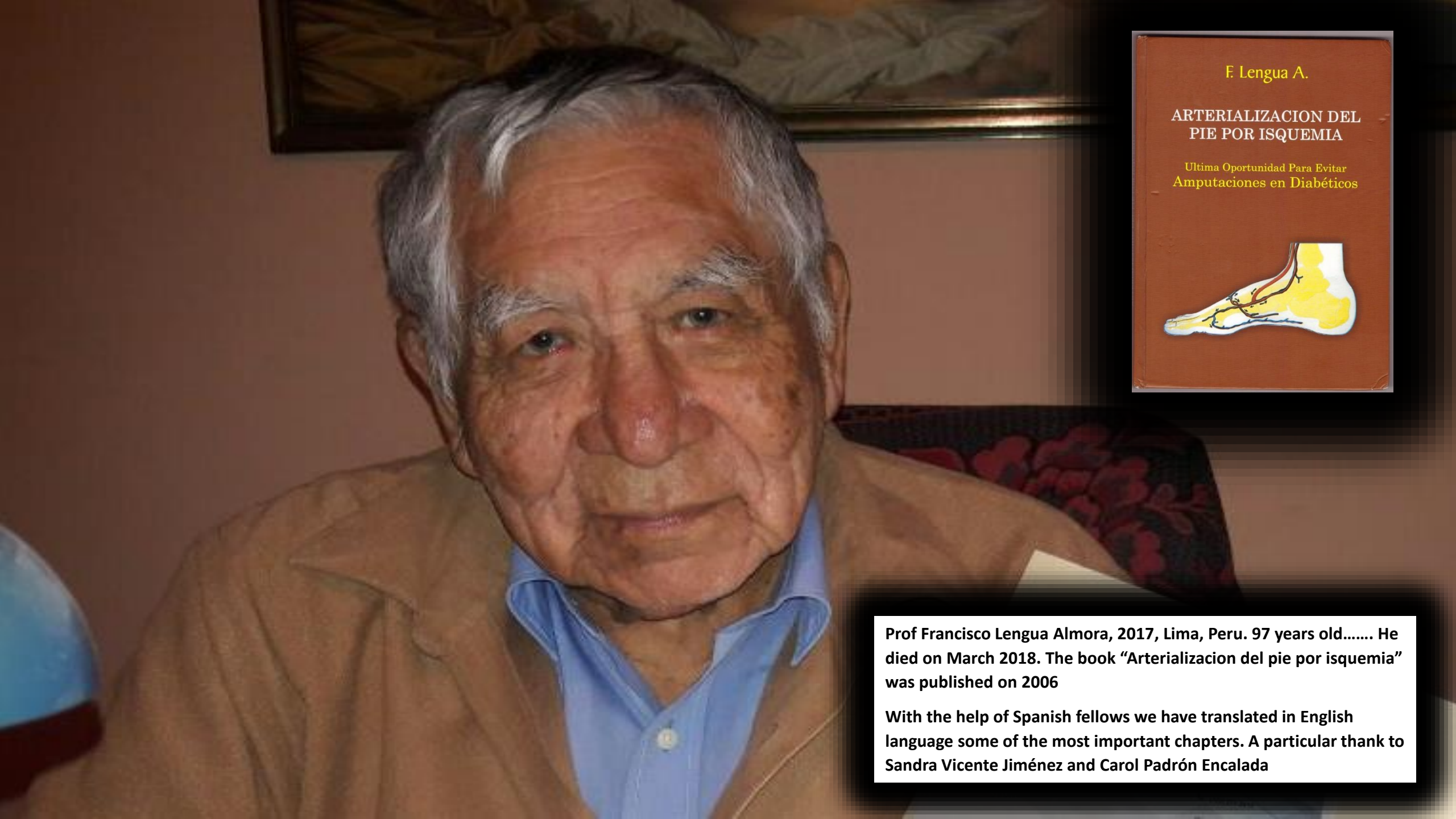
C. Del Giudice¹ · D. Van Den Heuvel² · J. Wille³ · T. Mirault⁴ · M. Messas⁴ · R. Ferraresi⁵ · S. Kum⁶ · M. Sapoval¹

Surgical and endovascular venous arterialization for treatment of critical limb ischaemia

Michael Lichtenberg¹, Michiel A. Schreve², Roberto Ferraresi³, Daniel A.F. van den Heuvel⁴, Çağdas Ünlü², Vincent Cabane⁵, and Steven Kum⁵

Interim Results of the PROMISE I Trial to Investigate the LimFlow System of Percutaneous Deep Vein Arterialization for the Treatment of Critical Limb Ischemia

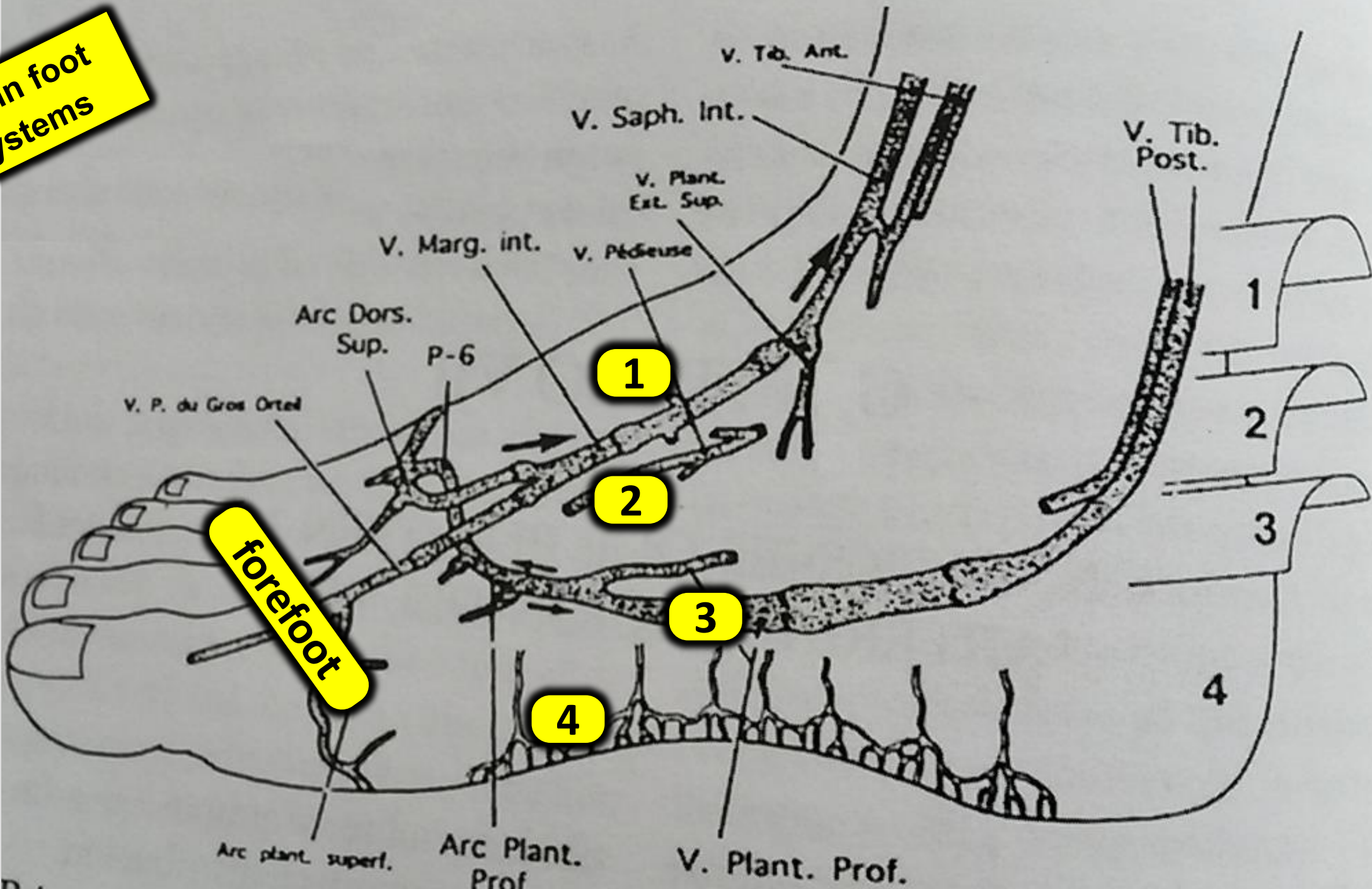
J.A. Mustapha, MD¹; Fadi A. Saab, MD¹; Daniel Clair, MD²; Peter Schneider, MD³



Prof Francisco Lengua Almora, 2017, Lima, Peru. 97 years old..... He died on March 2018. The book "Arterializacion del pie por isquemia" was published on 2006

With the help of Spanish fellows we have translated in English language some of the most important chapters. A particular thank to Sandra Vicente Jiménez and Carol Padrón Encalada

4 vein foot systems



forefoot

1

2

3

4

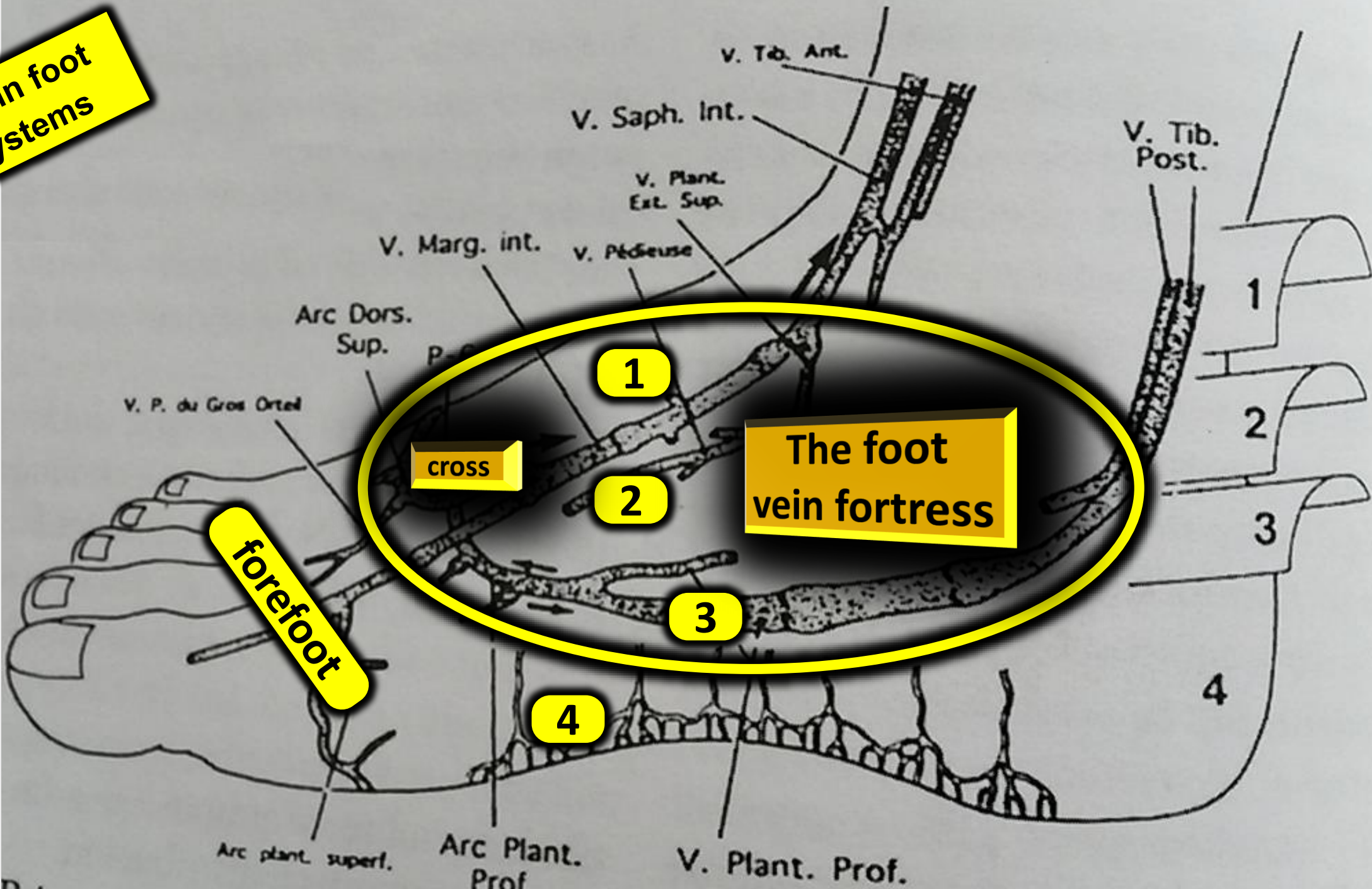
1

2

3

4

4 vein foot systems



The foot vein fortress

forefoot

cross

1

2

3

4

1

2

3

4

V. Tib. Ant.

V. Saph. Int.

V. Plant. Ext. Sup.

V. Tib. Post.

V. Marg. int.

V. Pédiéuse

Arc Dors. Sup.

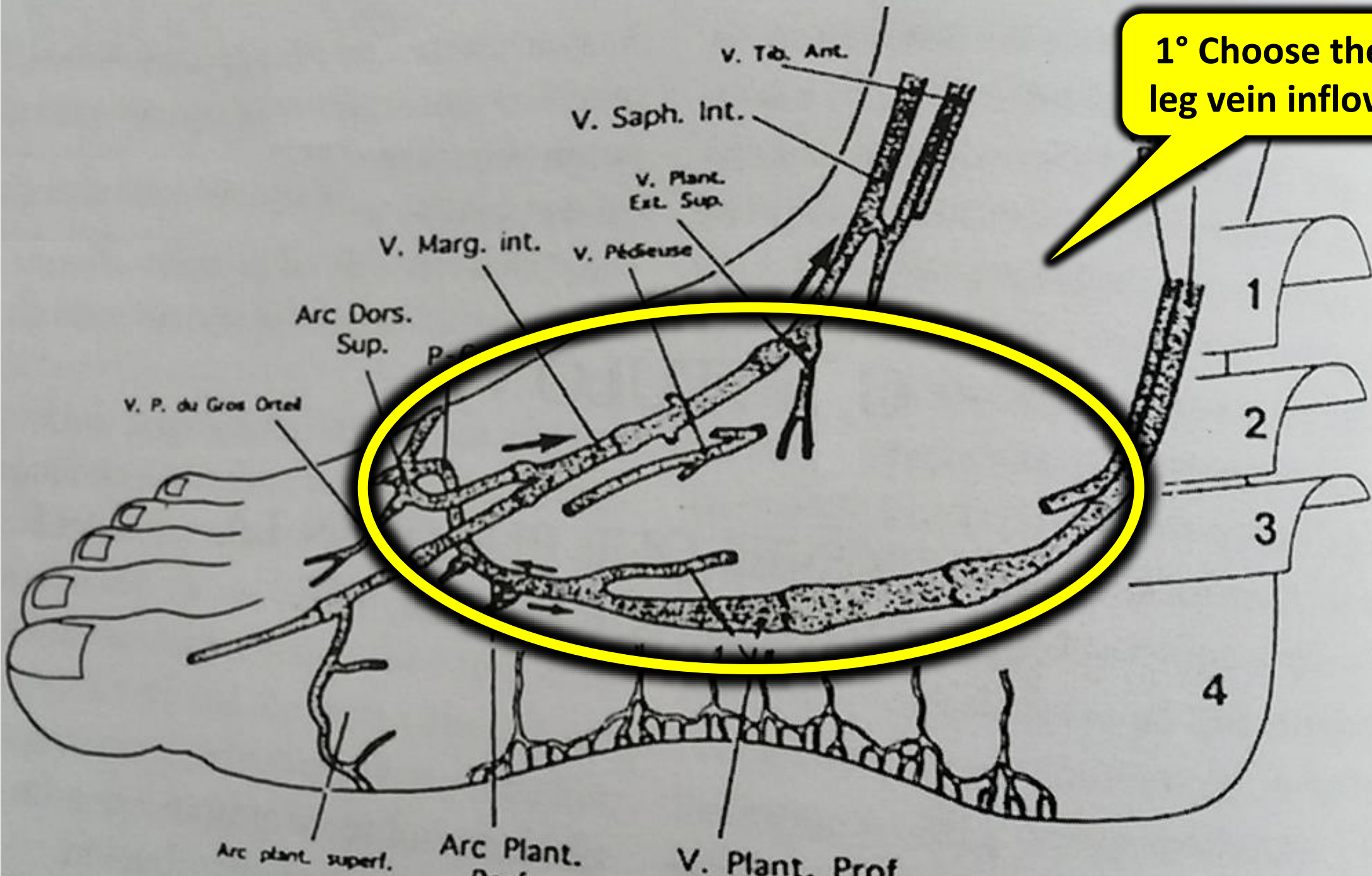
V. P. du Gros Orteil

Arc plant. superl.

