CARDIO RUN 2024
16ème CONGRÈS DE PATHOLOGIE CARDIO-VASCULAIRE
18-19-20 SEPTEMBRE 2024
Hôtel Saint Alexis ILE DE LA RÉUNION France

Prise en charge chirurgicale des plaies du pied diabétique

Drs Matthieu Guillou, Jean Michel Radoux, Regis Renard
Clinique Sainte Clotilde
Clinique des Orchidées

Epidemiologie

- Prevalence AOMI 3% EU et 10% USA/ 15% et 20% >70 ans
- Diabete: 1/11 adulte dans le monde/ 537 millions
- En augmentation: 783 millions en 2045
- 34% ont risque d’ulcère au cours de la vie
- France 2014: 500.000 patients ALD pour AOMI
- prevalence diabete Reunion 8,82%/ 4,46% Paris (source data Ameli 2021)
- Risque d’amputation x24

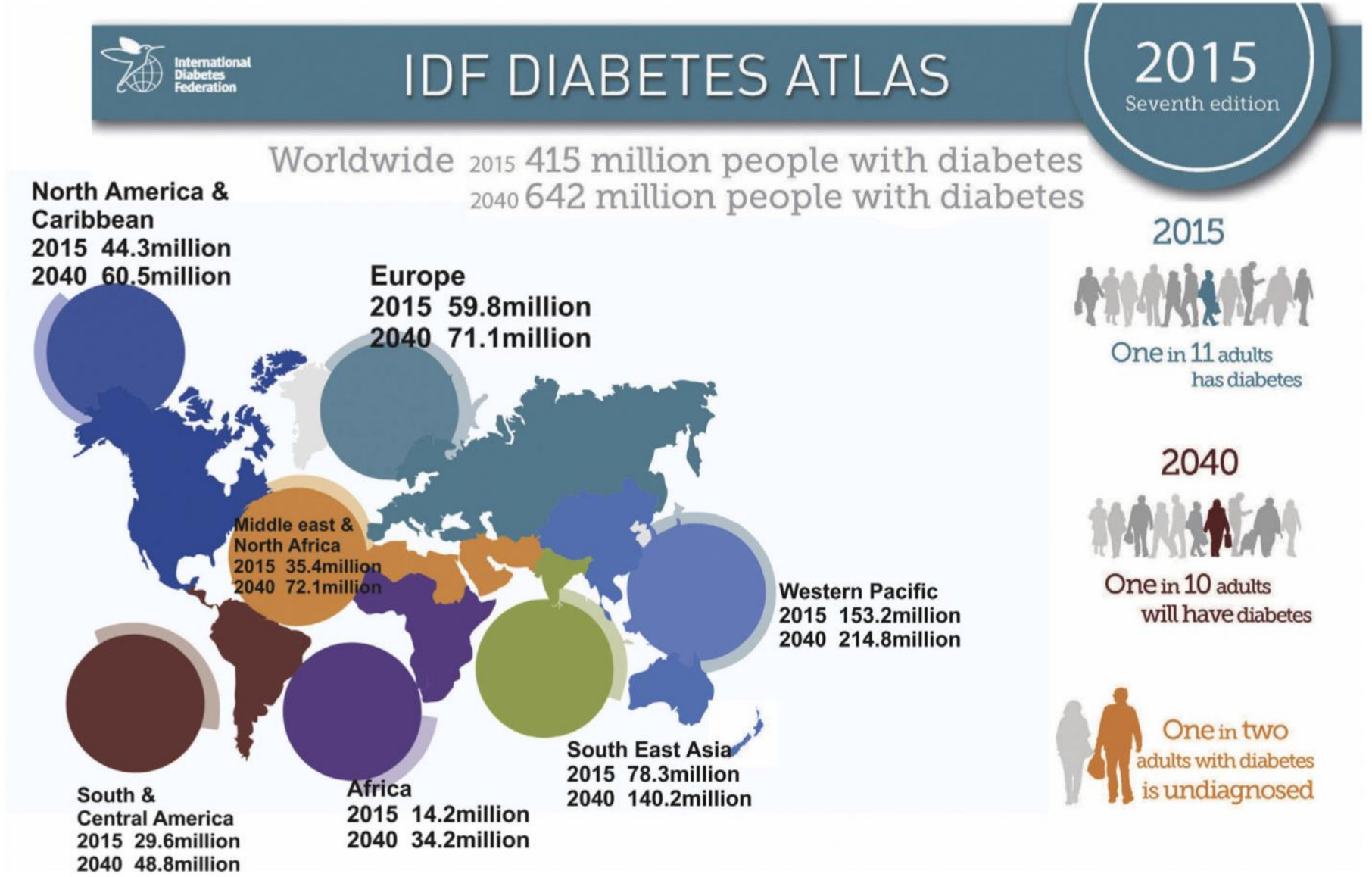
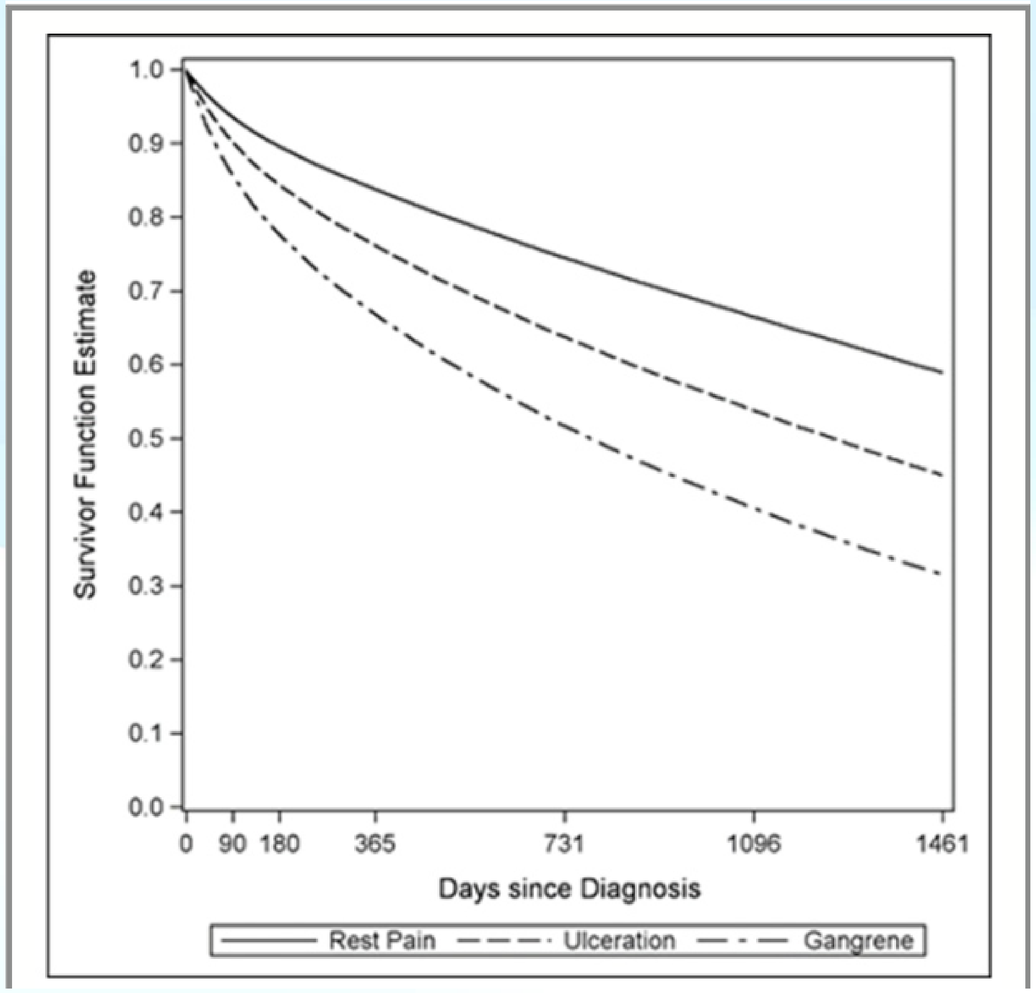
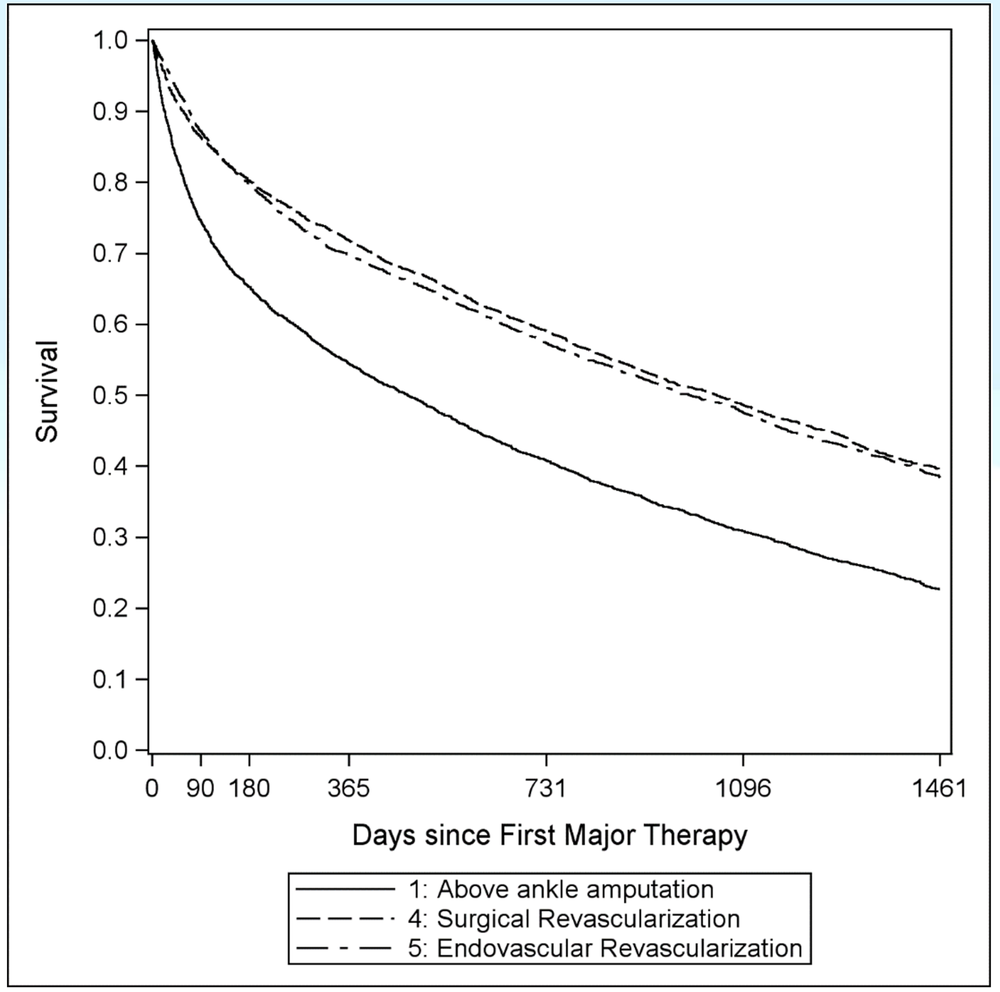


Fig 13.1.
International Diabetes Federation global diabetes projections. (From the International Diabetes Federation. IDF diabetes atlas. 7th ed. Brussels, Belgium: International Diabetes Federation; 2015.)



