Traitement interventionnel de l'ischémie critique du dialysé

Philippe Amabile

Chirurgie vasculaire, hôpital de la Timone

Marseille

Aucun conflit d’intérêt

(Je certifie pratiquer à la fois la chirurgie ouverte et les techniques endovasculaires !)

AOMI et insuffisance rénale chronique

Comorbidités importantes

Ischémie critique

Moins de revascularisations

Plus d'amputations

Espérance de vie diminuée

Article

CKD and Acute and Long-Term Outcome of Patients with Peripheral Artery Disease and Critical Limb Ischemia

Florian Lüders, Holger Bunzemeier,† Christiane Engelbertz,* Nasser M. Malyar,* Matthias Meyborg,* Norbert Roeder,† Klaus Berger,‡ and Holger Reinecke**

Abstract

Background and objectives Despite the many studies showing an association between CKD and a high risk of ischemic events and mortality, the association of CKD with peripheral arterial disease (PAD) still has not been well described.

Design, setting, participants, & measurements This large cohort study assessed the association of CKD, even in the earlier stages, with morbidity, short- and long-term outcome, and costs among patients with PAD.

Results We identified 41,882 patients with PAD who had an index hospitalization between January 1, 2009, and December 31, 2011. Of these, 8470 (20.2%) also had CKD (CKD stage 2: n=2158 [26%]; stage 3: n=3941 [47%]; stage 4: n=935 [11%]; stage 5: n=1436 [17%]). The ratio of women to men was 1:1.2. Compared with patients without known CKD, those with CKD had higher frequencies of coronary artery disease (1.8-fold higher; P<0.001), chronic heart failure (3.3-fold higher; P<0.001), and Rutherford PAD categories 5 and 6 (1.8-fold higher; P<0.001); underwent significantly fewer revascularizations (0.9-fold fewer; P<0.001); had a nearly two-fold higher amputation rate (P<0.001); had higher frequencies of in-hospital infections (2.1-fold higher; P<0.001), acute renal failure (2.8-fold higher; P<0.001), and sepsis (1.9-fold higher; P<0.001); had a 2.5-fold higher frequency of myocardial infarction (P<0.001); and had a nearly three-fold higher in-hospital mortality rate (P<0.001). In an adjusted multivariable Cox regression model, CKD remained a significant predictor of long-term outcome of patients with PAD during follow-up for up to 4 years (until December 31, 2012; median, 775 days; 25th–75th percentiles, 469–1120 days); the hazard ratio was 2.59 (95% confidence interval, 2.21 to 2.78; P<0.001). The projected mortality rates after 4 years were 27% in patients without known CKD and 46%, 52%, 72%, and 78% in those with CKD stages 2, 3, 4, and 5, respectively. Lengths of hospital stay and reimbursement costs were on average nearly 1.4-fold higher (P<0.001) in patients who also had CKD.

Conclusions This analysis illustrates the significant and important association of CKD with in-hospital and long-term mortality, morbidity, amputation rates, duration and costs of hospitalization, in-hospital treatment, and complications in patients with PAD.