Arc Plant. Prof.

V. Plant. Prof.

1° Choose the leg vein inflow



1°

GSV-MMV inflow

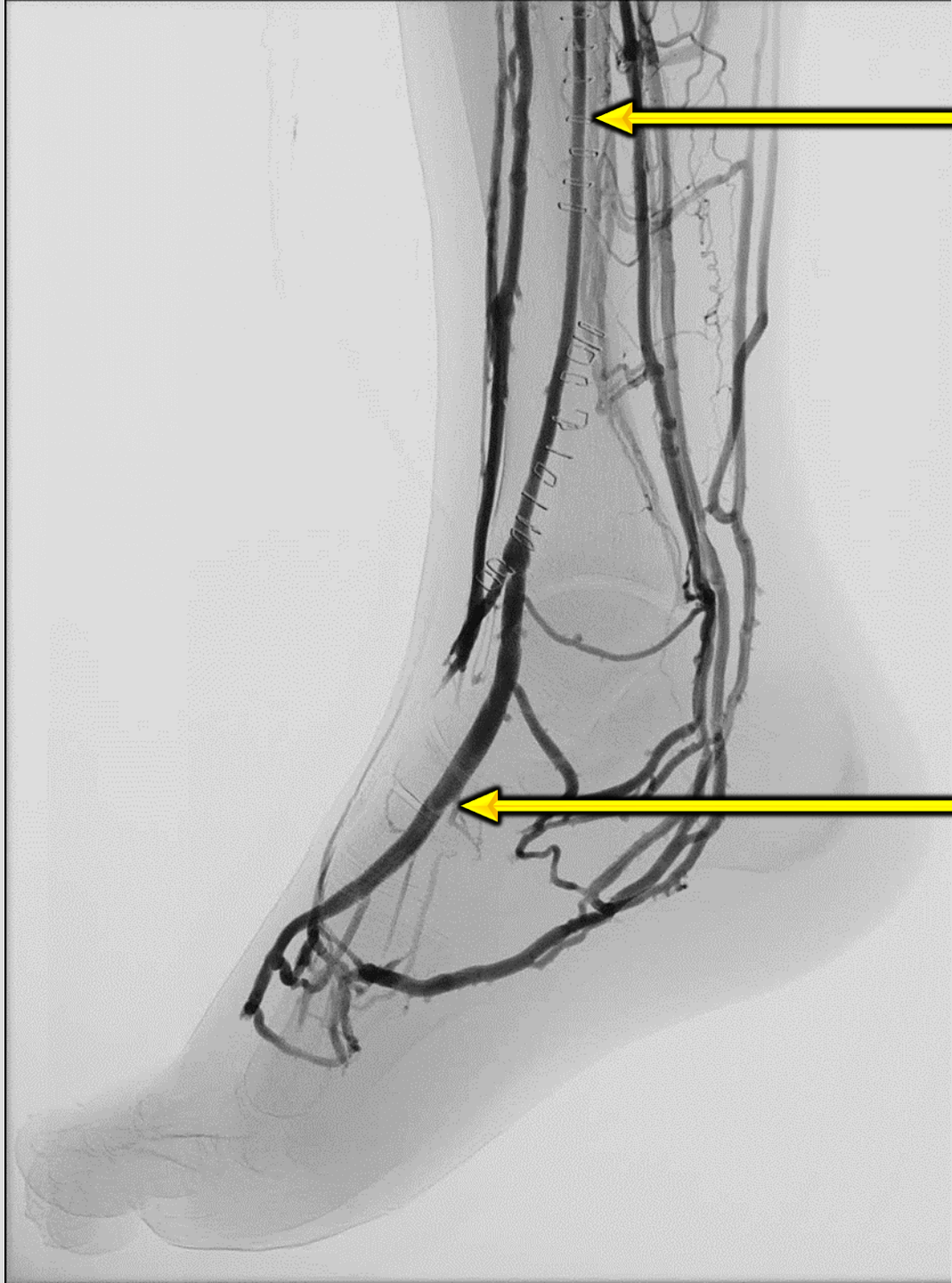
- **Lengua technique**
- **Hybrid technique**



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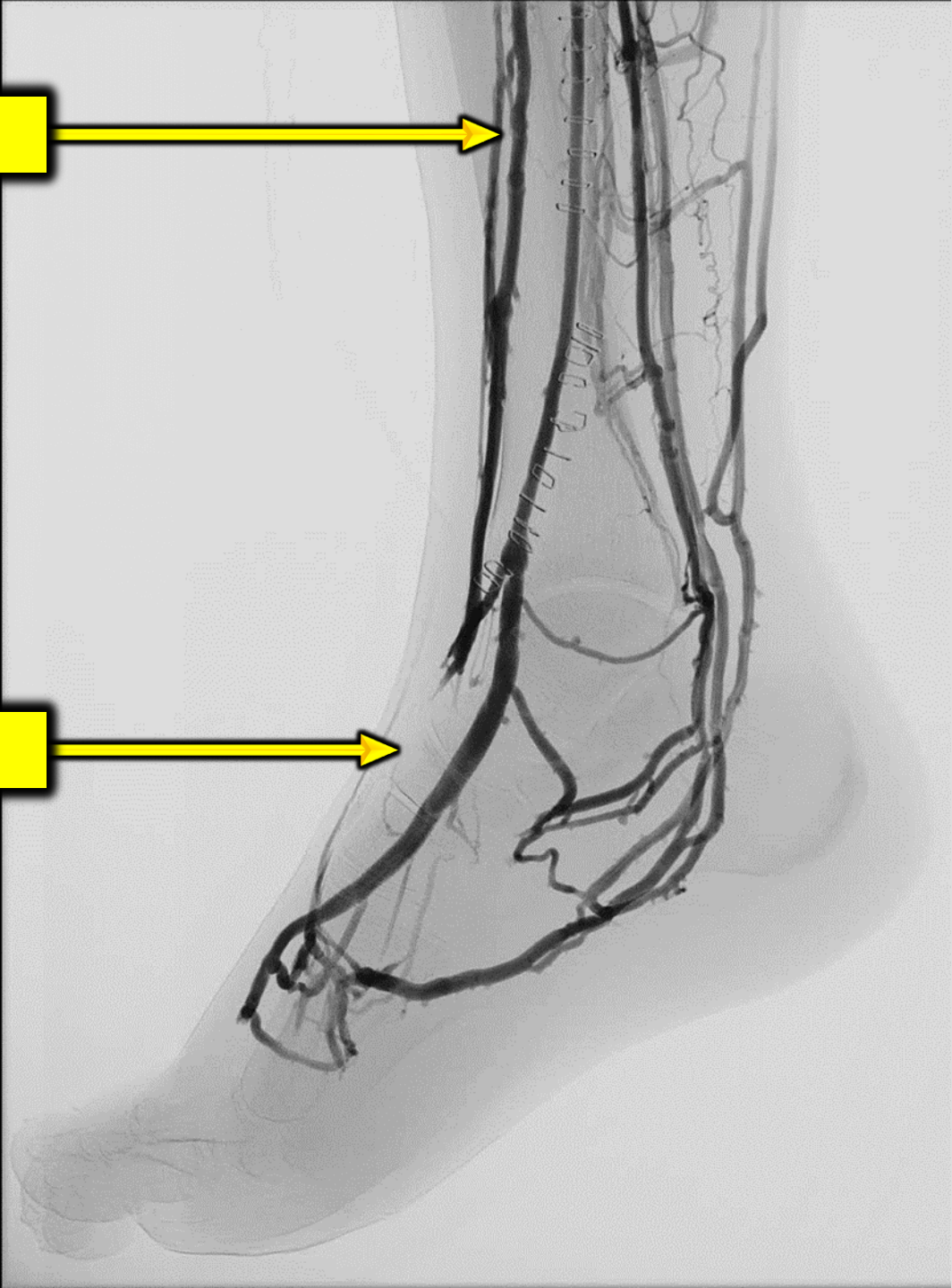
GSV

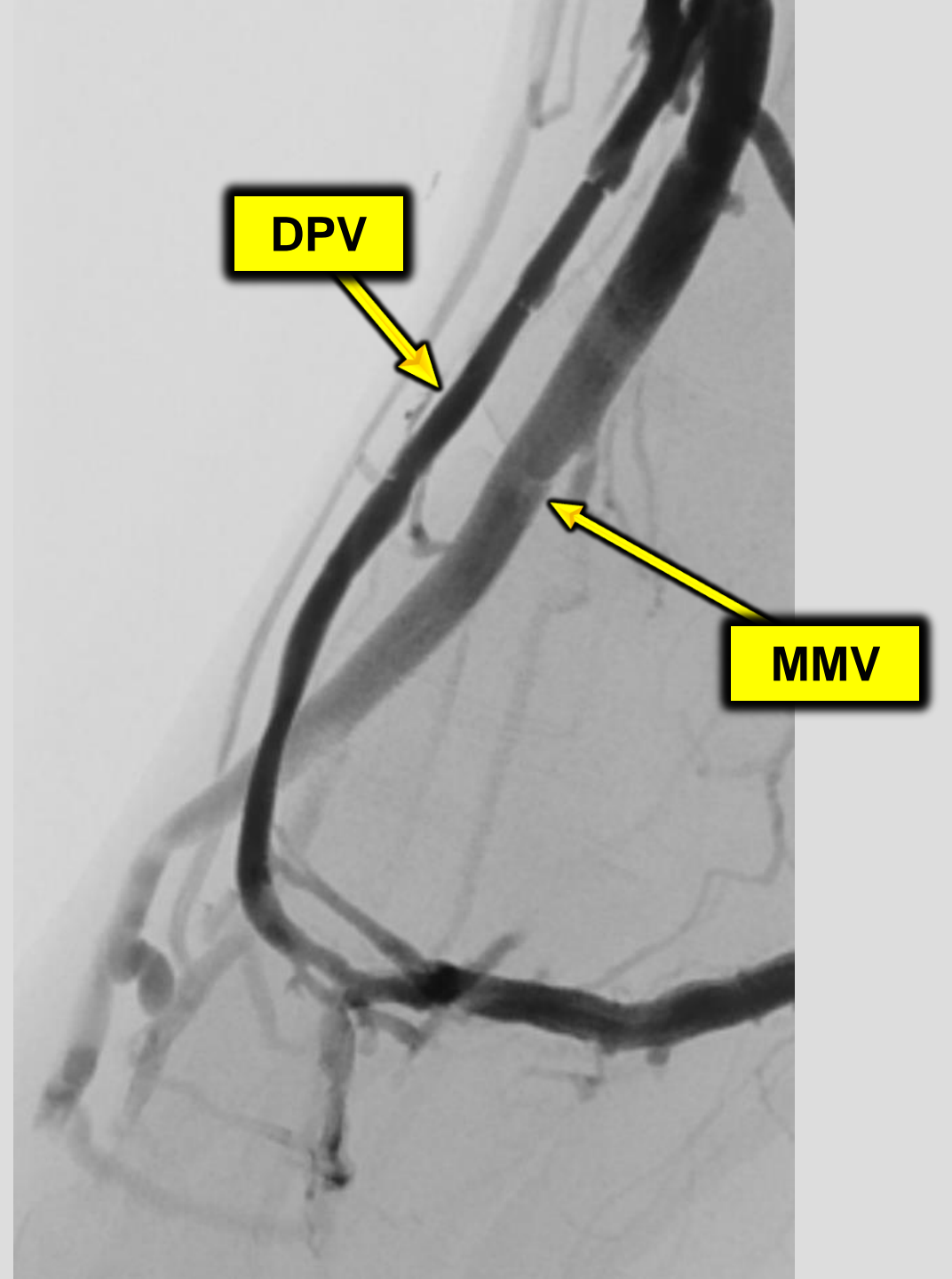
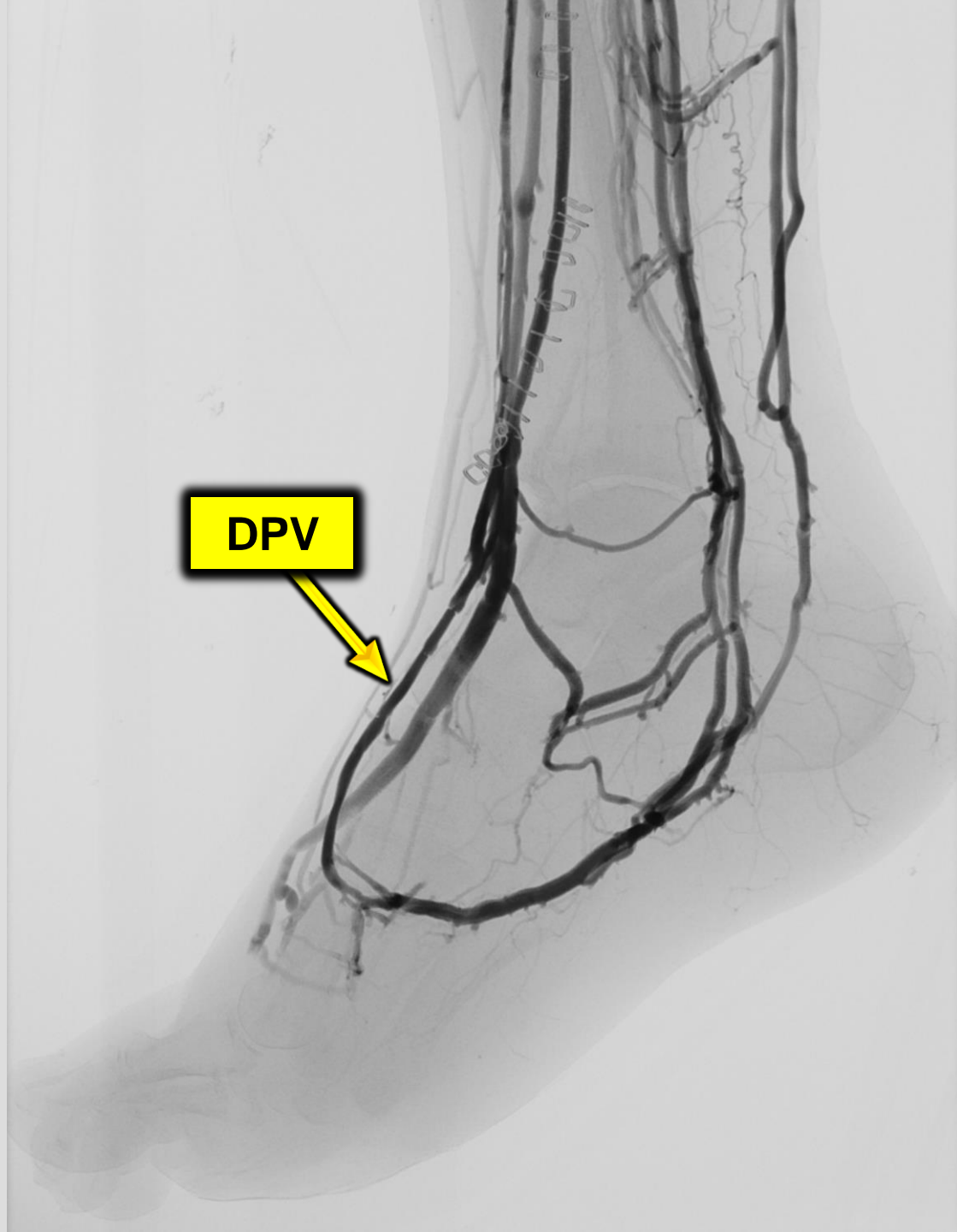
MMV