Survie/ clinique



Survie/ revasc

Mustapha et Al. J Am Heart Assoc. 2018;7:e009724. DOI: 10.1161

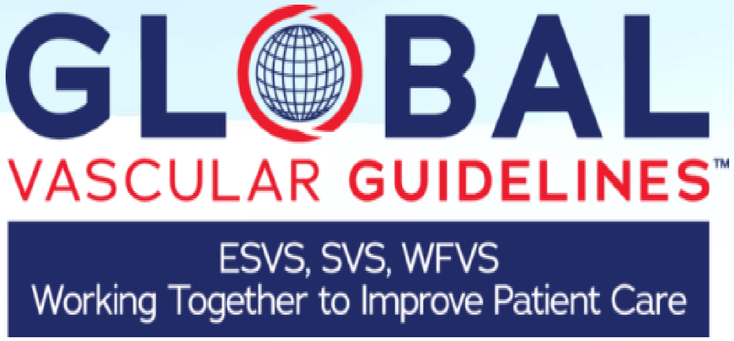
Coûts

- Ischémie chronique severe: 12 milliards/ an aux US
- Diabete = 9 milliards 2021 en France
- Coût patient amputé > coût patient revascularisé

Mustapha JA, Katzen BT, Neville RF, et al. Determinants of long-term outcomes and costs in the management of critical limb


IWGDF
Guidelines


WFVS
WORLD FEDERATION OF
VASCULAR SOCIETIES


GLOBAL
VASCULAR GUIDELINES™
ESVS, SVS, WFVS
Working Together to Improve Patient Care


esvs


SVS®
SOCIETY for VASCULAR SURGERY

Ischémie Chronique Sévère

Douleur de décubitus

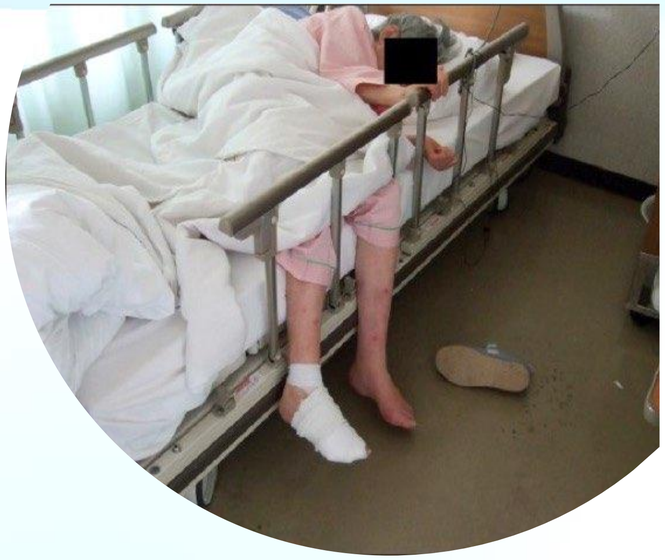
> 2 semaines

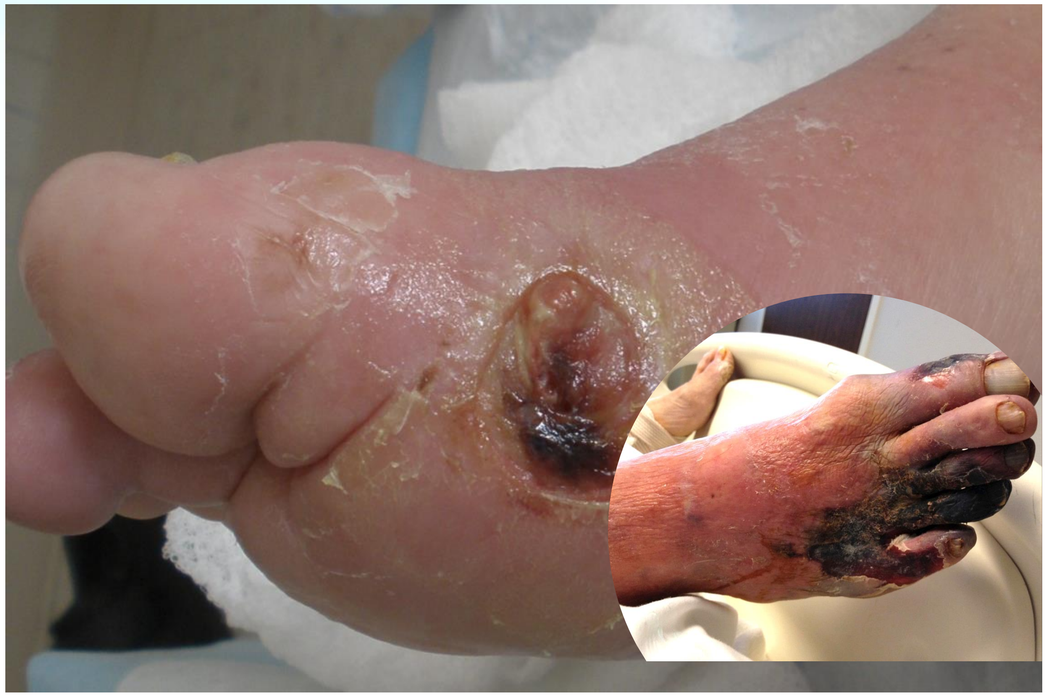
Trouble trophique

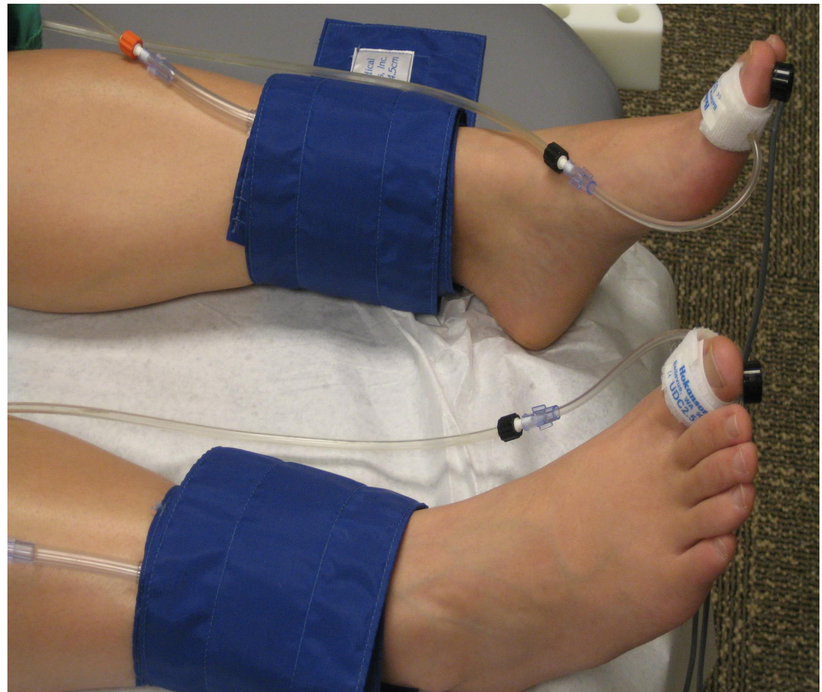
- > 2 semaines
- Gangrène ou ulcére ischémique

Hémodynamique

- IPS < 0.4
- P. orteil < 30mmHg
- TcPO2 < 30mmHg







WIfI (Wound, Ischemia, foot Infection)

	WOUND		ISCHEMIA		FOOT INFECTION
WIfI CLASS	ULCER	GANGRENE	ABI	Toe Pressure	
0	None	None	>0.8	≥ 60 mmHg	None
1	Shallow	None	0.6-0.79	40-59 mmHg	Mild
2	Deep	Digits	0.4-0.59	30-39 mmHg	Moderate
3	Extensive	Extensive	<0.39	< 30 mmHg	Severe (SIR)

On classe chaque facteur sur une échelle de gravité de 0 à 3
Sur cette base, un stade WIfI est attribué

a, Estimate risk of amputation at 1 year for each combination

	Ischemia – 0				Ischemia – 1				Ischemia – 2				Ischemia – 3			
W-0	VL	VL	L	M	VL	L	M	H	L	L	M	H	L	M	M	H
W-1	VL	VL	L	M	VL	L	M	H	L	M	H	H	M	M	H	H
W-2	L	L	M	H	M	M	H	H	M	H	H	H	H	H	H	H
W-3	M	M	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	fI-0	fI-1	fI-2	fI-3	fI-0	fI-1	fI-2	fI-3	fI-0	fI-1	fI-2	fI-3	fI-0	fI-1	fI-2	fI-3

b, Estimate likelihood of benefit of/requirement for revascularization (assuming infection can be controlled first)