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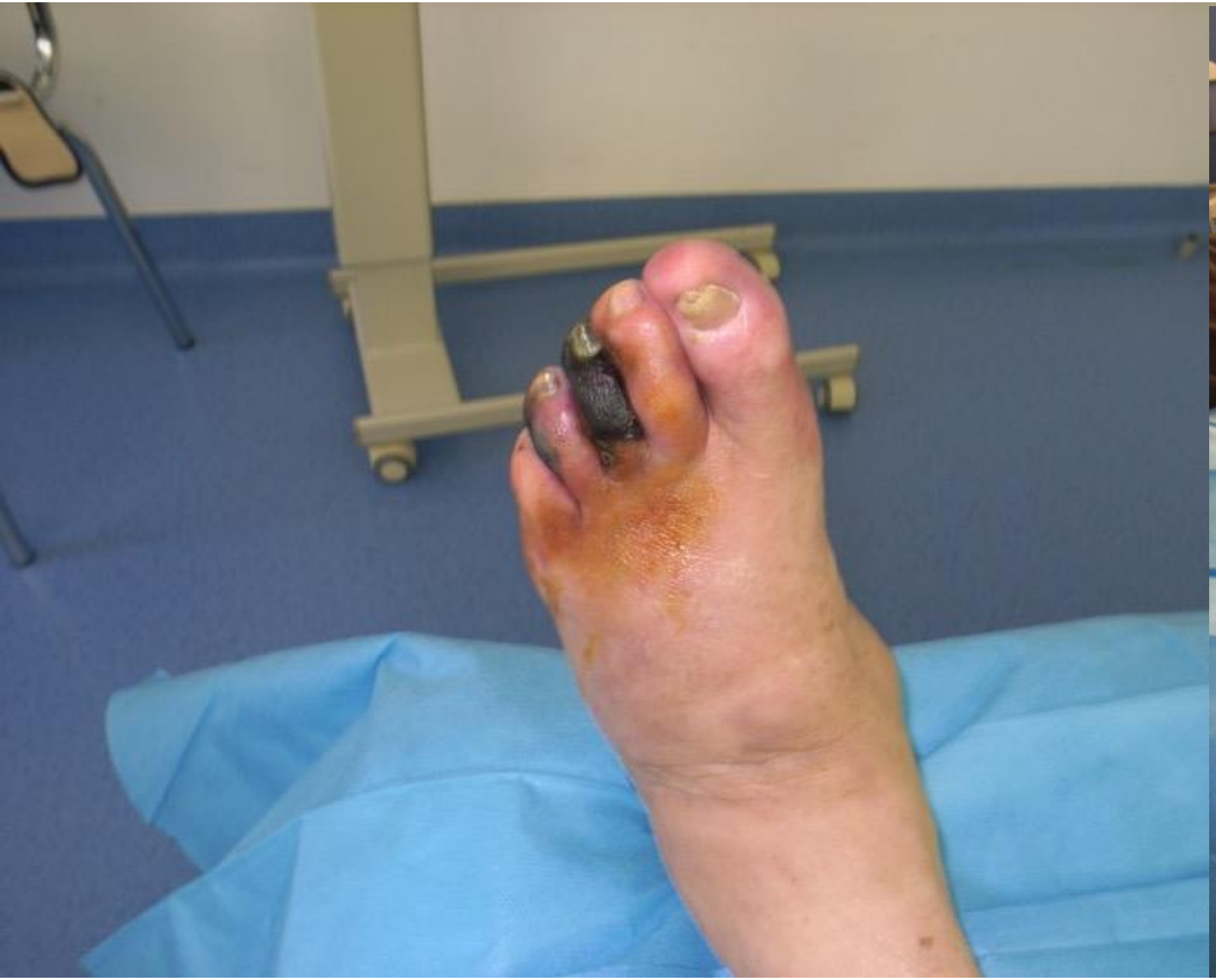
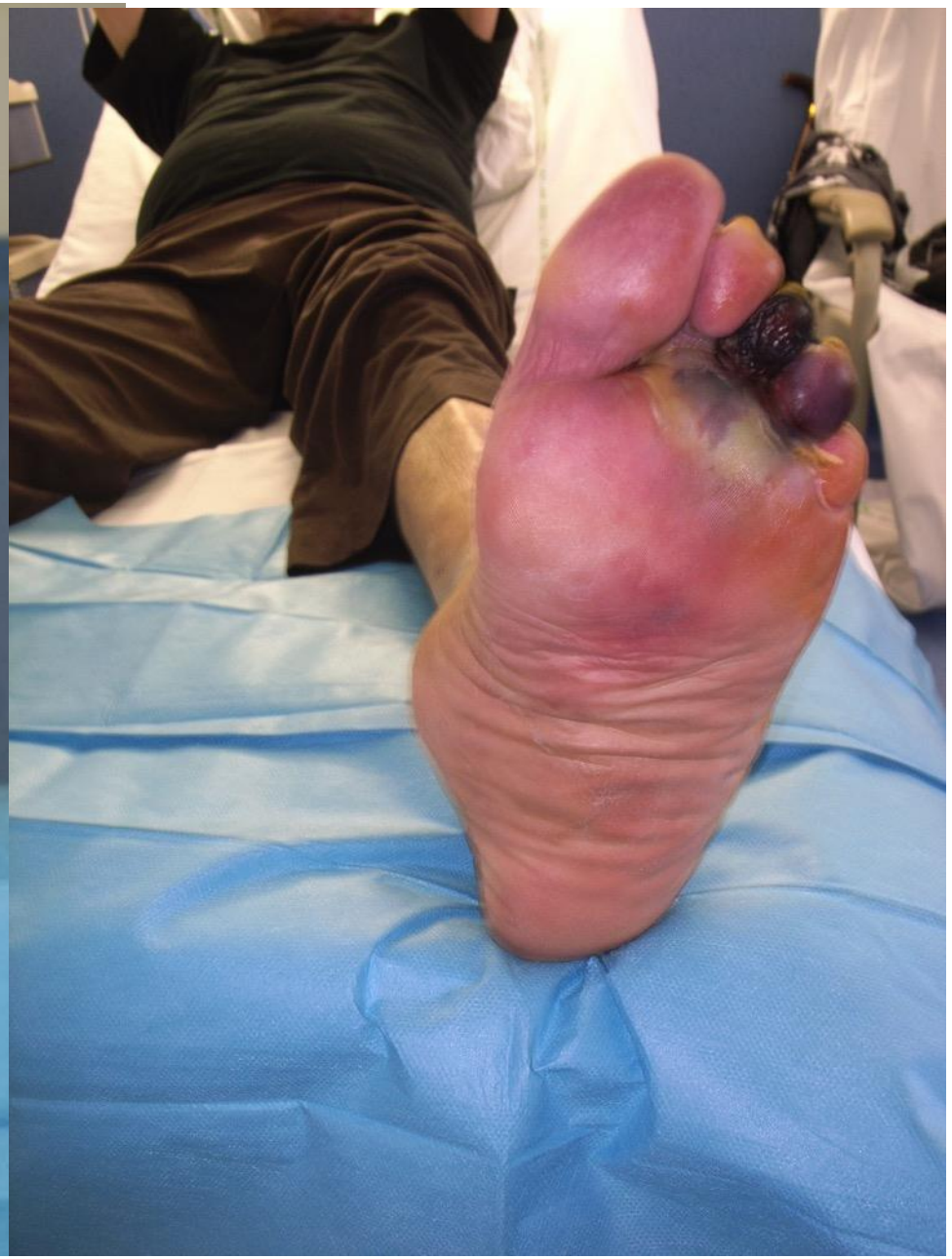
Correspondence: Dr. Florian Lüders, Division of Vascular Medicine, Department of Cardiovascular Medicine, University Hospital Muenster, Albert-Schweitzer-Straße 1, D-48129 Muenster, Germany. Email: florian.lueders@ukmuenster.de