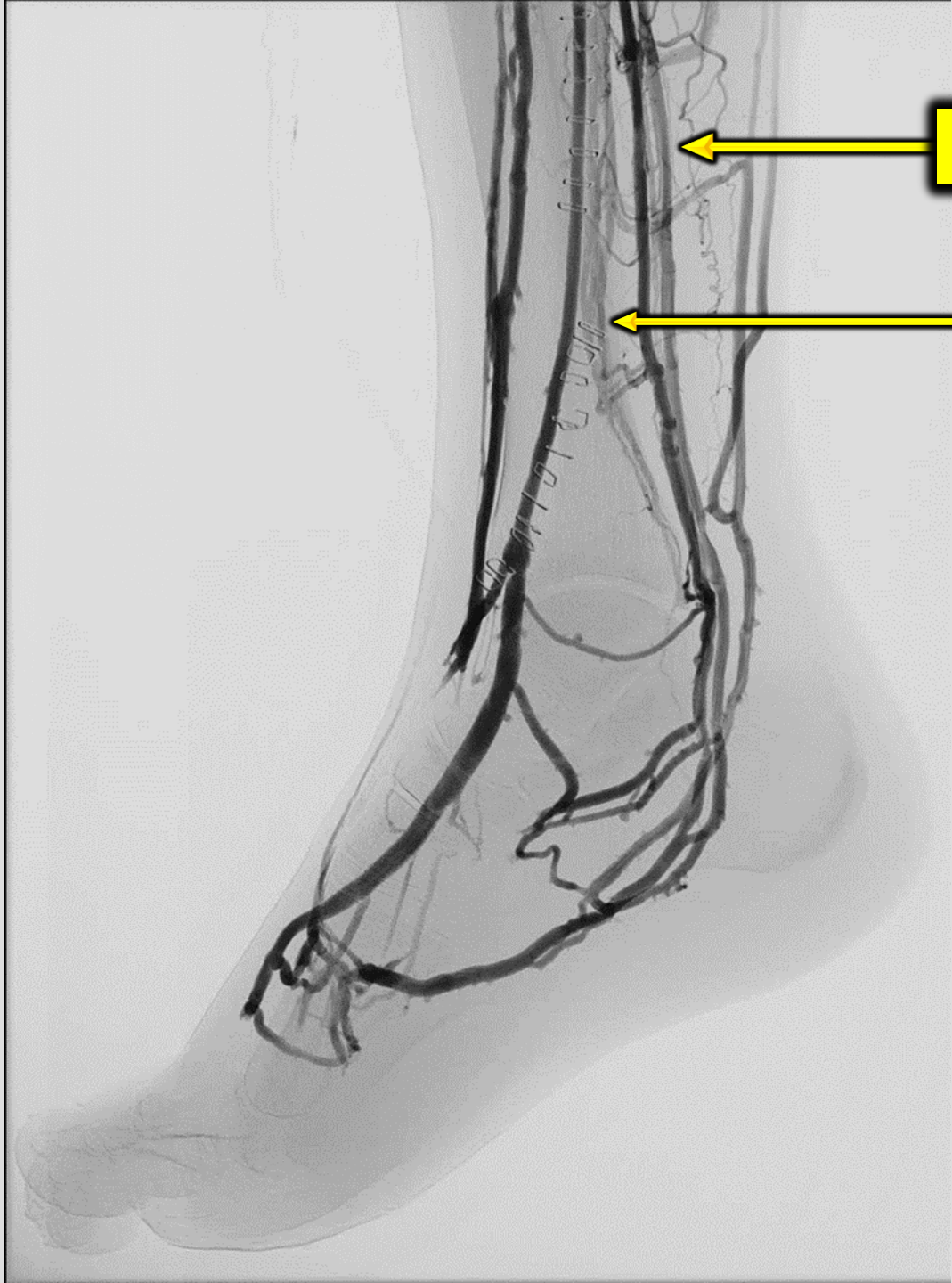
ATVs



DPV?