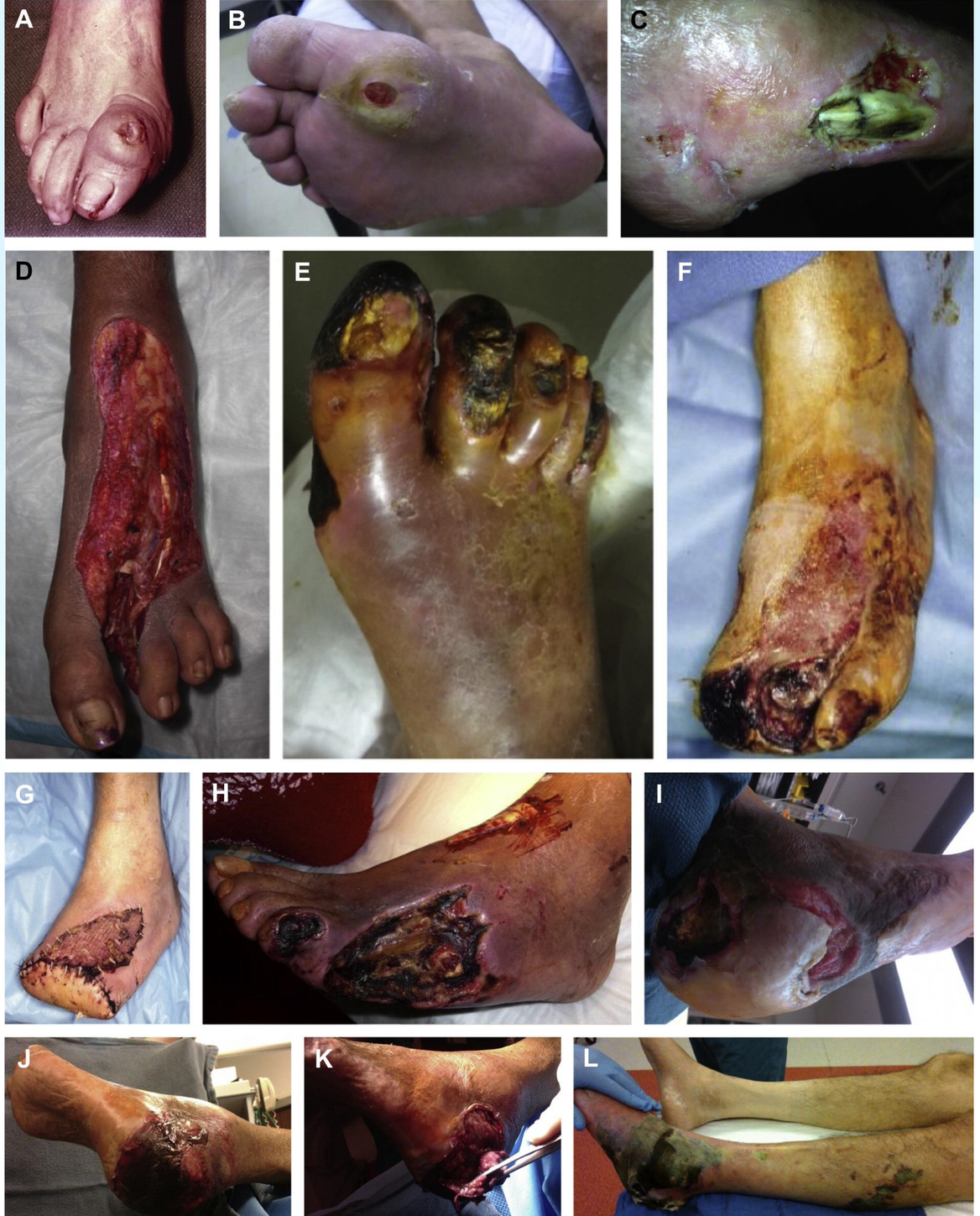
	Ischemia – 0				Ischemia – 1				Ischemia – 2				Ischemia – 3			
W-0	VL	VL	VL	VL	VL	L	L	M	L	L	M	M	M	H	H	H
W-1	VL	VL	VL	VL	L	M	M	M	M	H	H	H	H	H	H	H
W-2	VL	VL	VL	VL	M	M	H	H	H	H	H	H	H	H	H	H
W-3	VL	VL	VL	VL	M	M	M	H	H	H	H	H	H	H	H	H
	f-0	fI-1	fI-2	fI-3	fI-0	fI-1	fI-2	fI-3	fI-0	fI-1	fI-2	fI-3	fI-0	fI-1	fI-2	fI-3

fI, foot Infection; I, Ischemia; W, Wound.

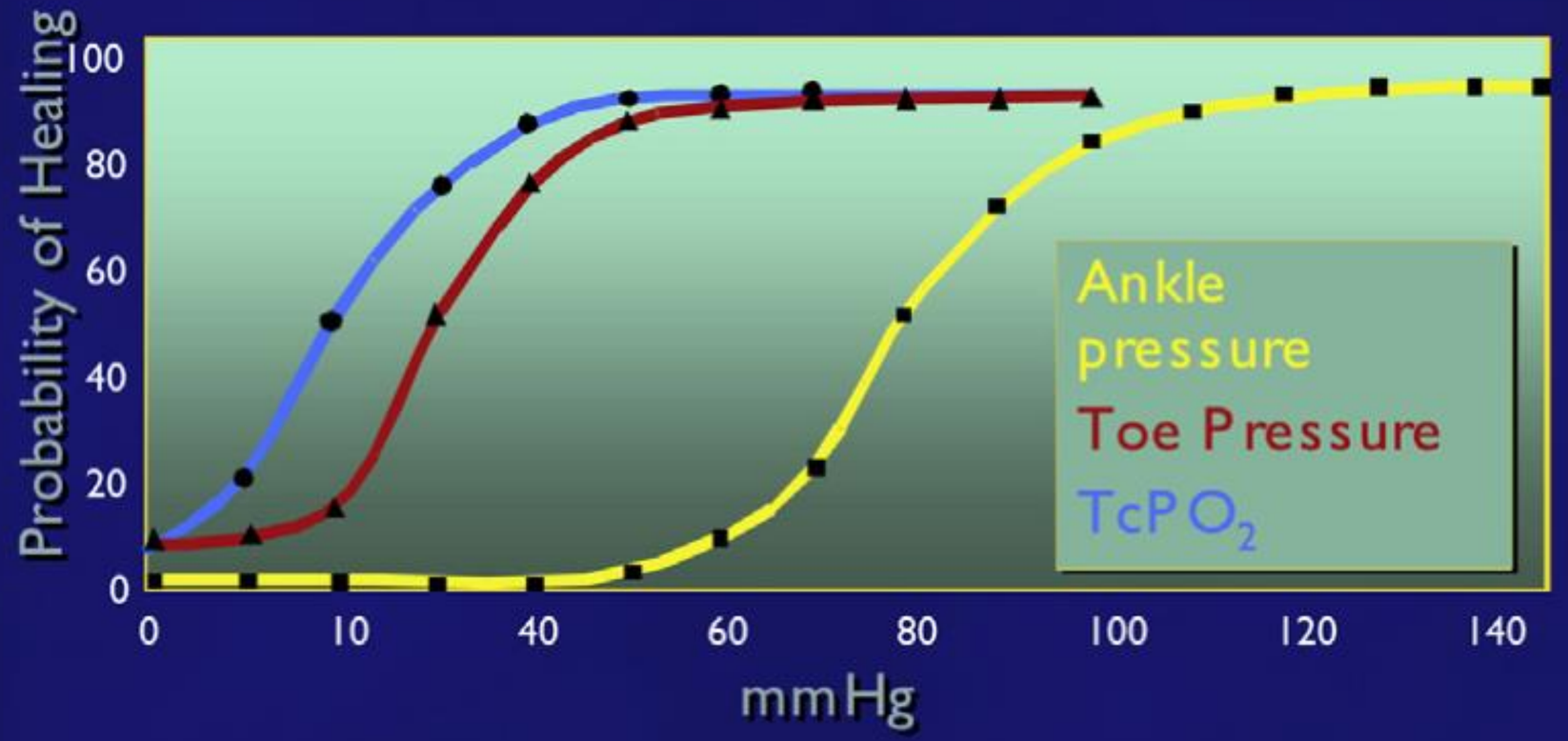
Four classes: for each box, group combination into one of these four classes

Very low = VL = clinical stage 1
Low = L = clinical stage 2
Moderate = M = clinical stage 3
High = H = clinical stage 4

Clinical stage 5 would signify an unsalvageable foot

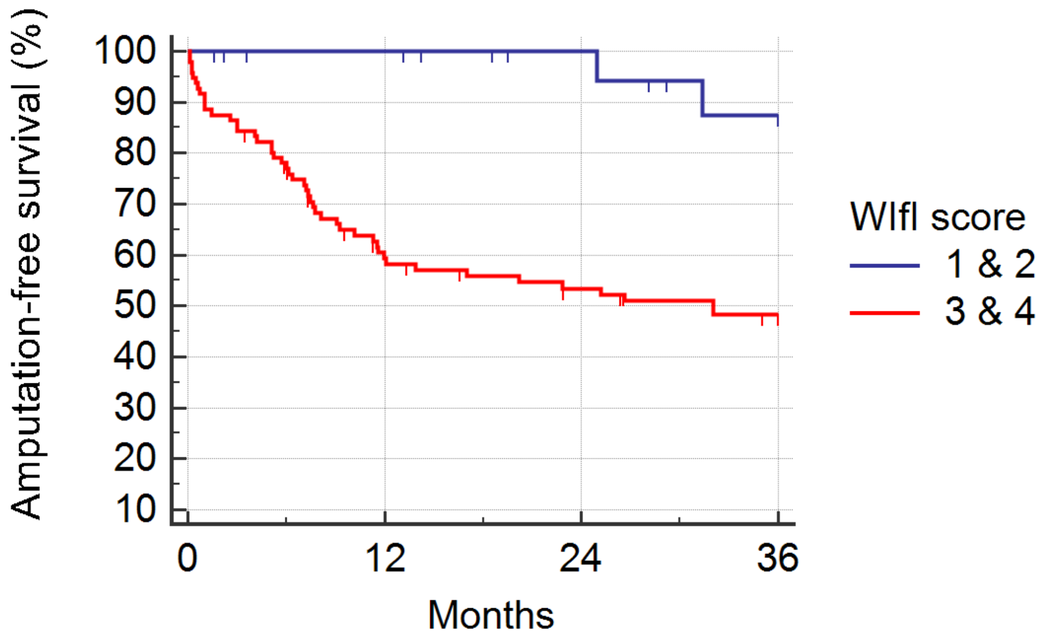

A
B
C
D
E
F
G
H
I
J
K
L

Hemodynamics and Probability of Healing of a Diabetic Foot Ulcer



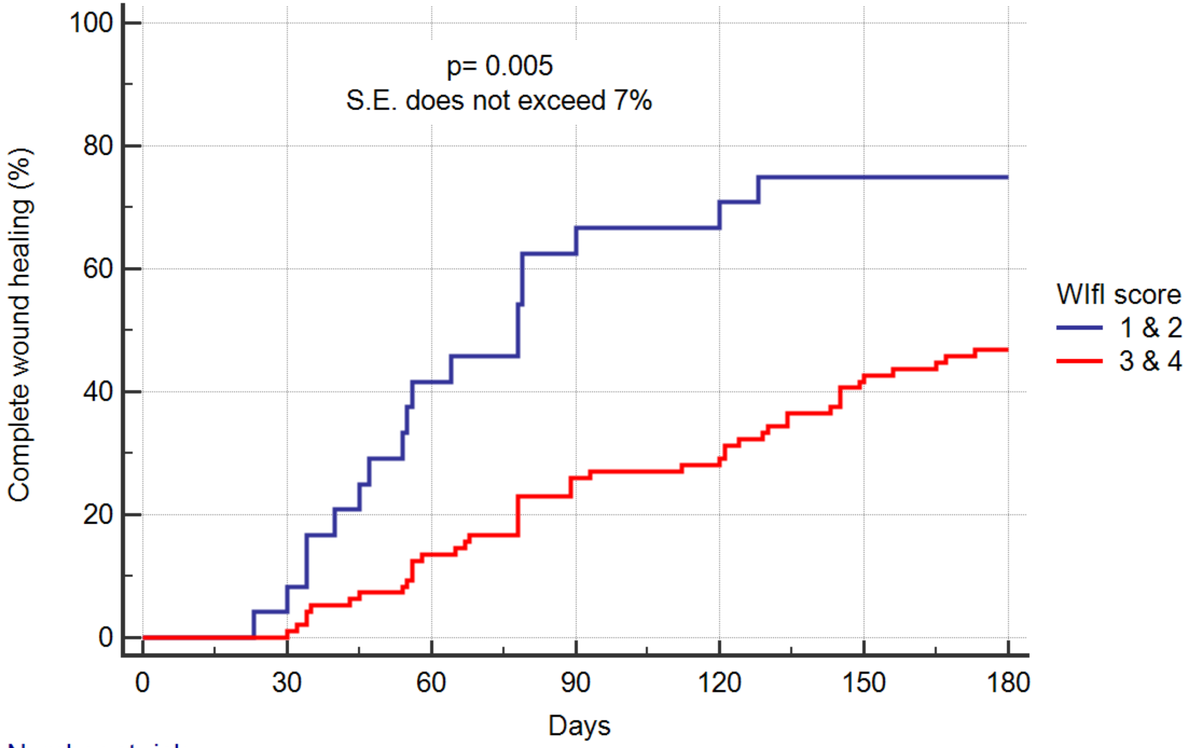
Healing unlikely if toe pressure < 55 mmHg

Mills et Al. J Vasc Surg 2014;59:220-34.)



Number at risk

WIfI 1 & 2	24	21	17	12
WIfI 3 & 4	96	52	44	36



Number at risk

WIfI 1 & 2	24	22	14	8	7	6	6
WIfI 3 & 4	96	95	83	71	68	55	51

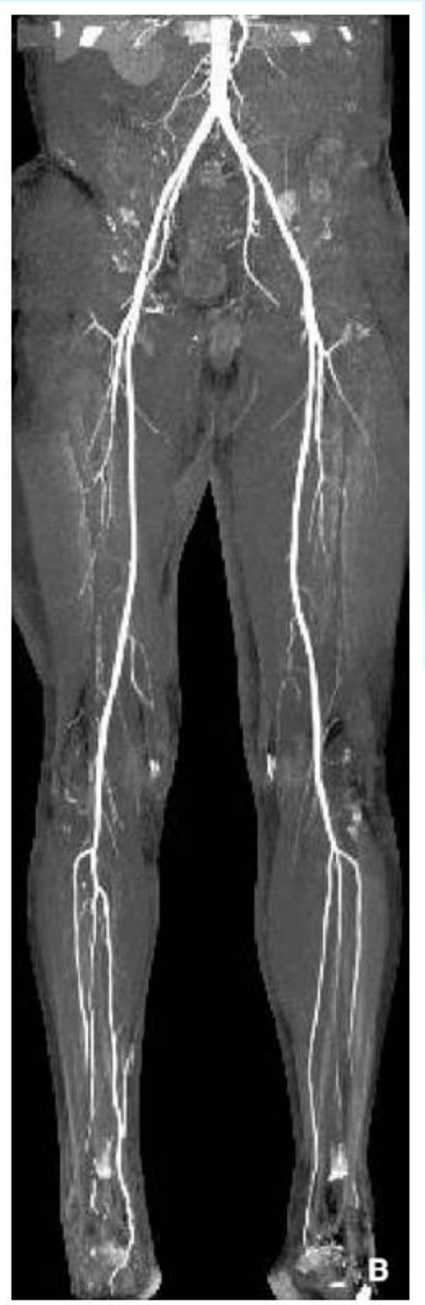
Pronostic diabete + AOMI

- sauvetage de membre à 1 an sans chir = 50%/ avec >80%
- facteur de gravité = IRC:
  - mortalité peri op = 5%
  - mortalité à 1 an = 40%

Forsythe RO, Apelqvist J, Boyko EJ, et al. Effectiveness of revascularisation of the ulcerated foot in patients with diabetes and peripheral artery disease: A systematic review. Diabetes Metab Res Rev. 2020; 36(S1):e3279

AOMI et diabete

- Peu de collatérales
- Patient jeune
- Distale ++
- Pas de douleur
- Réponse inflammatoire altérée
- Calcifications
- Tres haut risque cardio vasculaire
- Risque majoré d’amputation



Prompers L, Huijberts M, Apelqvist J, et al. Diabetologia. 2007;50(1):18-25.

Urgent!

- pression à la cheville < 50mmHg
- IPS < 0,5
- pression orteil < 30mmHg
- TCPO2 < 25 mmHg
- < 2semaines

Noronen K, Saarinen E, Alback A, Venermo M. Eur J Vasc Endovasc Surg. 2017; 53(2): 206-213.

Hinchliffe RJ, Forsythe RO, Apelqvist J, et al. Diabetes Metab Res/Rev. 2020;36(Suppl 1):e3276

- Always consider **urgent vascular imaging, and revascularization**, in a patient with a diabetic foot ulcer and an ankle pressure of <50 mmHg, ABI of <0.5, a toe pressure of <30 mmHg, or a TcPO2 of <25 mmHg

- Always consider revascularization in a patient with a diabetic foot ulcer and PAD, **irrespective of the results of bedside tests**, when the ulcer is not healing within 4 to 6 weeks despite optimal management

- **Do not assume diabetic microangiopathy**, when present, is the cause of poor healing in patients with a diabetic foot ulcer; therefore, always consider other possibilities for poor healing. 50% des porteurs ulcere diab ont aomi.

- Urgent imaging and treatment should also be considered in patients with PAD and higher pressure levels, in the presence of **other predictors of poor prognosis**, including infection or large ulcer surface area

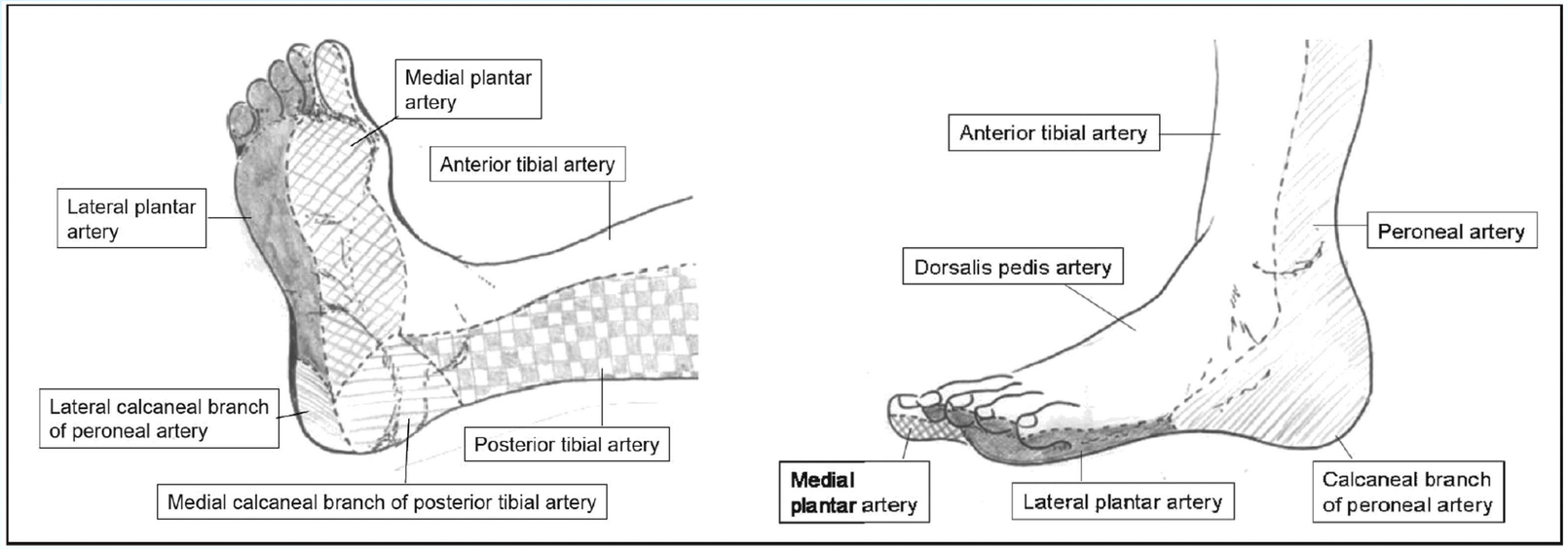
Fitridge R, Chuter V, Mills J, et al. The intersocietal IWGDF, ESVS, SVS guidelines on peripheral artery disease in people with diabetes and a foot ulcer. Diabetes Metab Res Rev. 2024;e3686

Ince P, Game FL, Jeffcoate WJ. Diabetes Care. 2007; 30(3): 660-663

Hinchliffe RJ, Forsythe RO, Apelqvist J, et al. Diabetes Metab Res/Rev. 2020;36(Suppl 1):e3276

Traitement

- Arteriographie + angioplasties: gold standard
- Veine saphène interne?