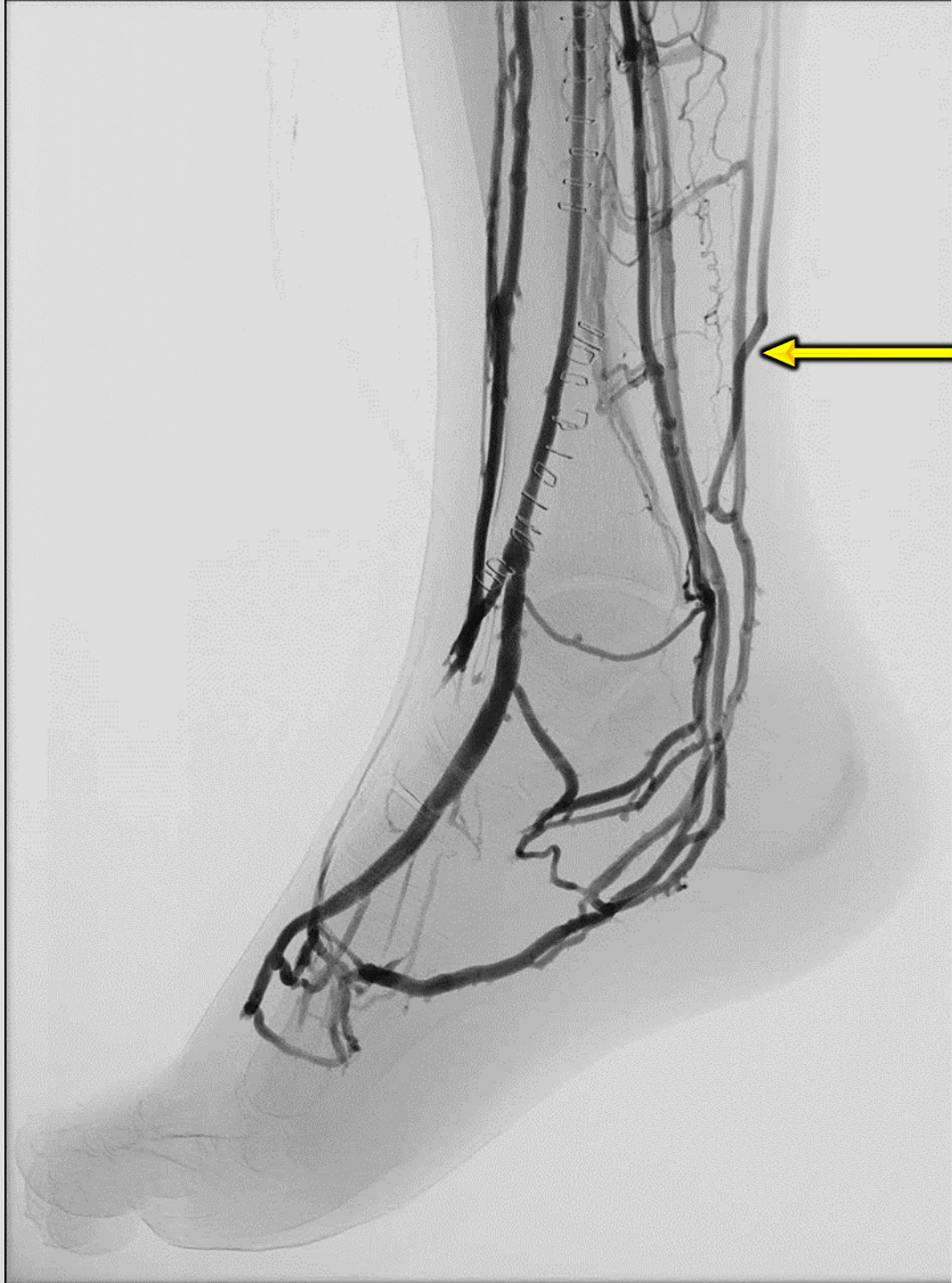




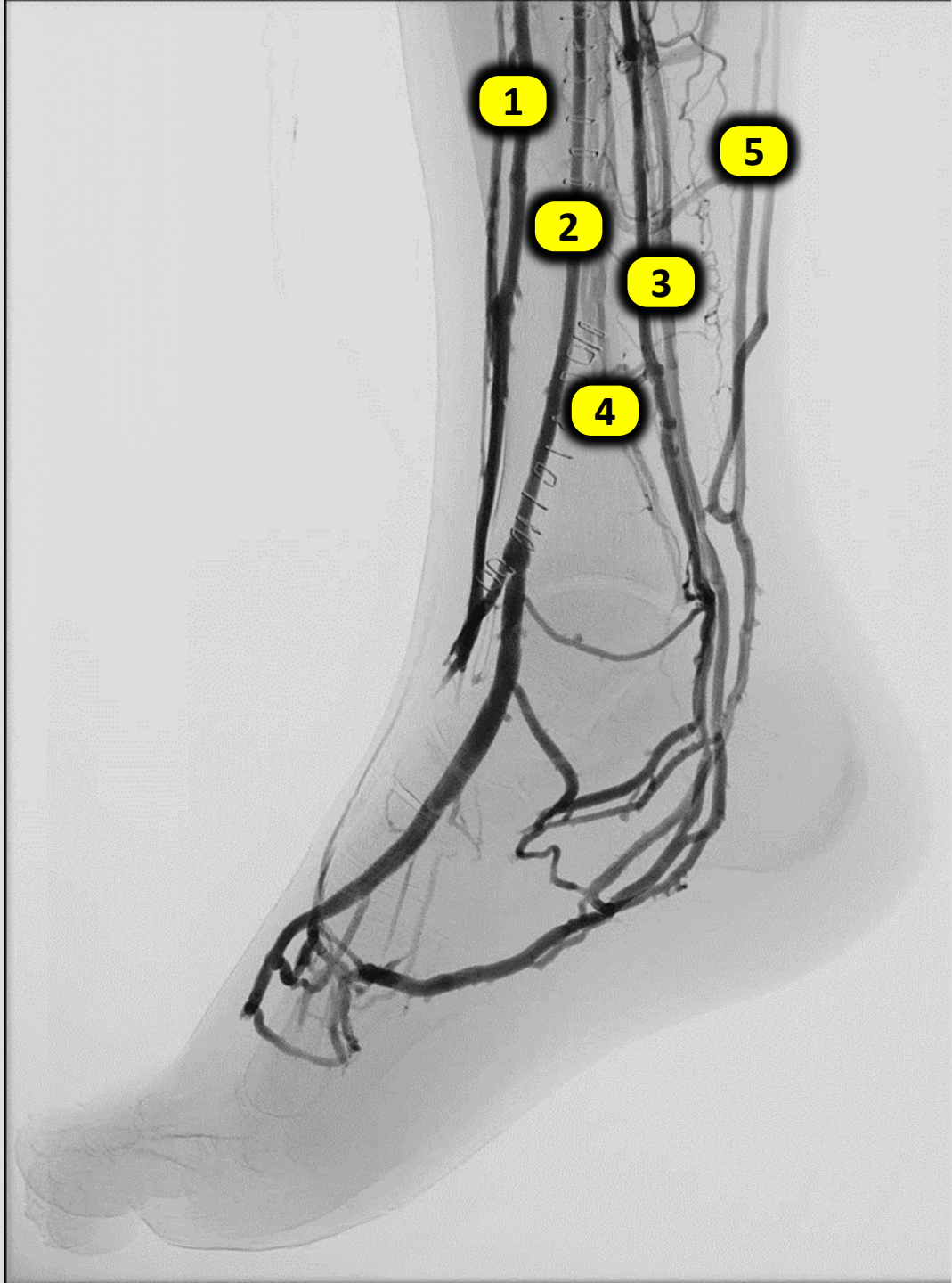


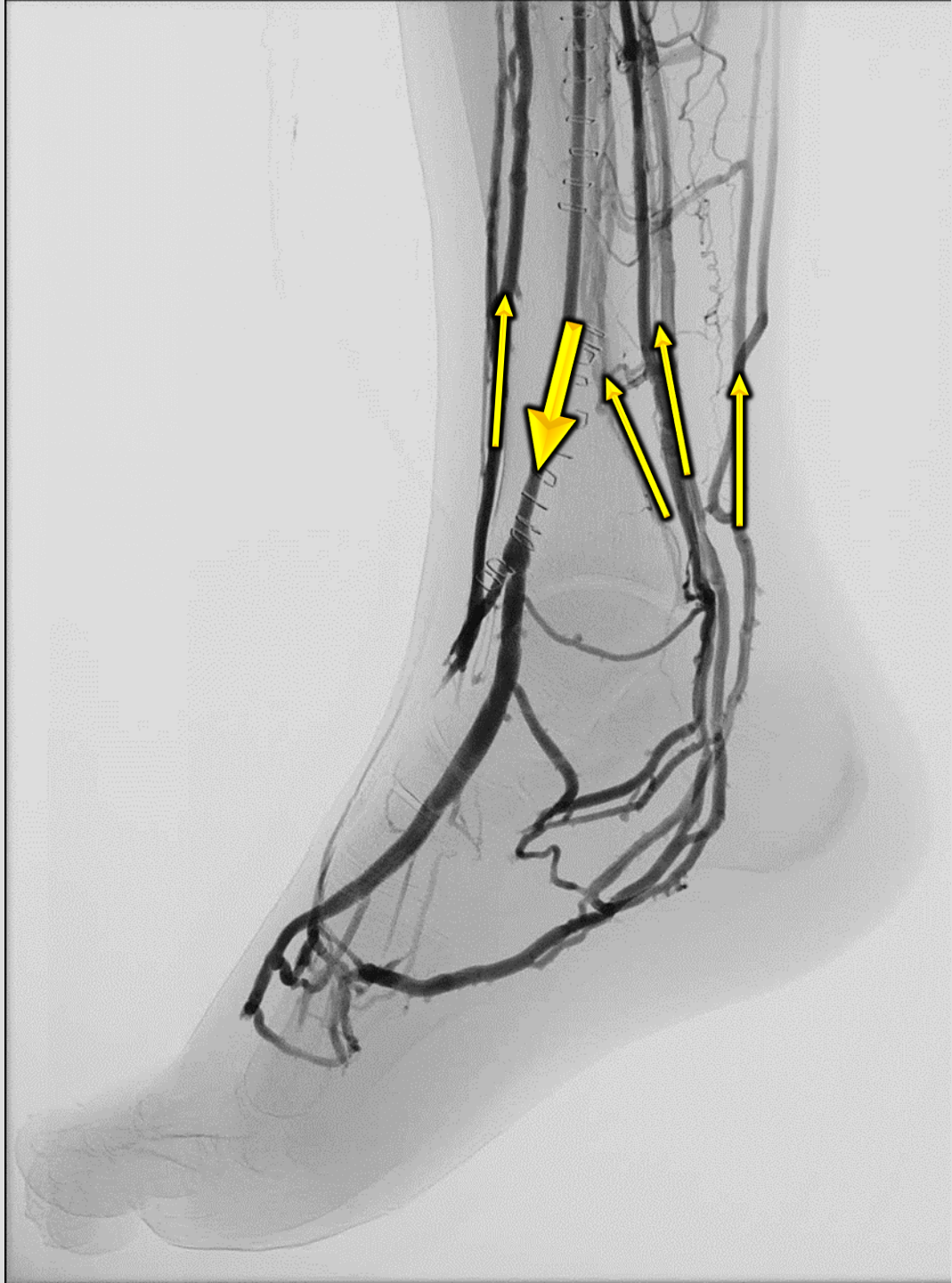
PTVs

PerVs



SSV



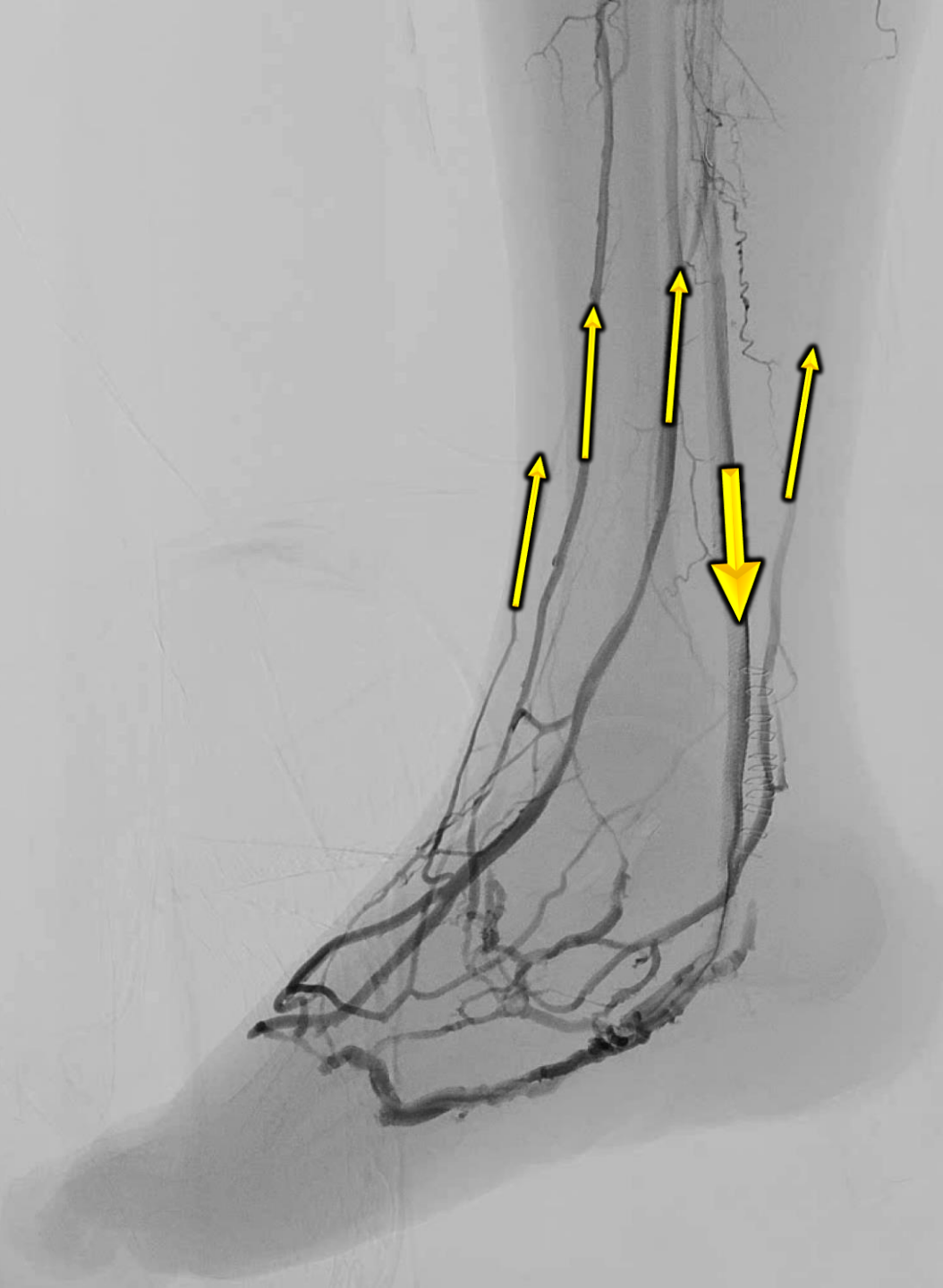


2°

PTV-LPV inflow

- Mutirangura technique
- Limflow technique
- Hybrid technique

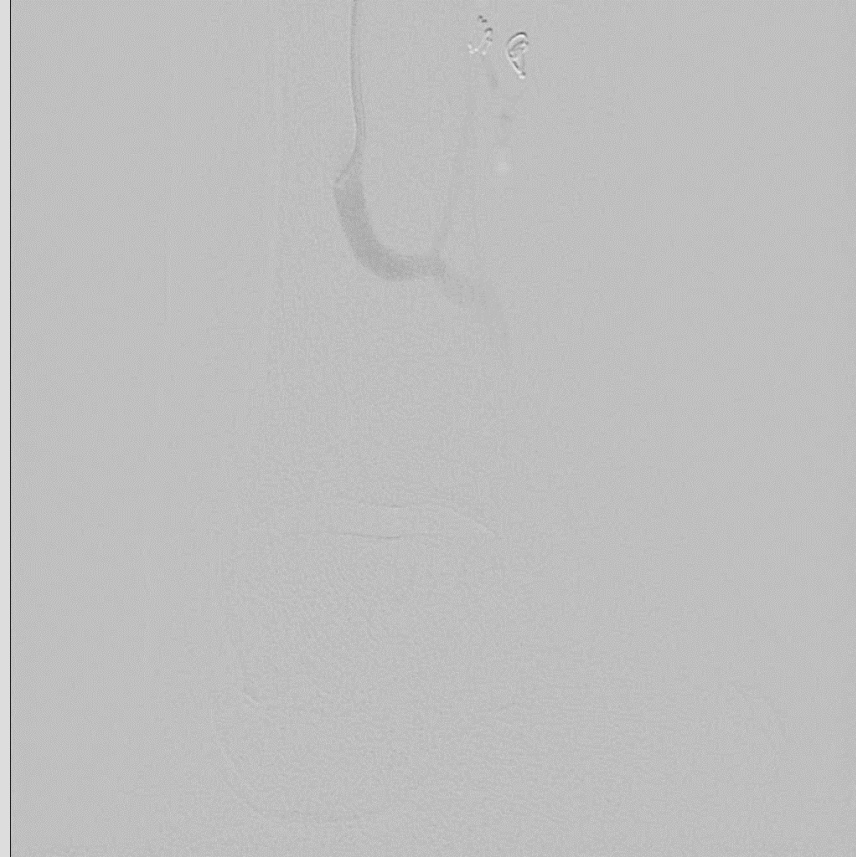




3°

PERV-LPV inflow

- Limflow technique
- Hybrid technique

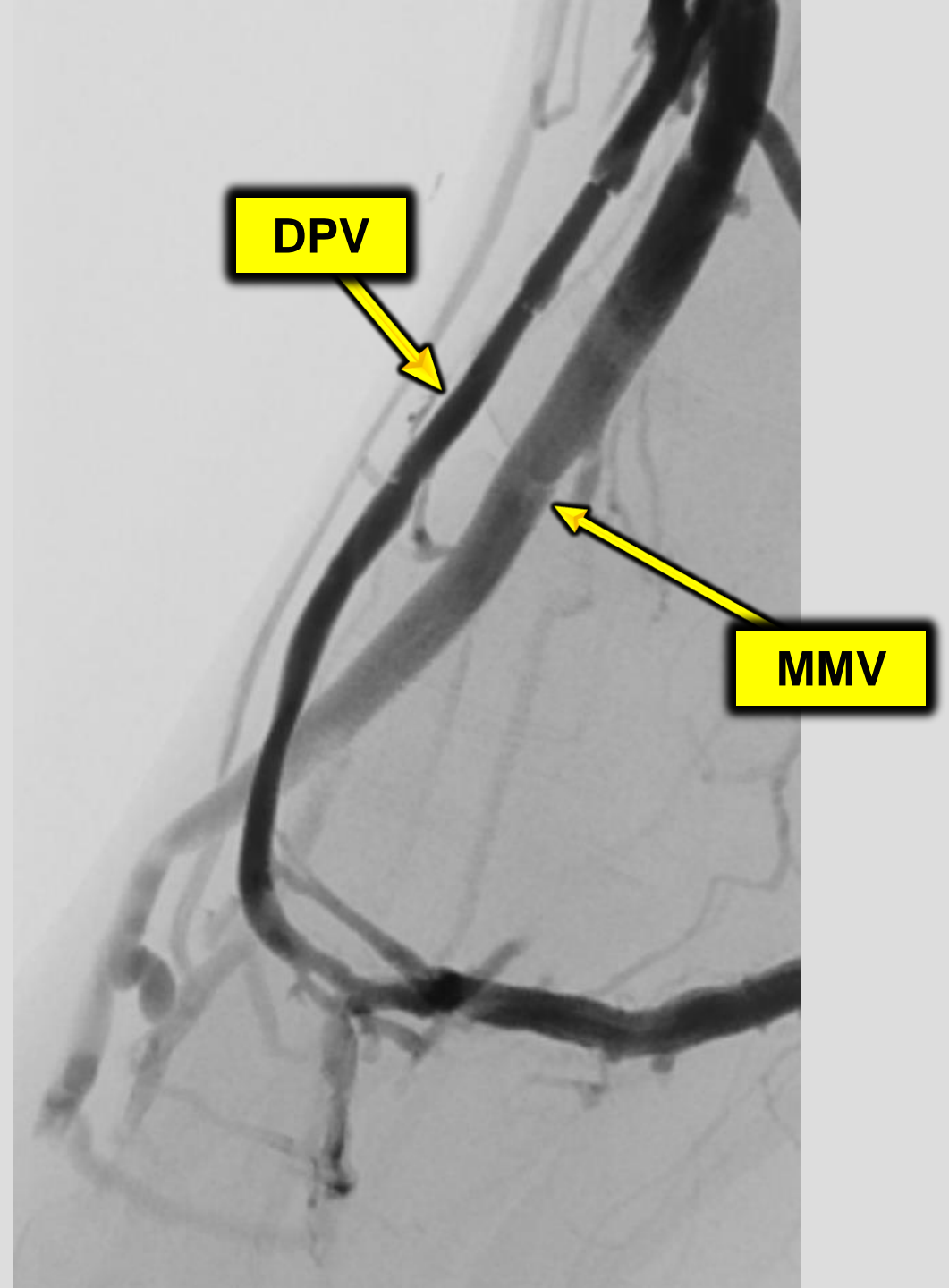
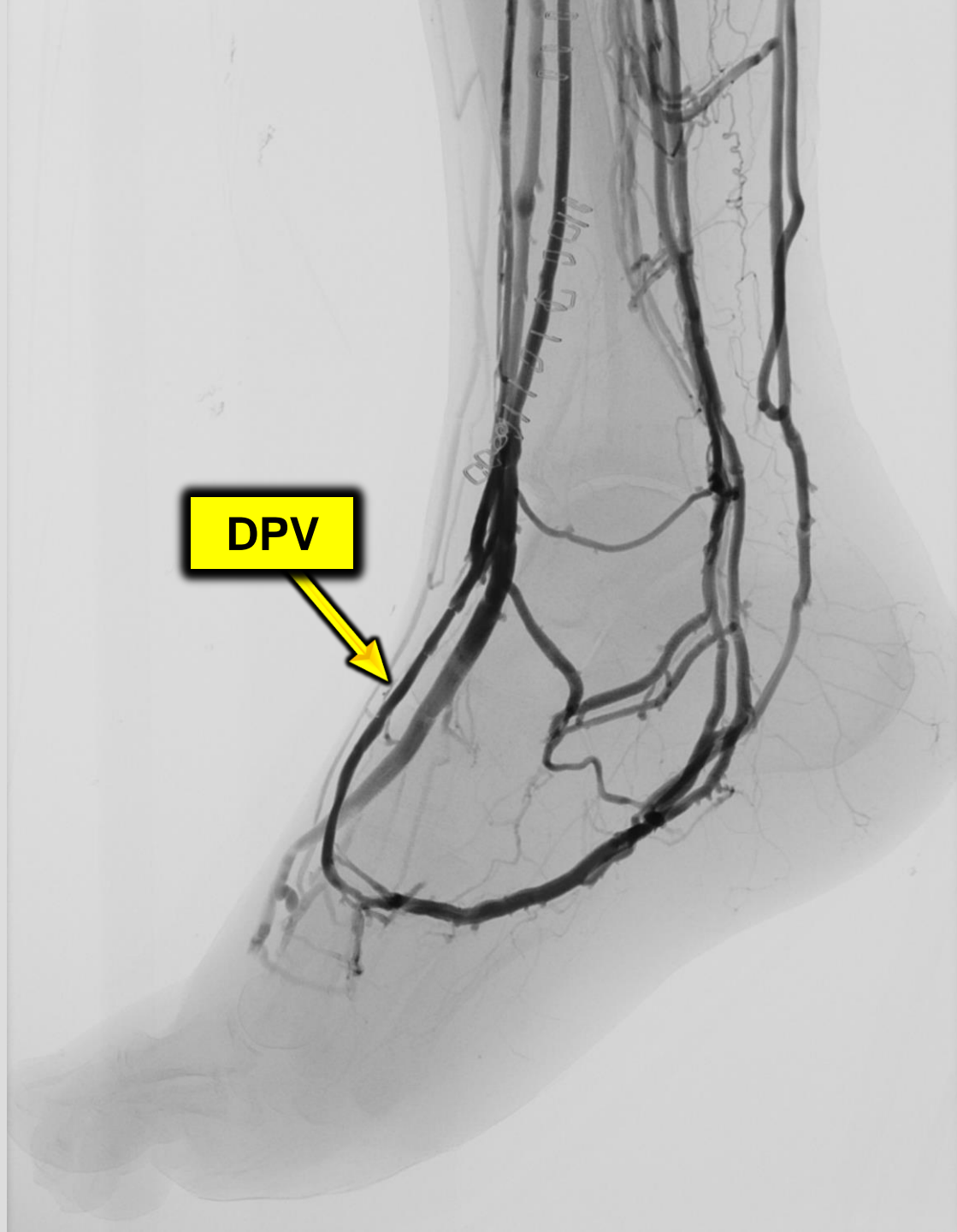