Schaper NC, et Al. Diabetes Metab Res Rev. 2012; 28 (S1): 218–224

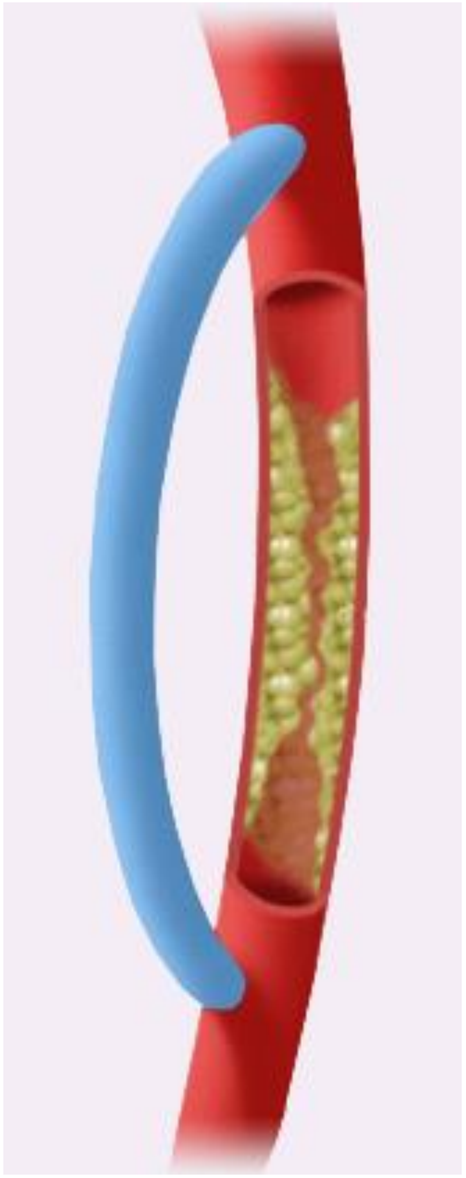
The NEW ENGLAND JOURNAL of MEDICINE

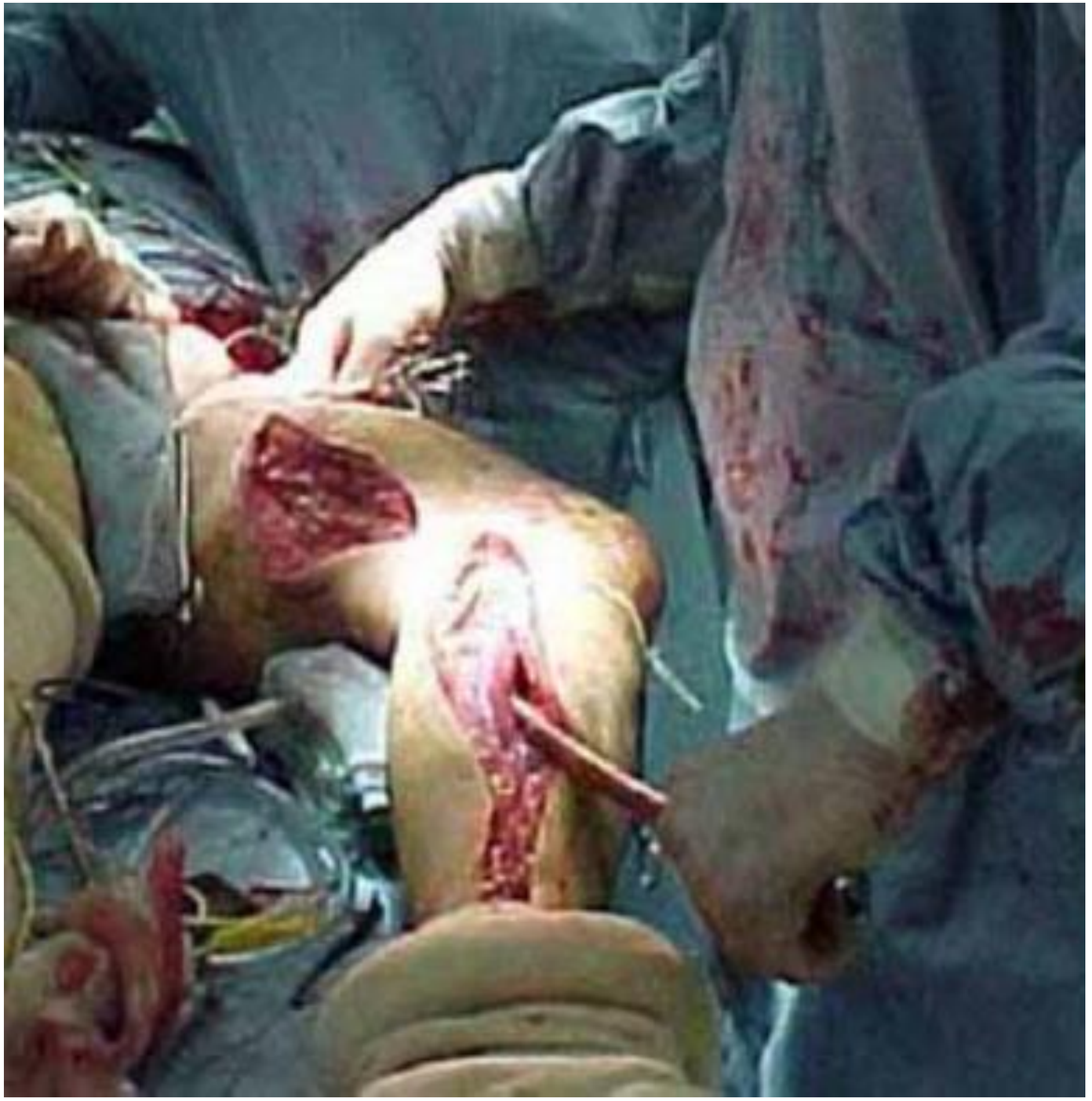
ESTABLISHED IN 1812 DECEMBER 22, 2022 VOL. 387 NO. 25

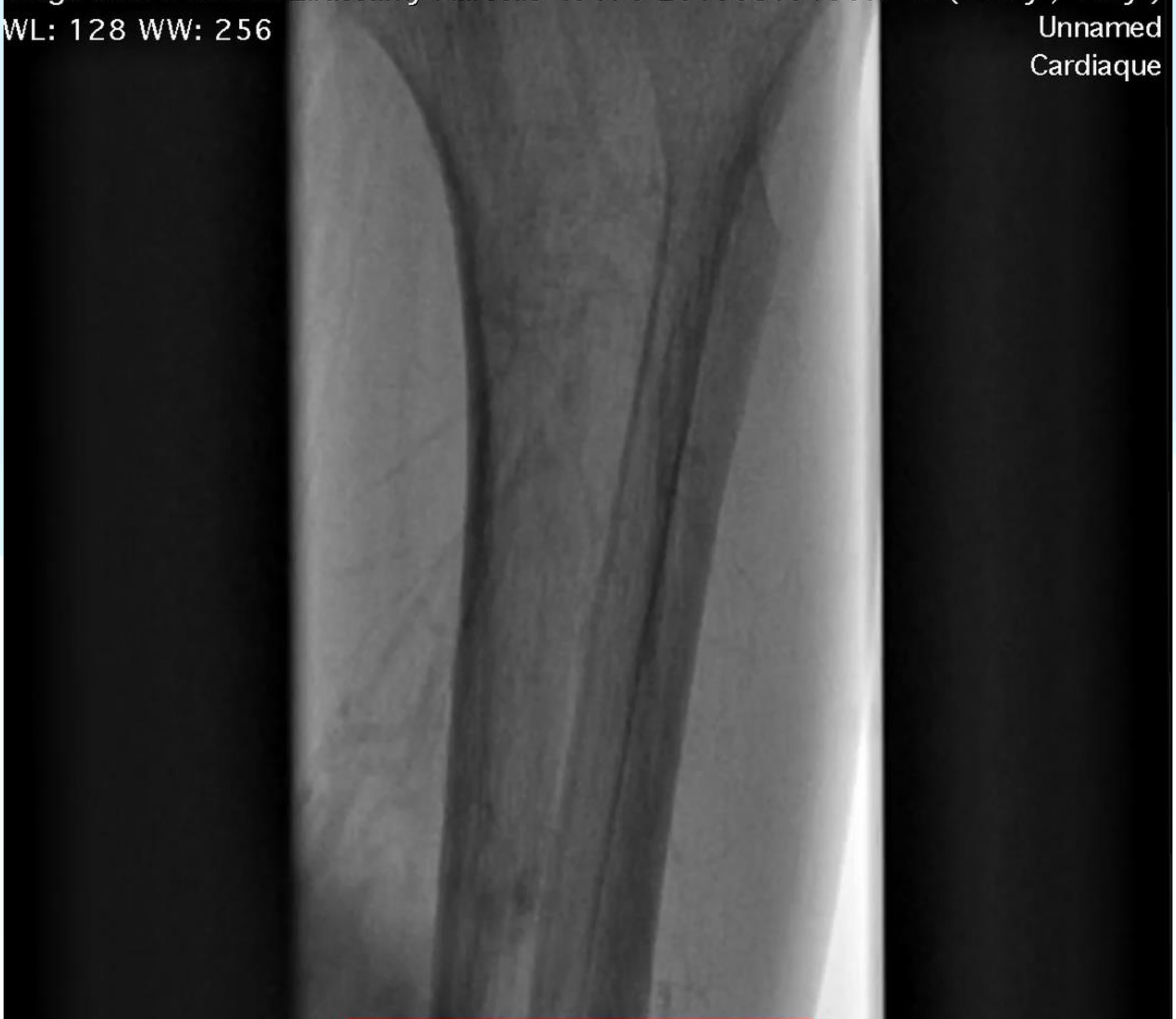
Surgery or Endovascular Therapy for Chronic Limb-Threatening Ischemia

A. Farber, M.T. Menard, M.S. Conte, J.A. Kaufman, R.J. Powell, N.K. Choudhry, T.H. Hamza, S.F. Assmann,* M.A. Creager, M.J. Cziraky, M.D. Dake, M.R. Jaff, D. Reid, F.S. Siami, G. Sopko, C.J. White, M. van Over, M.B. Strong, M.F. Villarreal, M. McKean, E. Azene, A. Azarbal, A. Barleben, D.K. Chew, L.C. Clavijo, Y. Douville, L. Findeiss, N. Garg, W. Gasper, K.A. Giles, P.P. Goodney, B.M. Hawkins, C.R. Herman, J.A. Kalish, M.C. Koopmann, I.A. Laskowski, C. Mena-Hurtado, R. Motaganahalli, V.L. Rowe, A. Schanzer, P.A. Schneider, J.J. Siracuse, M. Venermo, and K. Rosenfield, for the BEST-CLI Investigators†

BEST-CLI
Best Endovascular vs. Best Surgical Therapy in Patients with Critical Limb Ischemia



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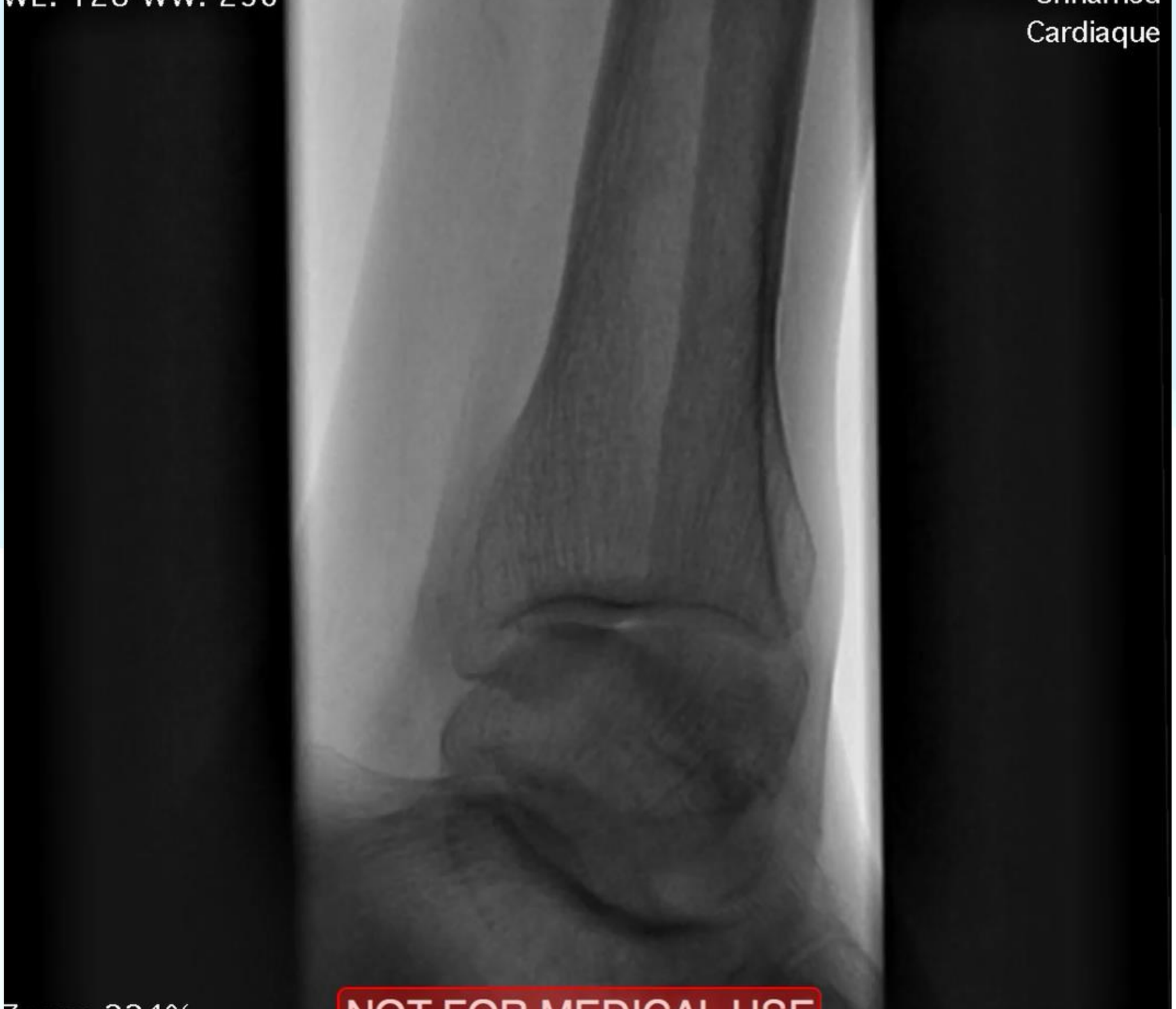
Cardiaque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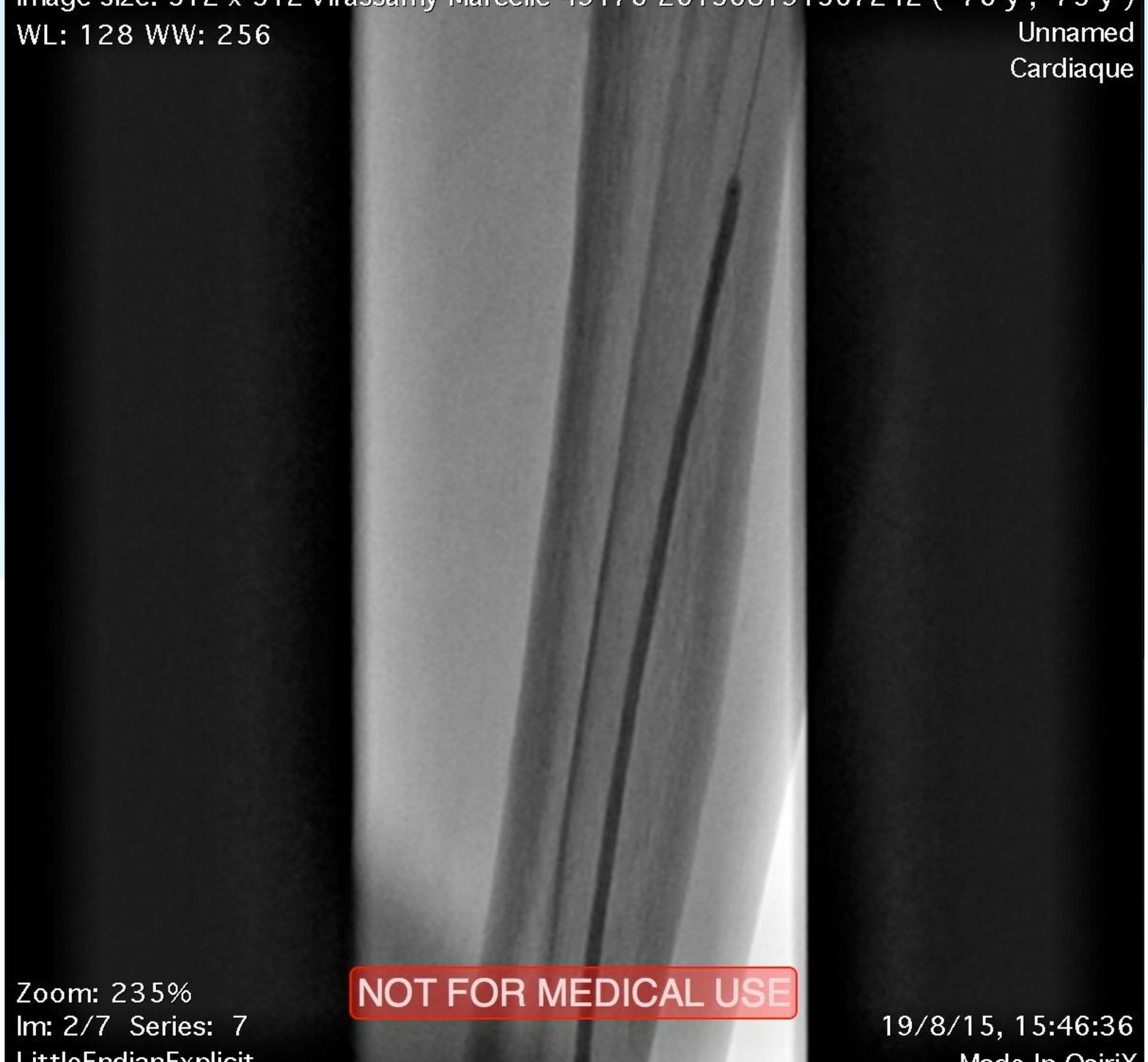
NOT FOR MEDICAL USE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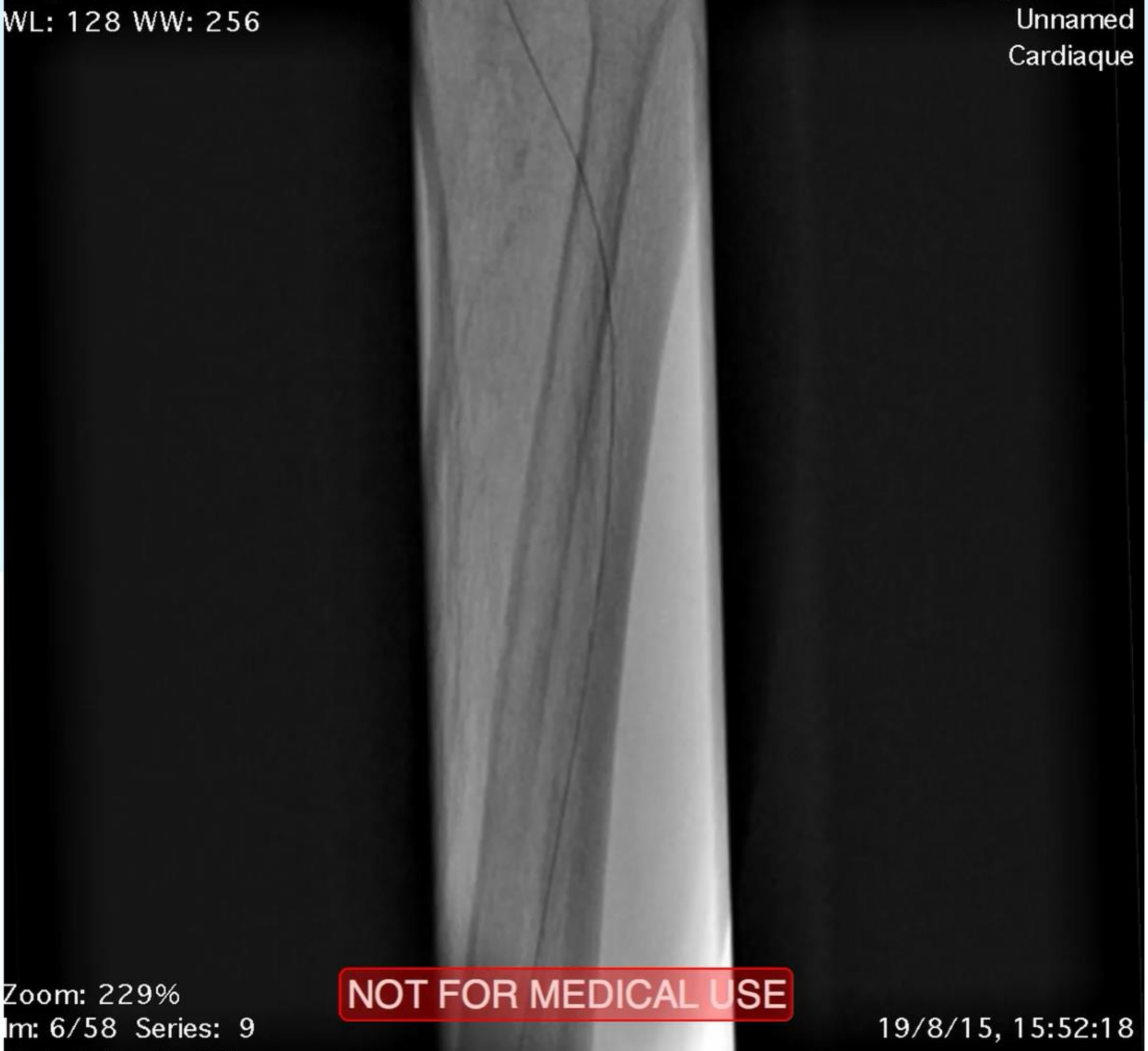