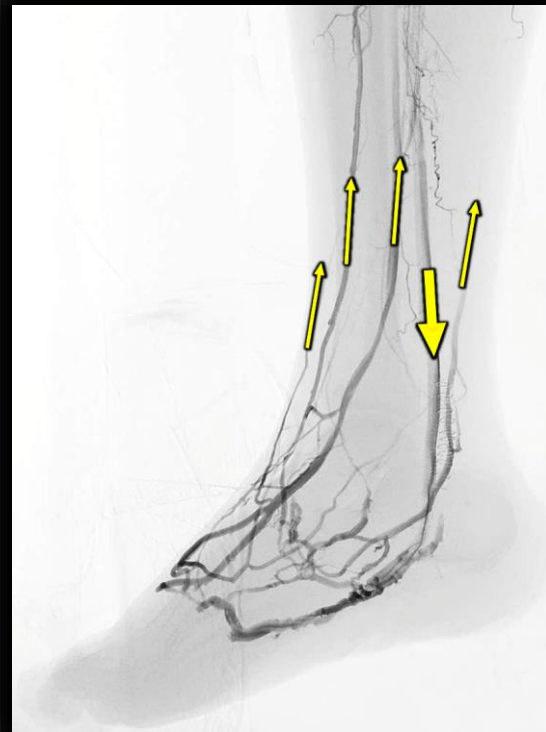
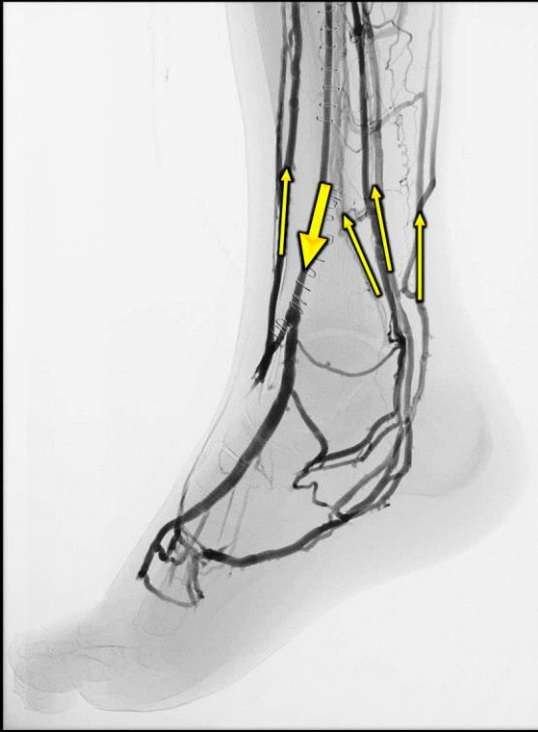
4°

ATV-DPV inflow

- Limflow technique
- Hybrid technique





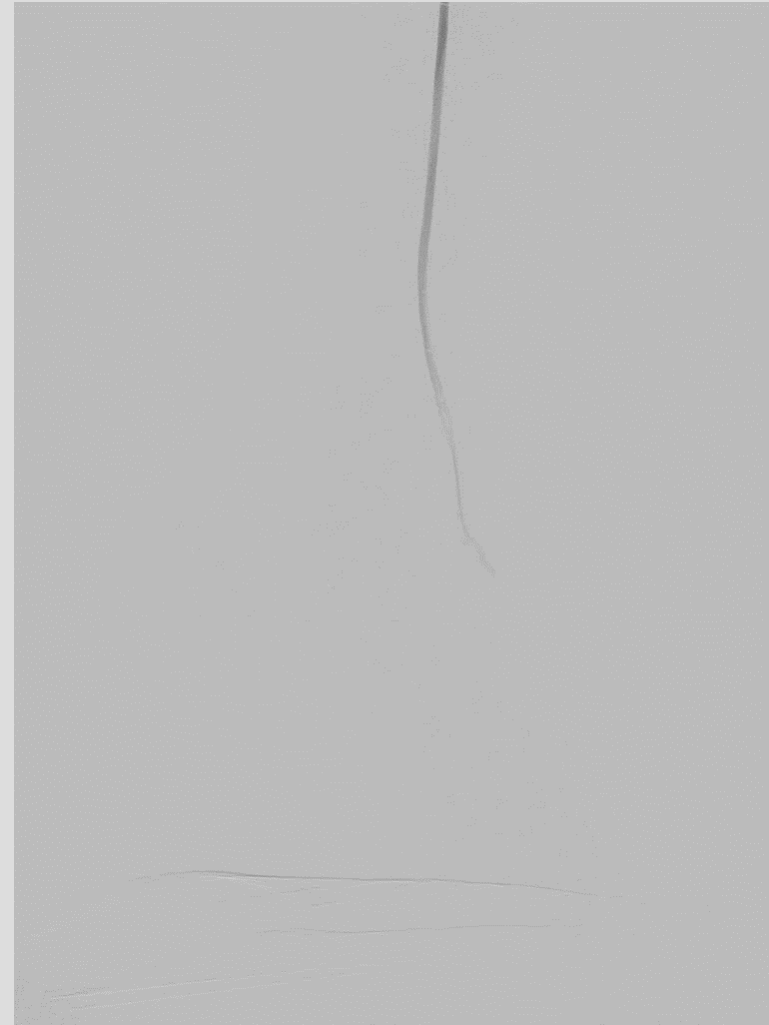


What is the best inflow in FVA?

1. GSV-MMV is a good inflow (Lengua's & hybrid techniques)
2. PTV(PERV)-LPV(MPV) is a good inflow (Mutirangura's, hybrid & Limflow techniques)
3. ATV-DPV inflow is poor

2° Enter into the fortress
and open the doors

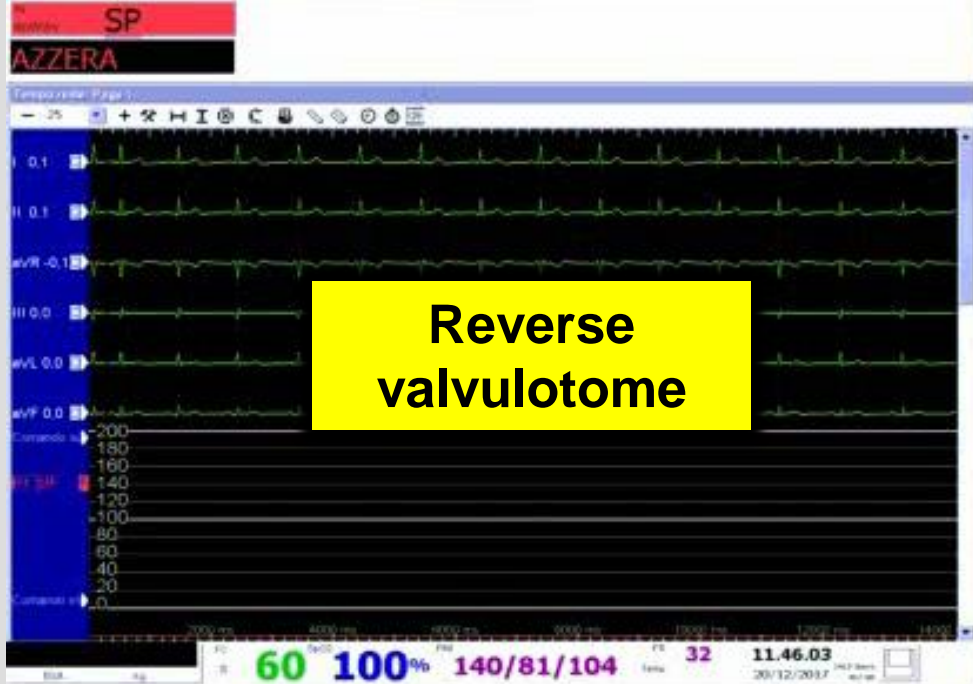






**“dancing wire”
technique**



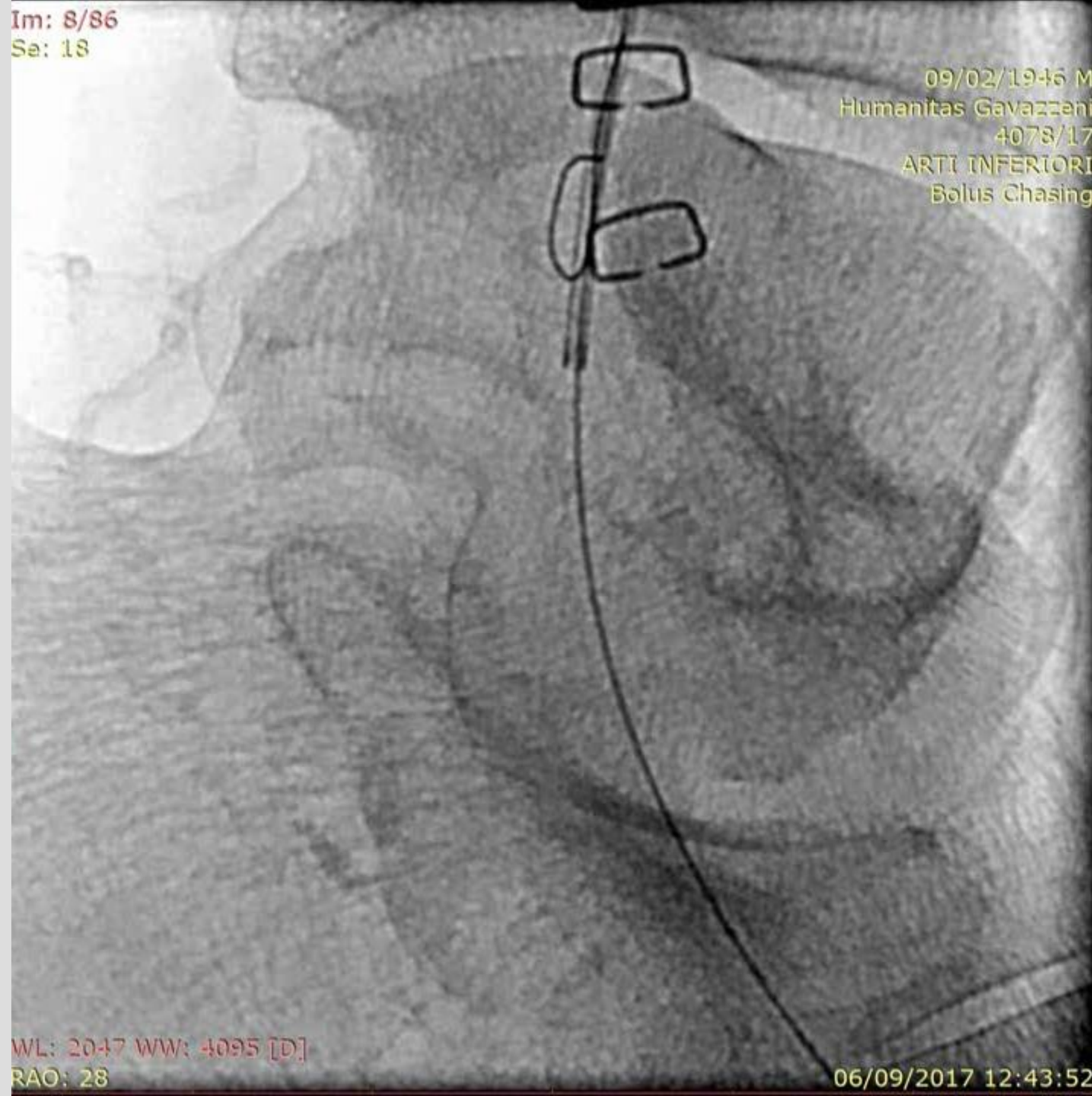


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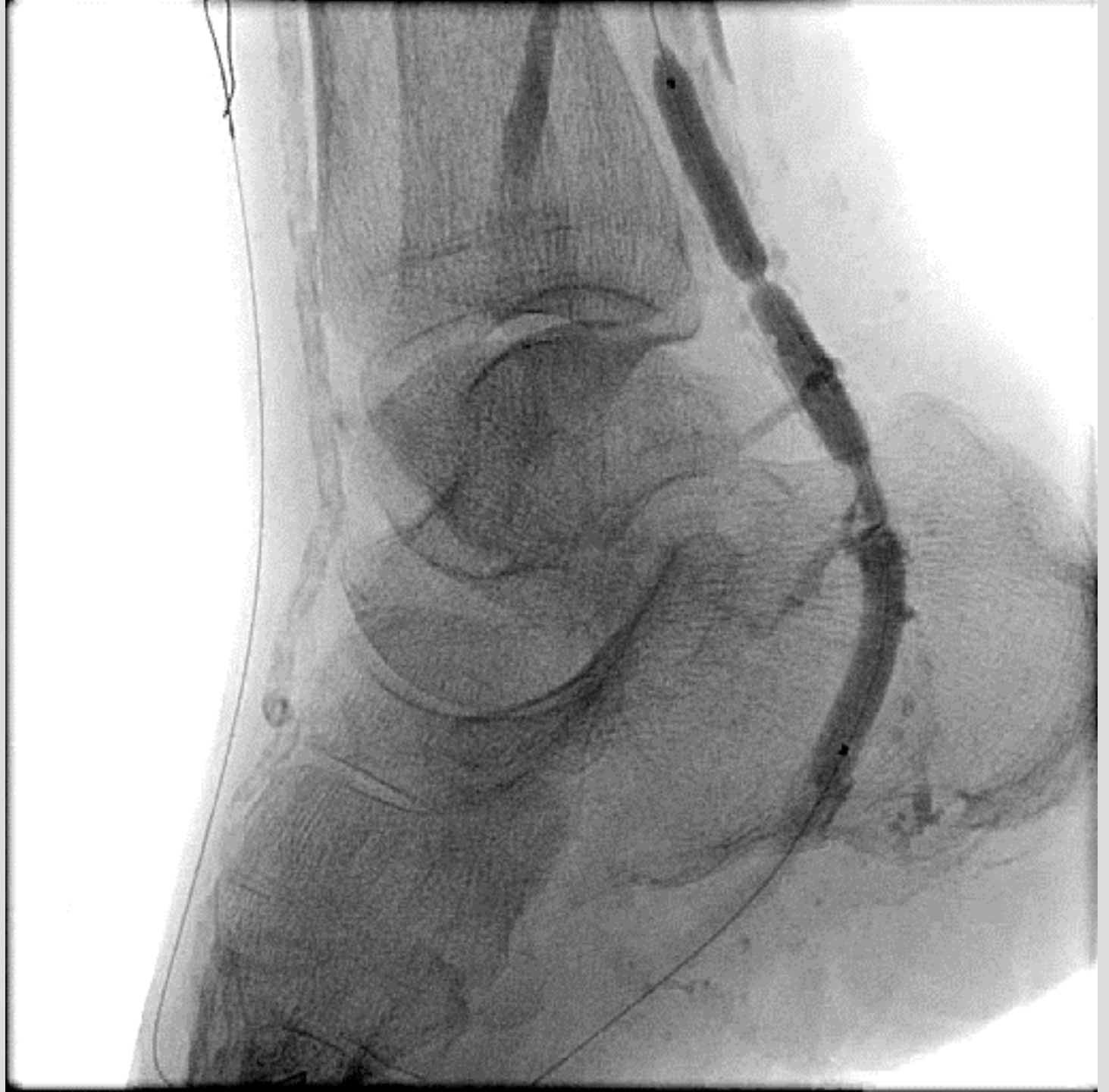