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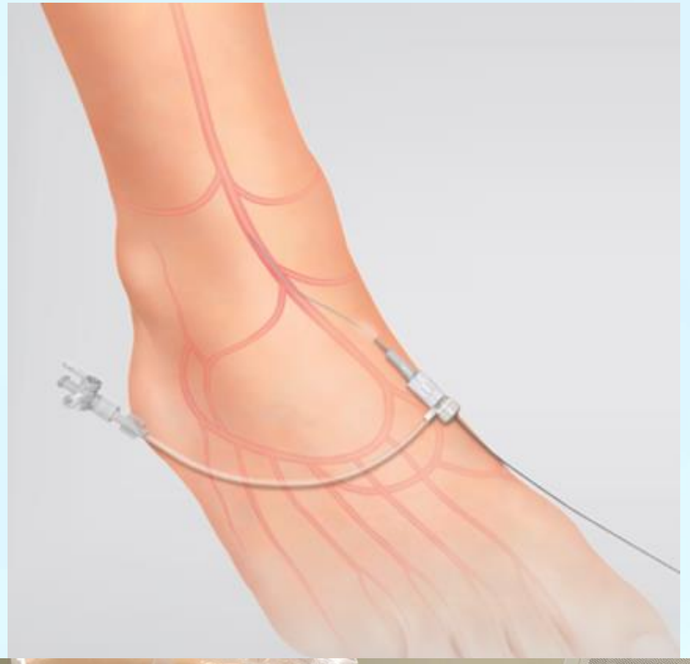
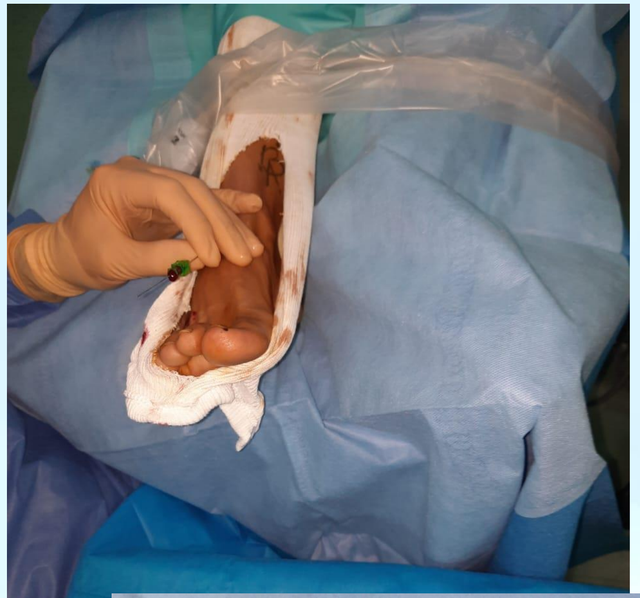
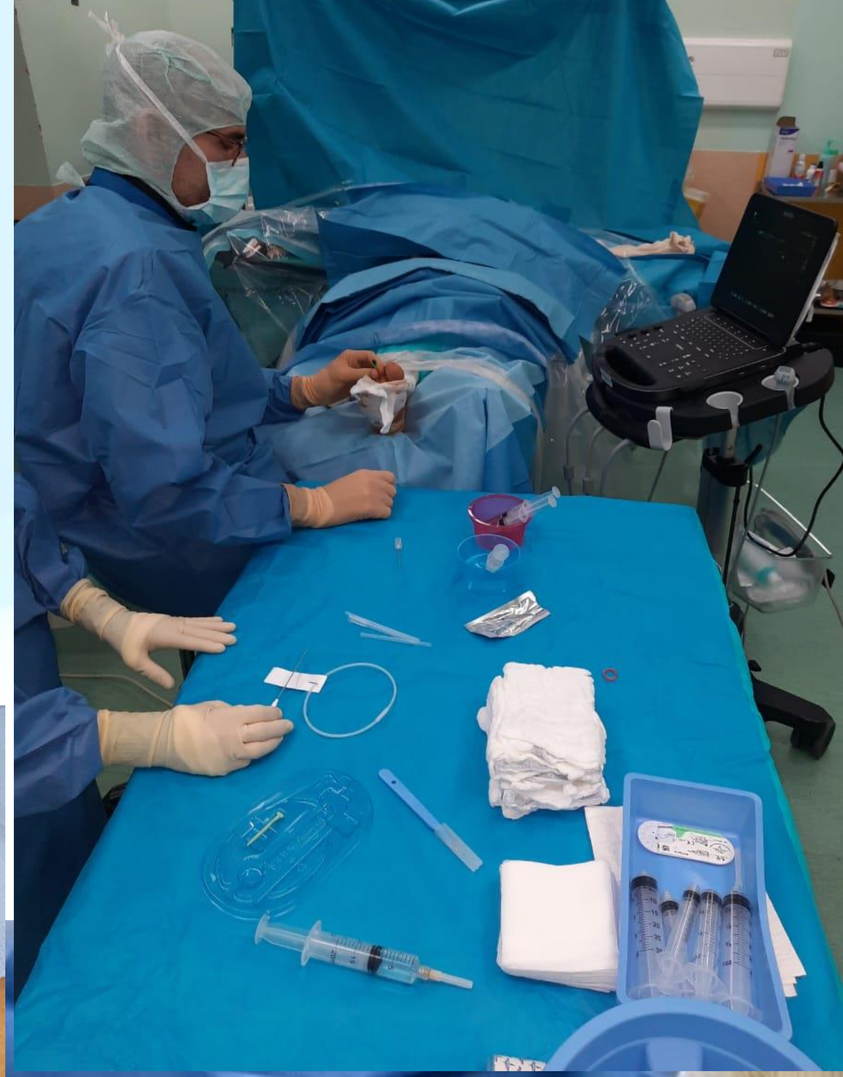
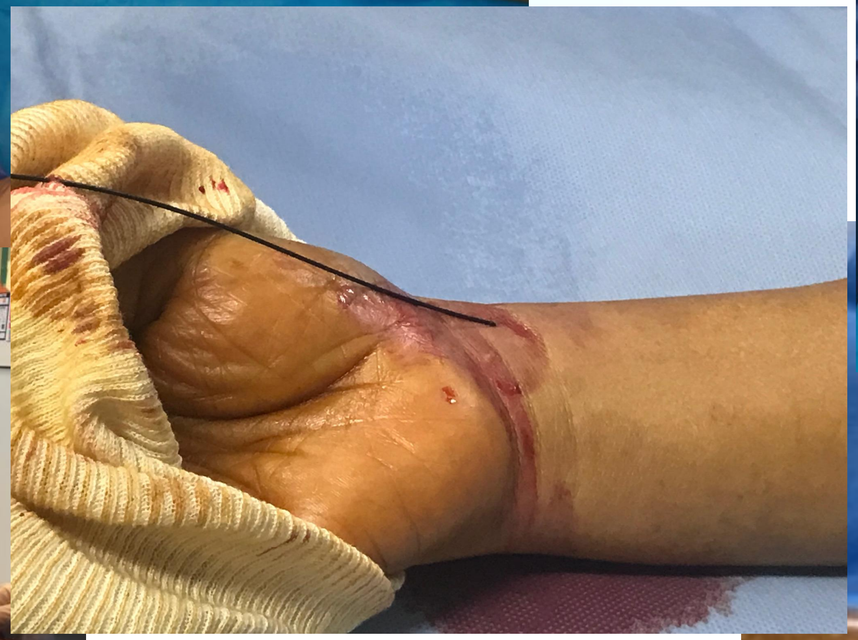
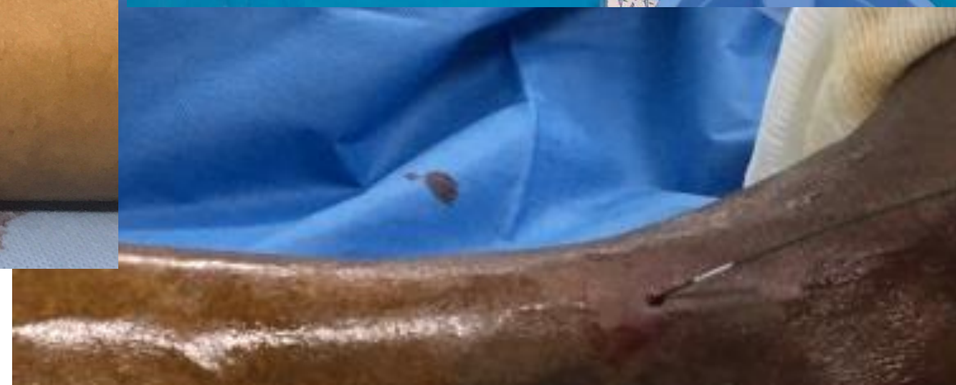
Traitement endovasculaire