crn 22

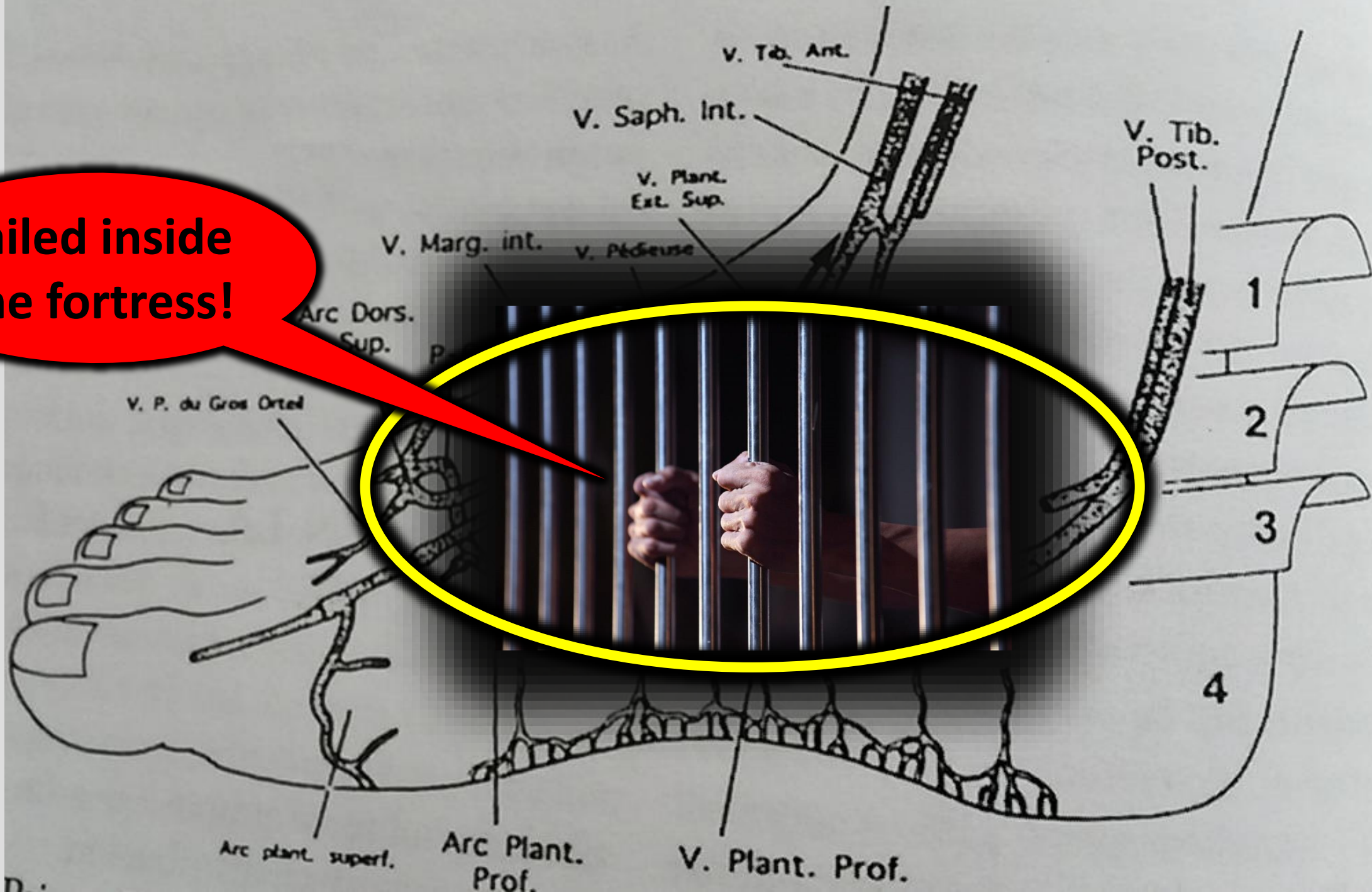
**“double wire”
technique**

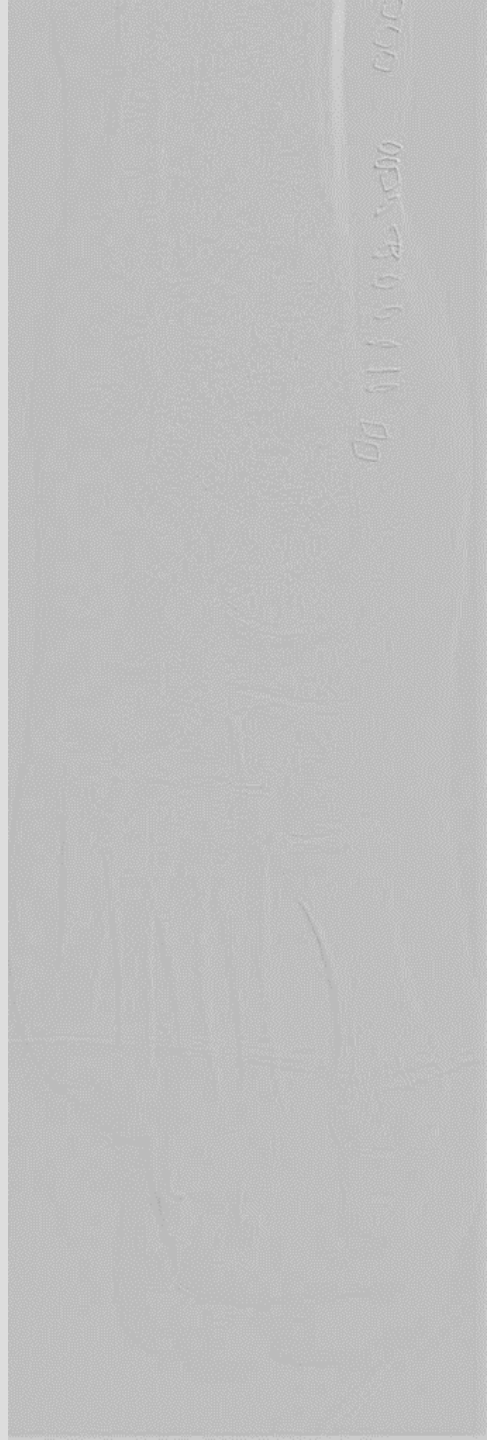


Ballooning

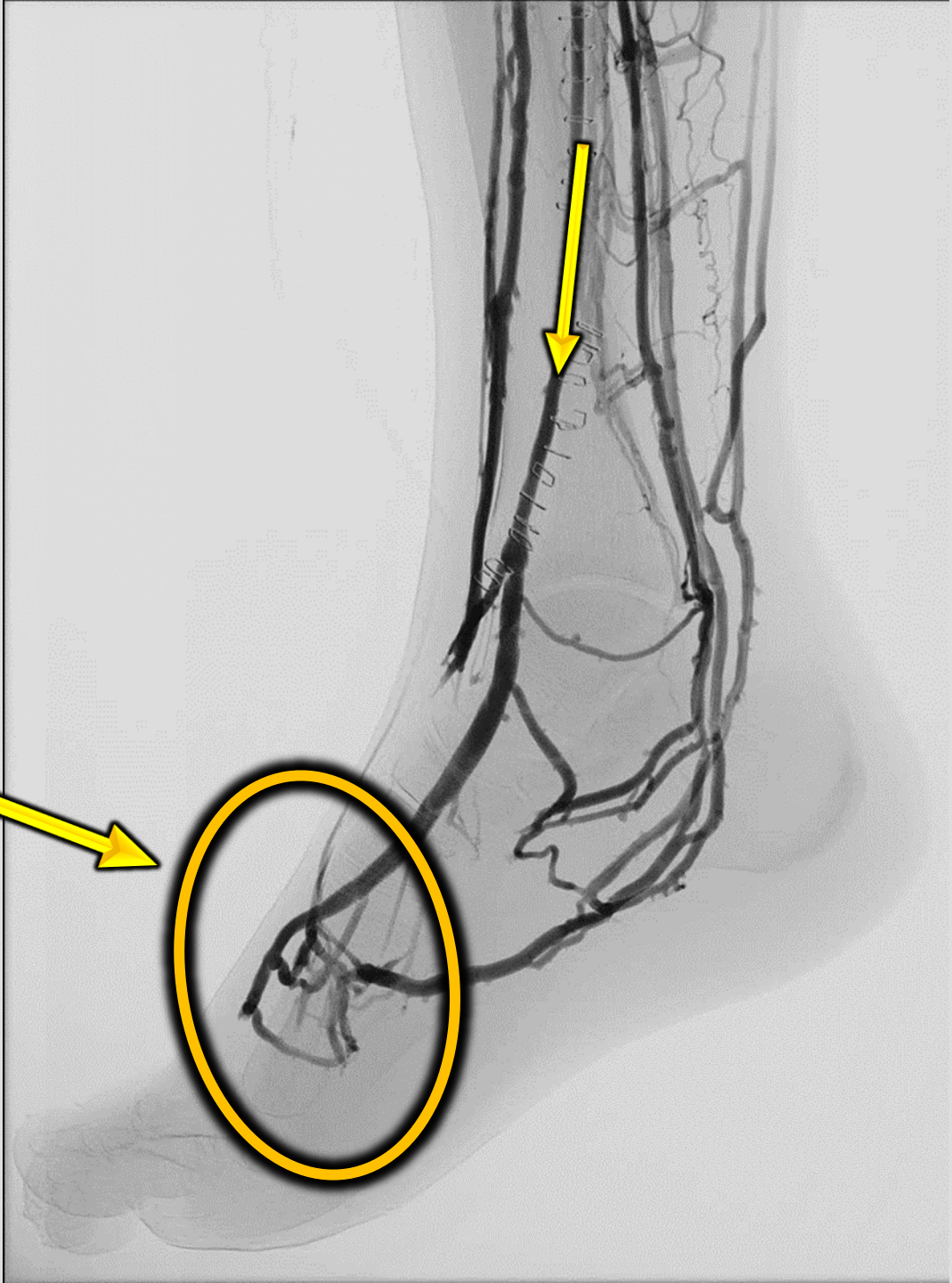


**Jailed inside
the fortress!**





**The forefoot
cross**



**The
forefoot
cross**



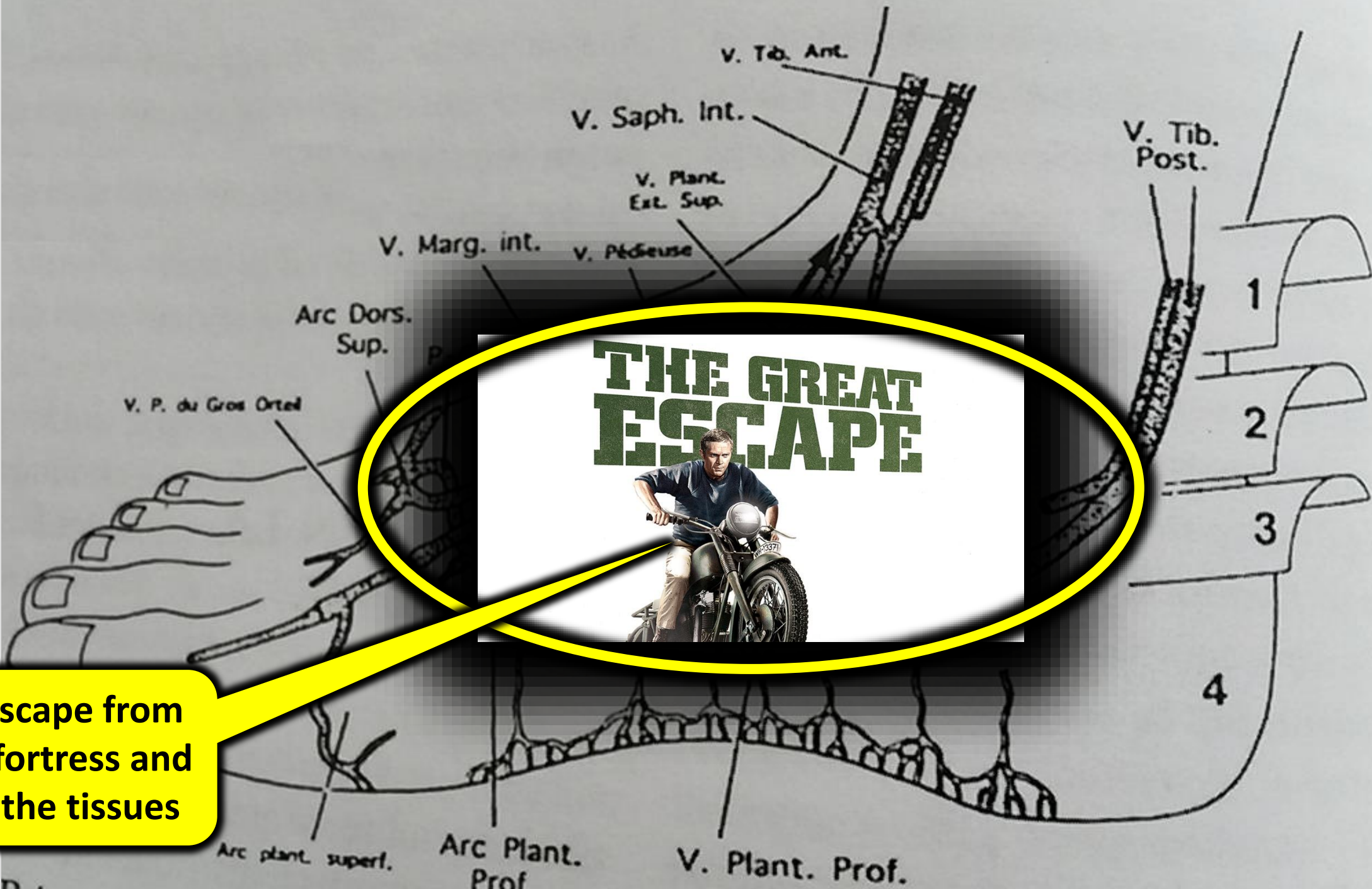


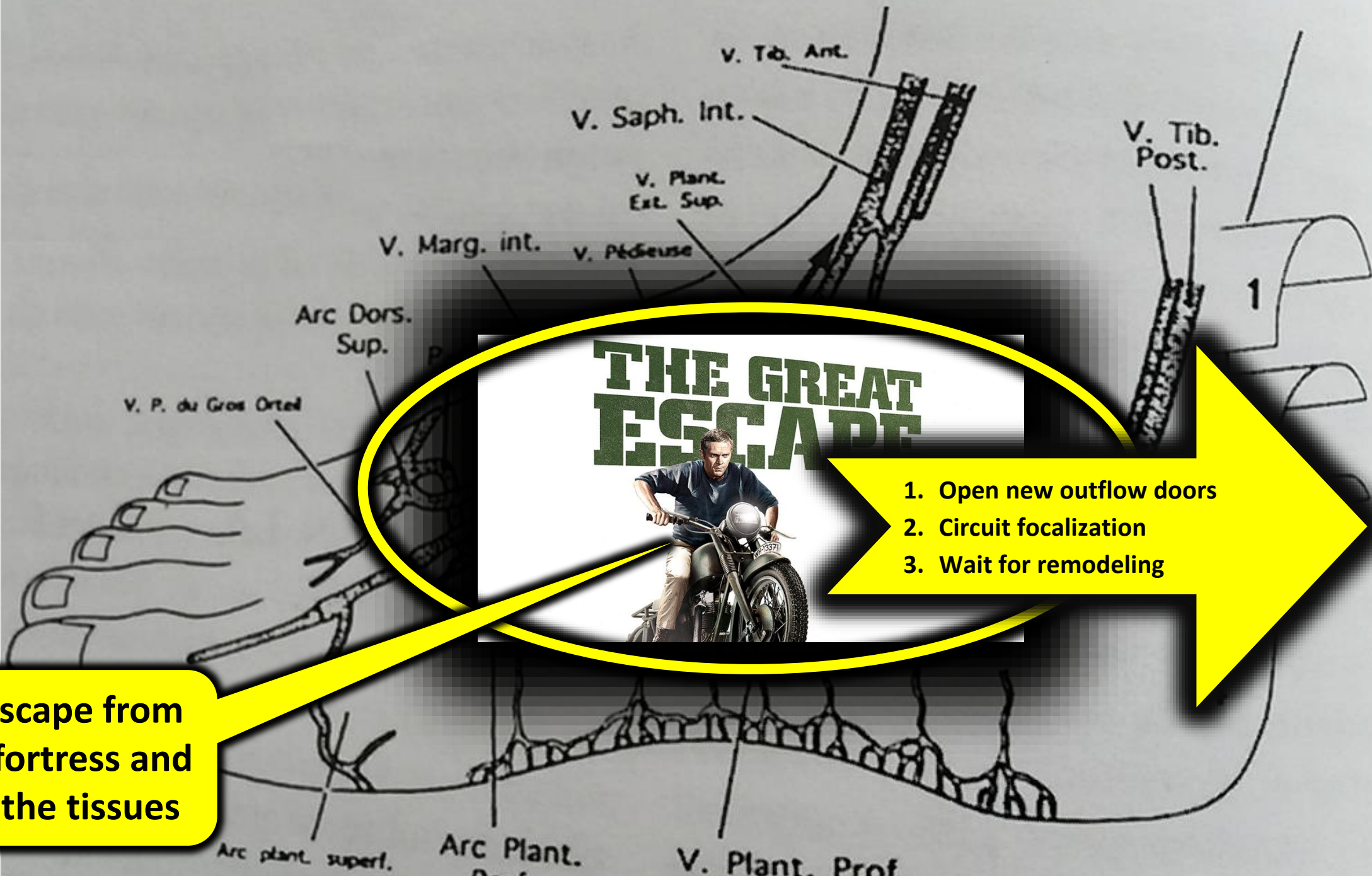


**When we open the fortress doors,
we create a fast circle of blood into
the big vein system of the foot,
however not one red blood cell is
going into the tissues!!!!**



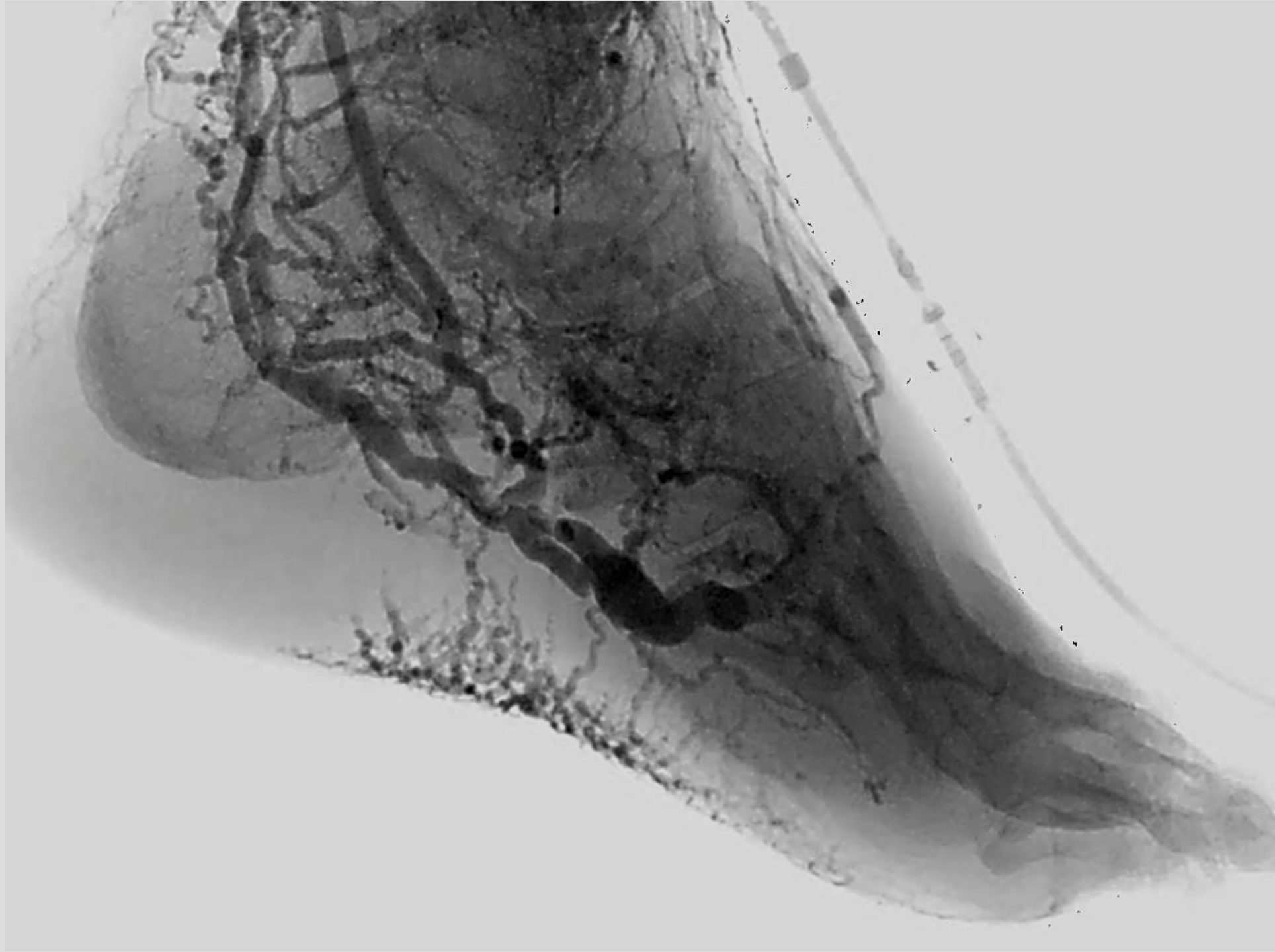
3° Escape from the fortress and get the tissues



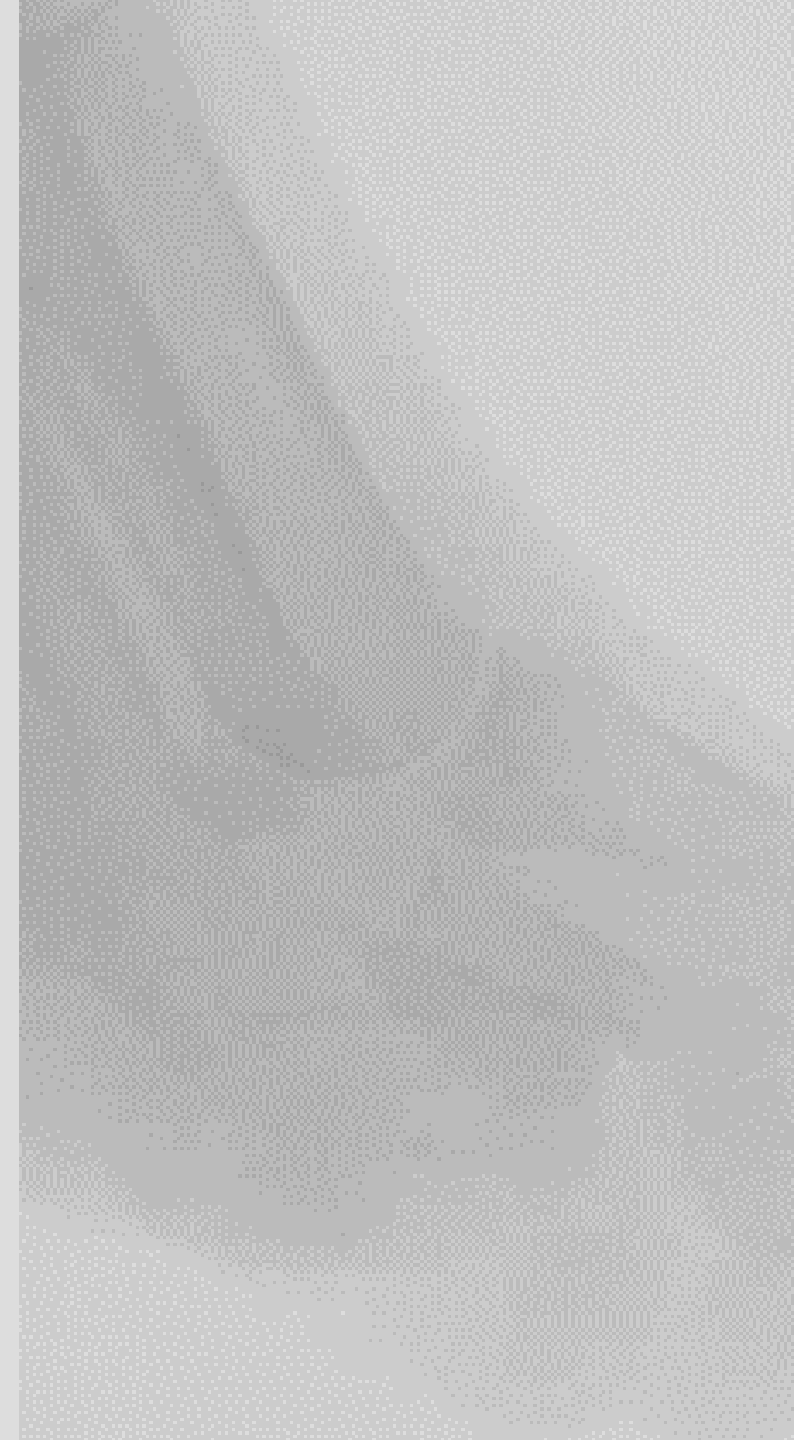
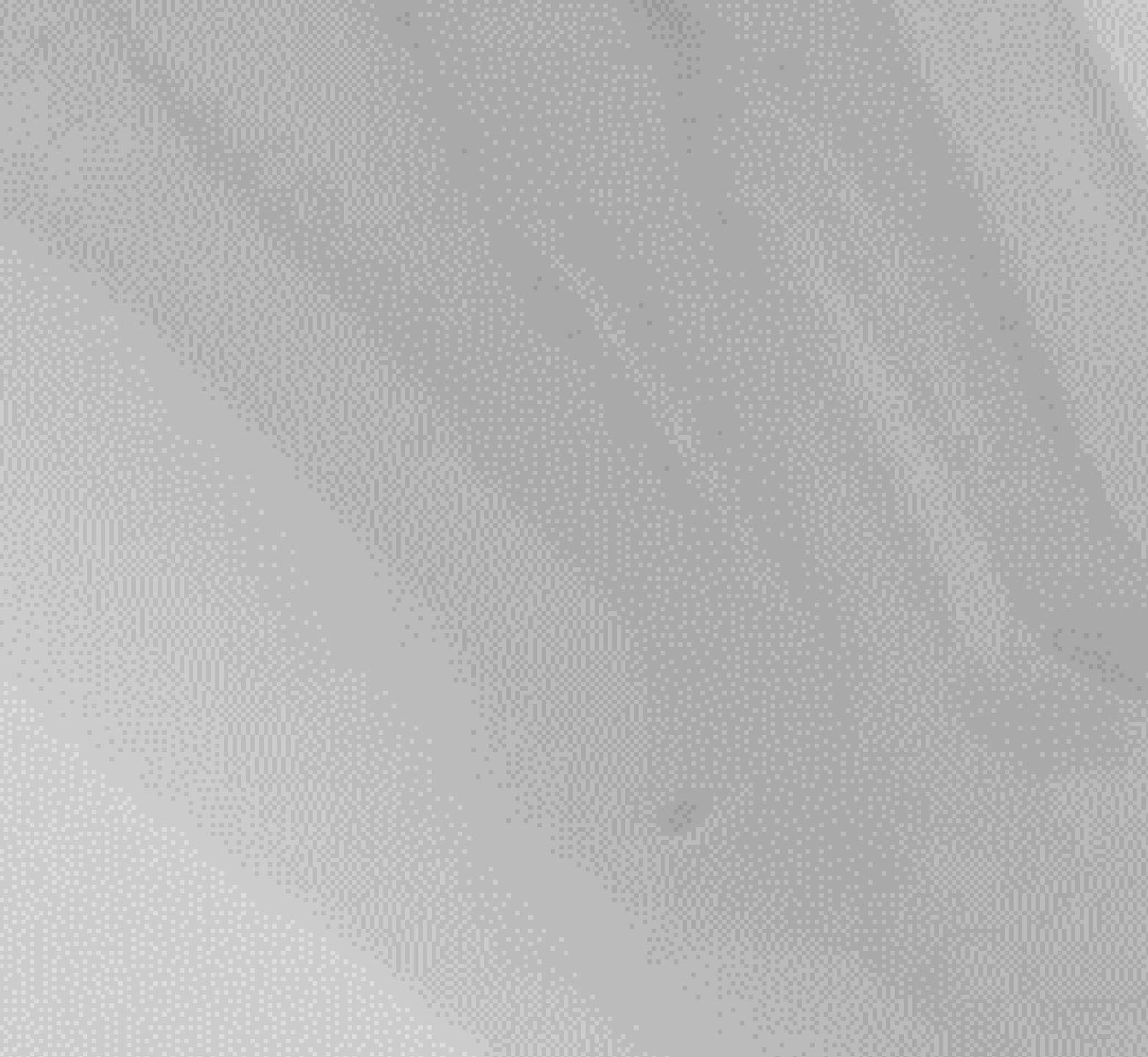


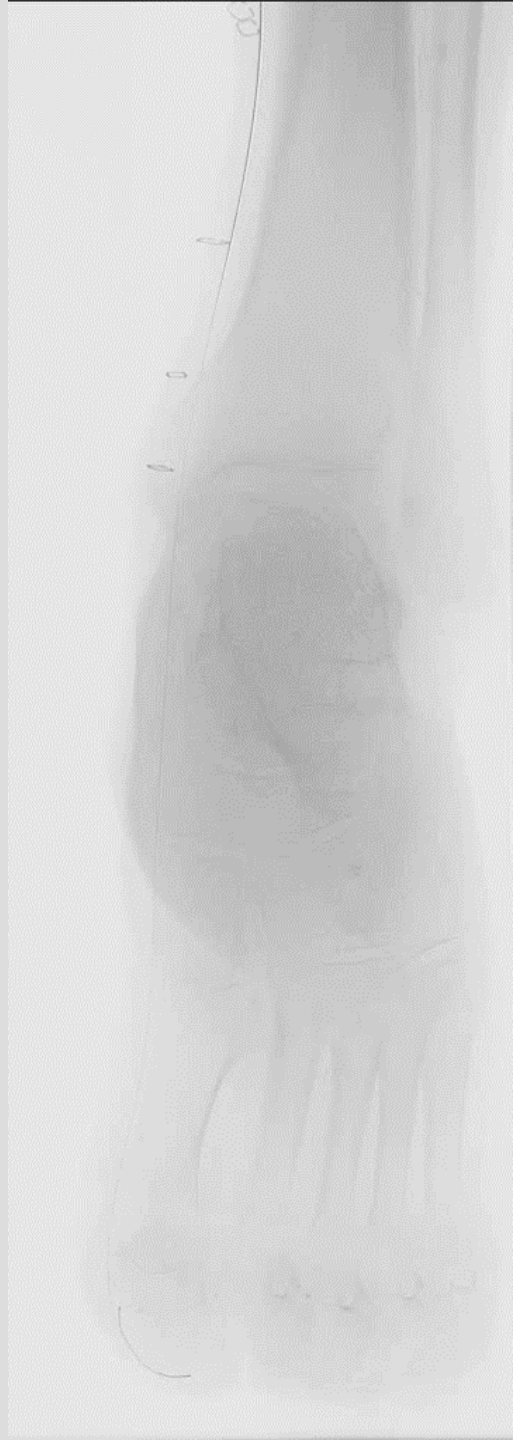
1. Open new outflow doors
2. Circuit focalization
3. Wait for remodeling