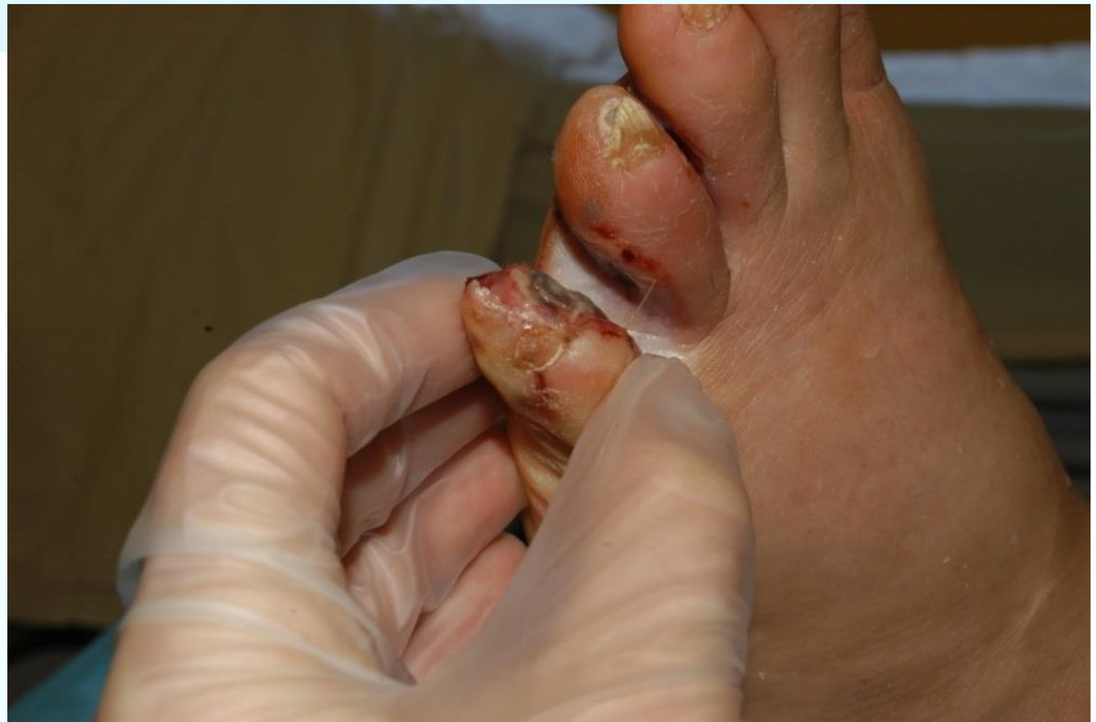


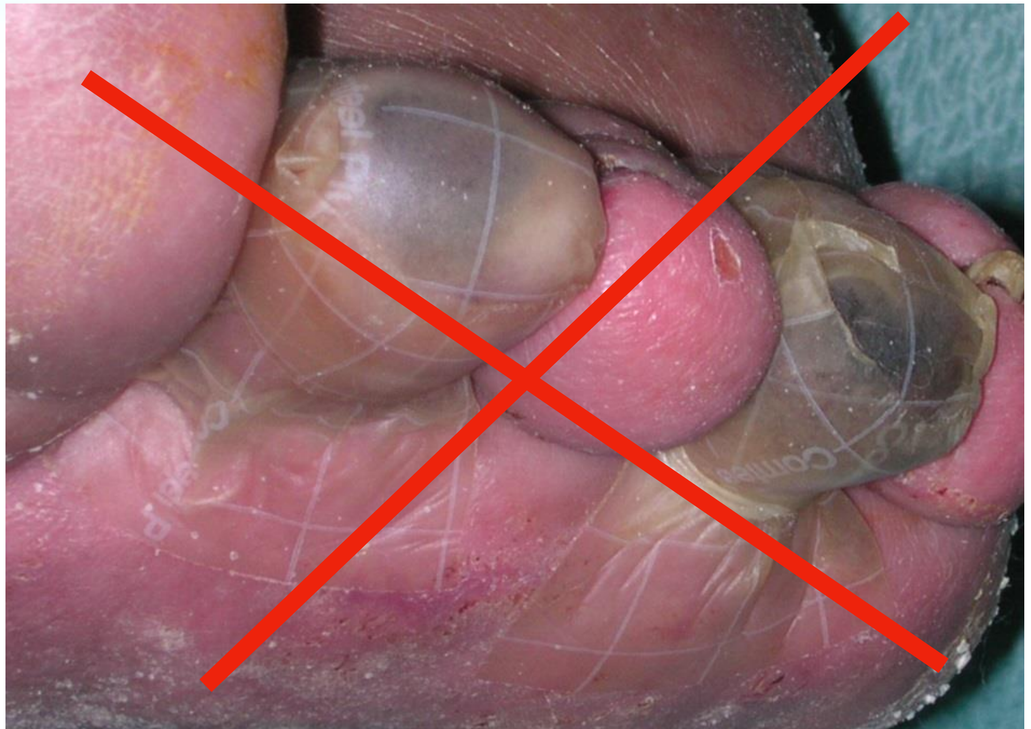




Principes traitement local

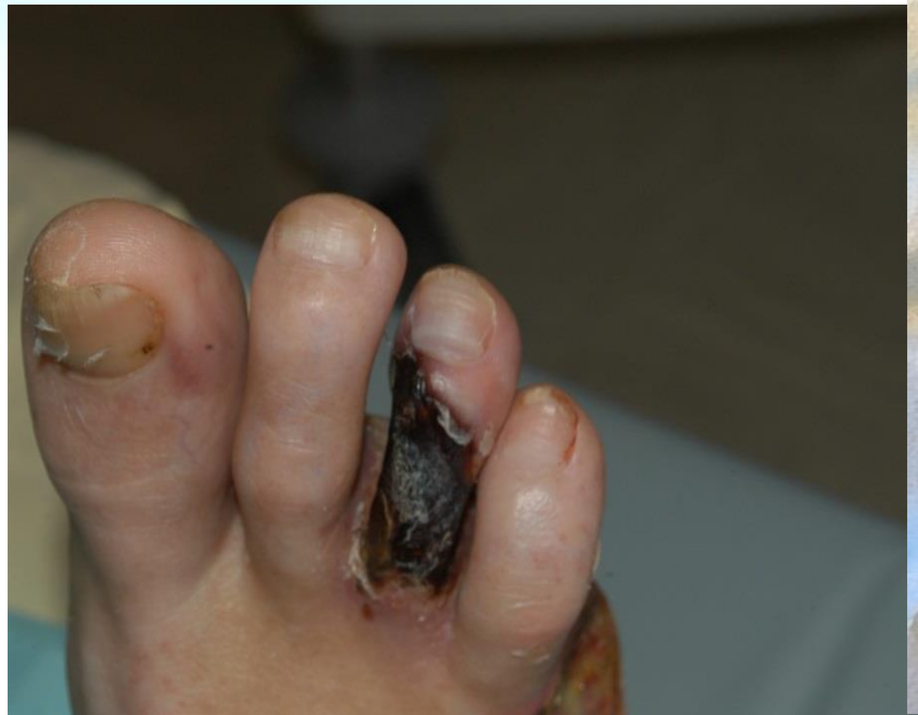
- Eviter milieu humide: multiplication des germes/ inflamation/ gangrene/ douleur
- Eviter les traumatismes (plaie et peau peri lesionnelle)
- proscrire pommade/hydrogel/hydrocolloide/ film polyuretane/ adhesif

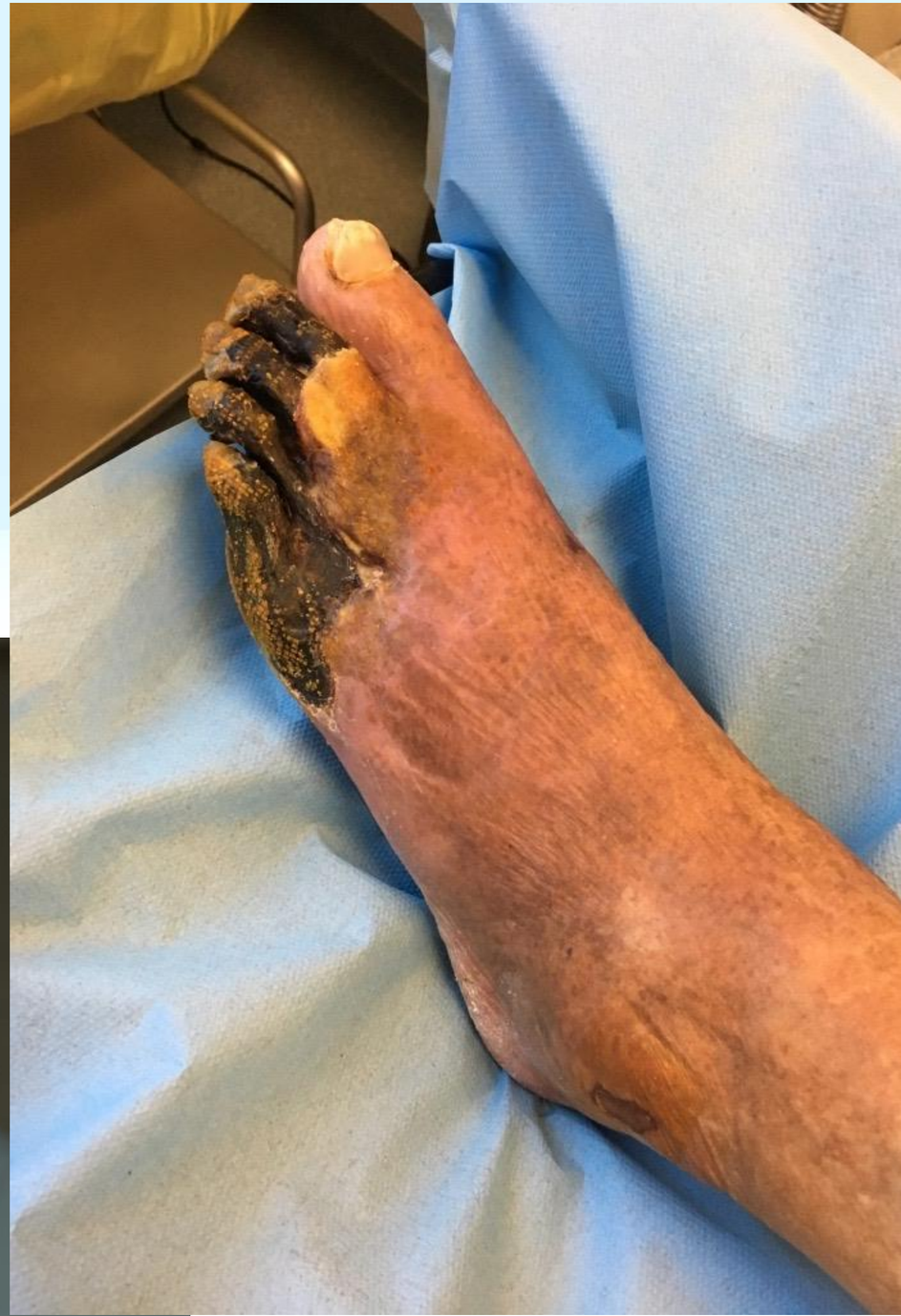


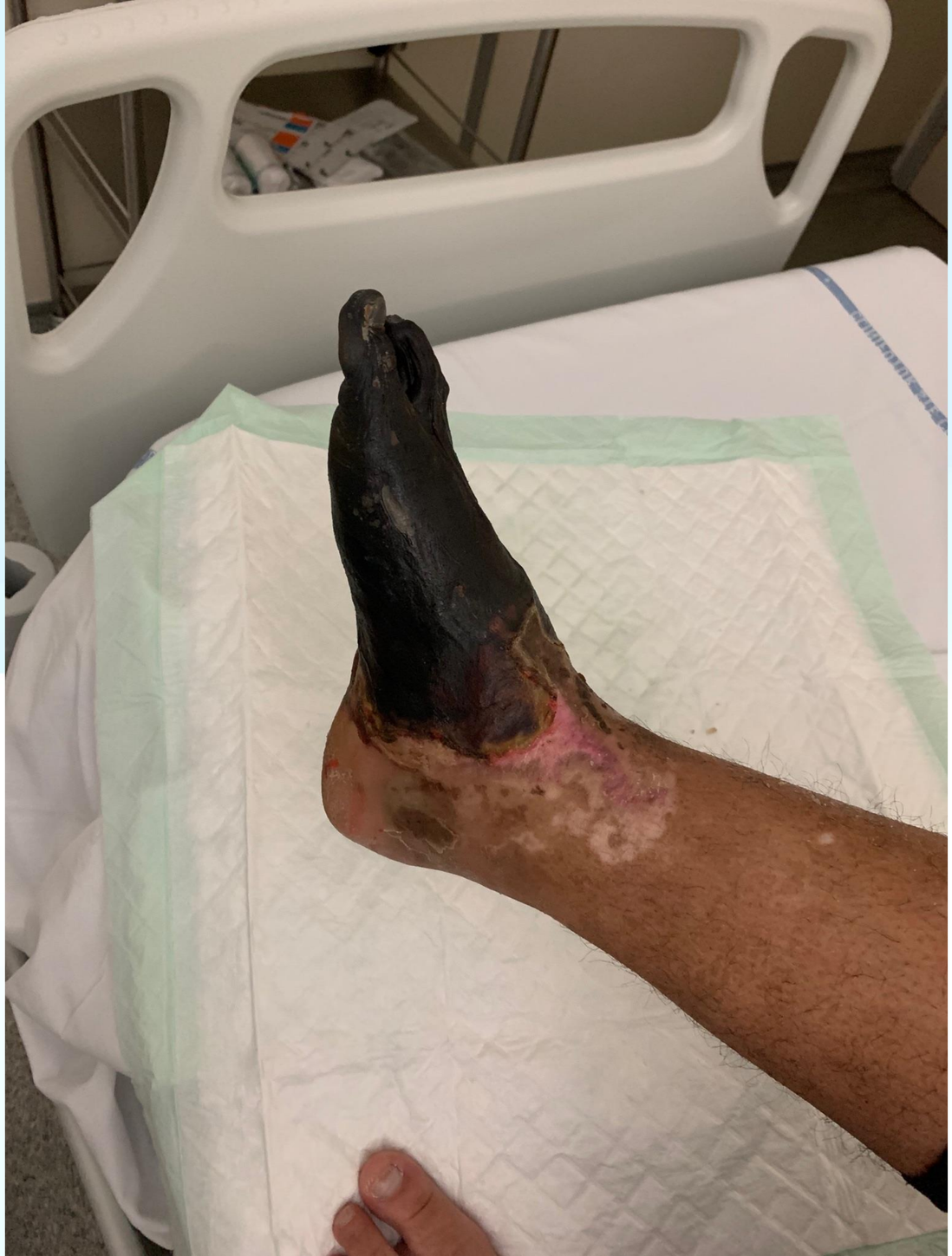


Objectif du traitement local

- Assecher
- “momifier”
- limiter extension/ le niveau d’amputation







Amputation d’emblée

- Statut neurologique
- Pas de revascularisation possible
- Alité/ statut fonctionnel
- Qualité-projet de vie

Conclusion

- agressif dans la prise en charge mais rester raisonnable
- 80% des amputations peuvent être evitées
- pris
- arte
- surveillance/ suivi

World Health Organization. World Diabetes Day: too many people are losing lower limbs unnecessarily to diabetes [press release]. Available at: https://www.who.int/mediacentre/news/releases/2005/pr61/en/