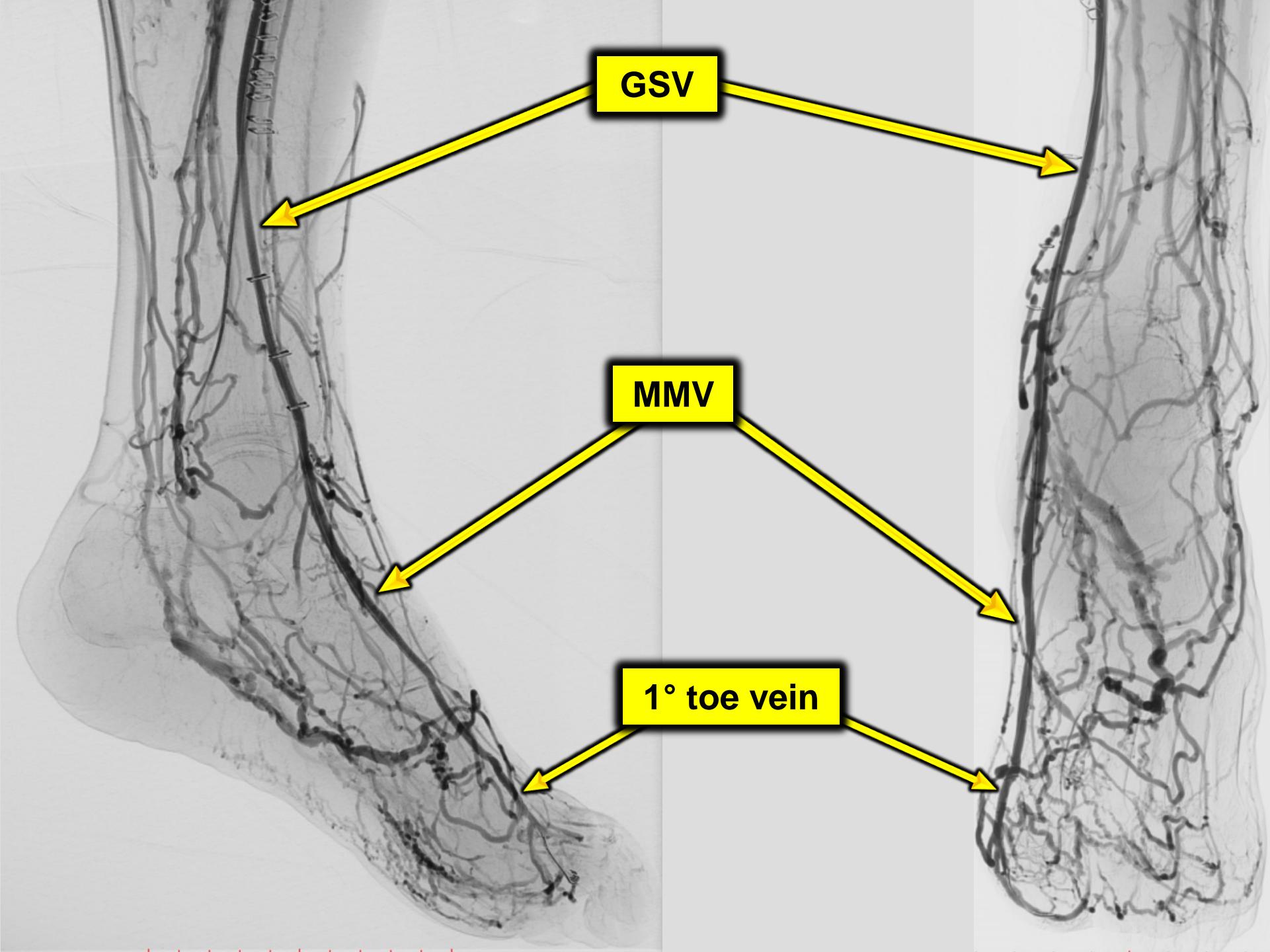
3° Escape from the fortress and get the tissues





















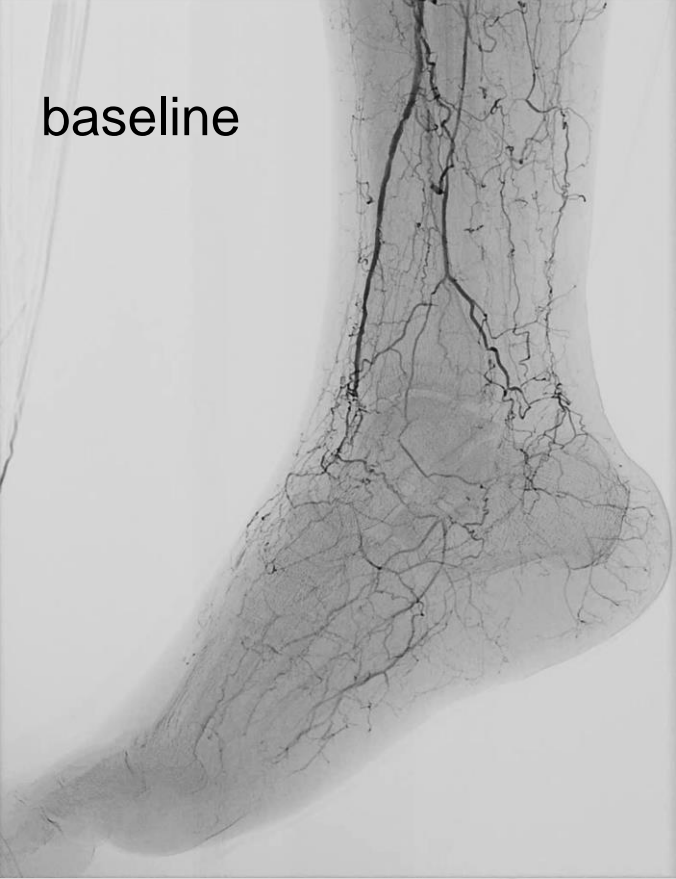


- **3 month after PDVA**
- **1.5 month after TMT amputation**





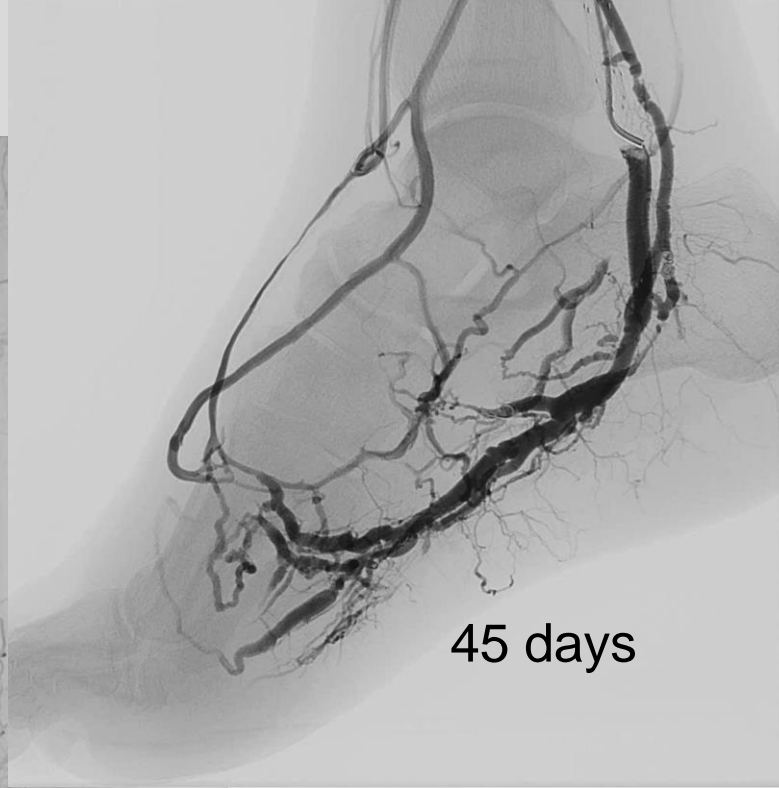
baseline



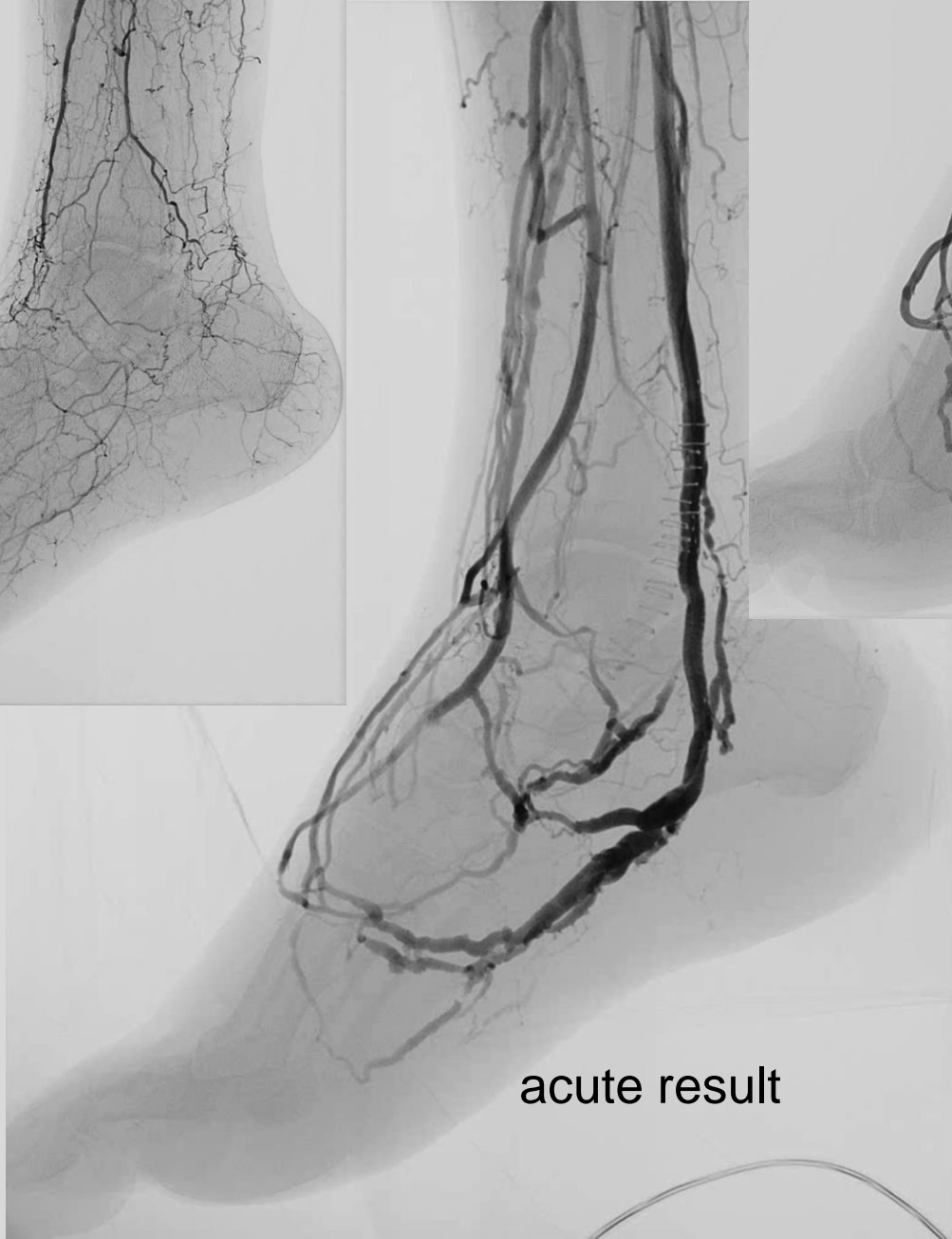
90 days



45 days



acute result



- 5 month after PDVA
- 3.5 month after TMT amputation



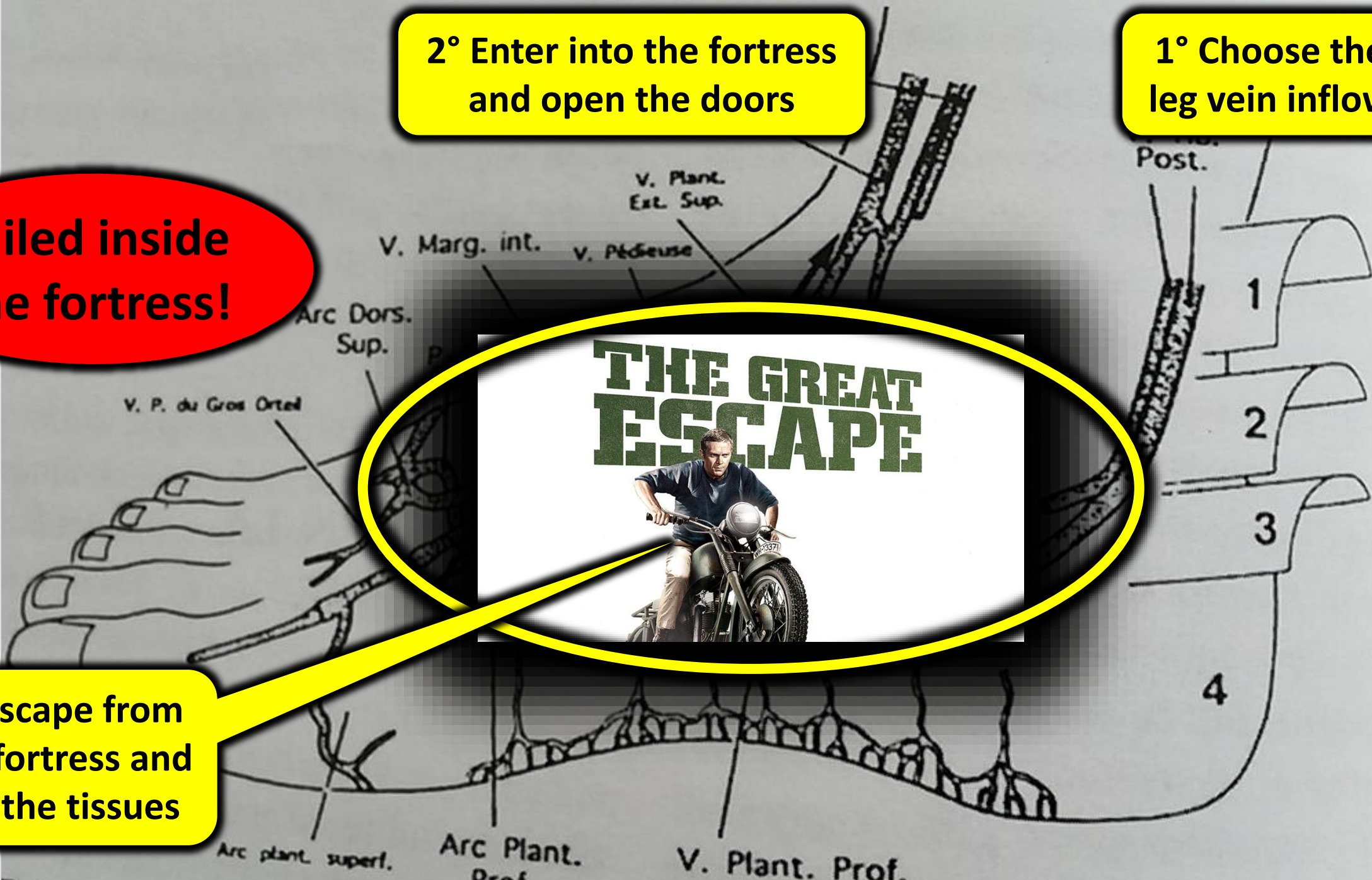
2° Enter into the fortress and open the doors

1° Choose the leg vein inflow

Jailed inside the fortress!



3° Escape from the fortress and get the tissues





Fondo de Asistencia
del Pw Diabético



10. 10. 10. 10. 10. 10.

10. 10. 10. 10.