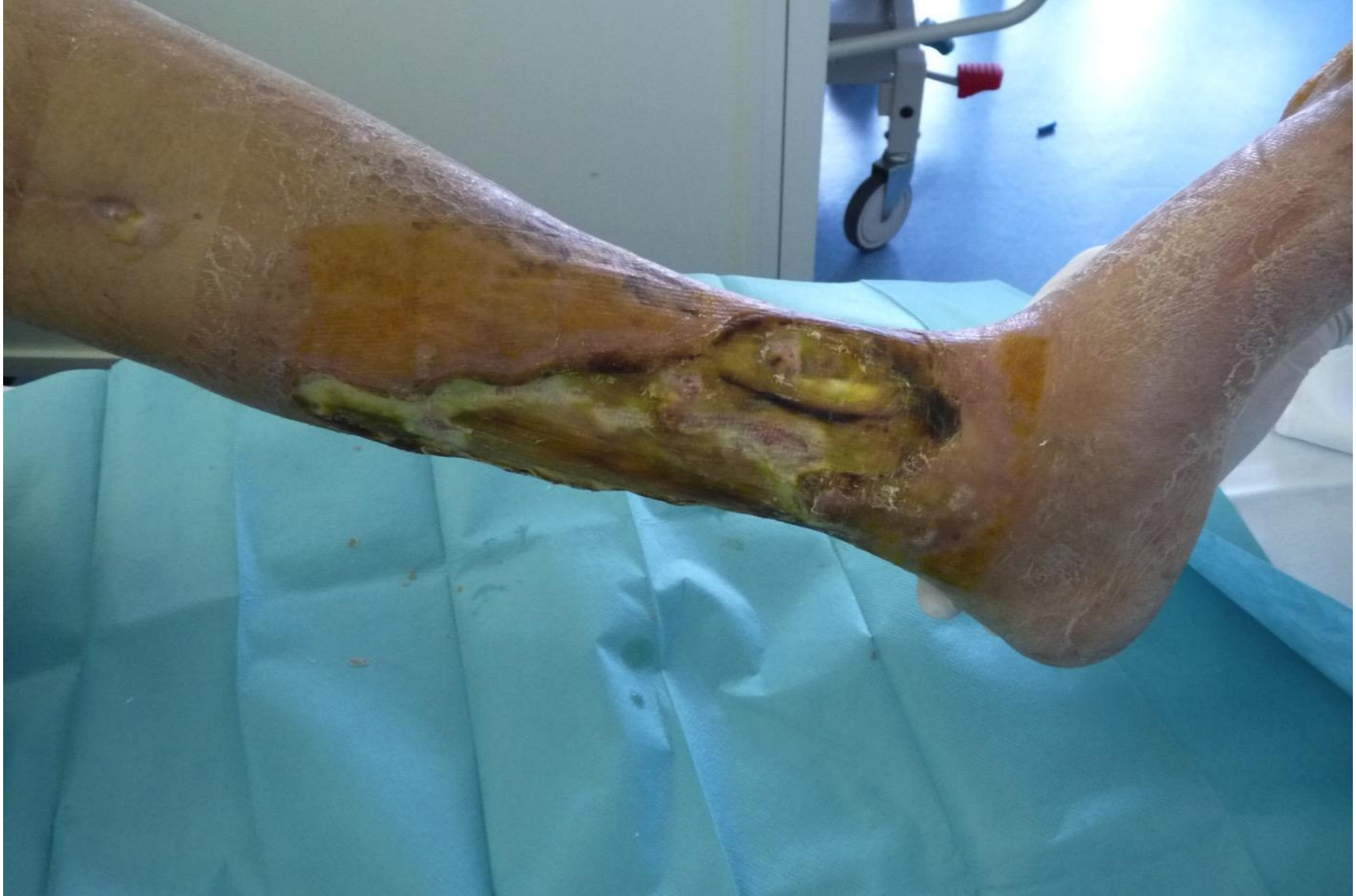
Introduction

Lower-extremity peripheral artery disease (PAD) is associated with a fatal outcome (1,2). CKD also predicts

still lack robust data and guidelines on how to treat vascular diseases in patients with CKD. Evaluations of







Ischémie critique

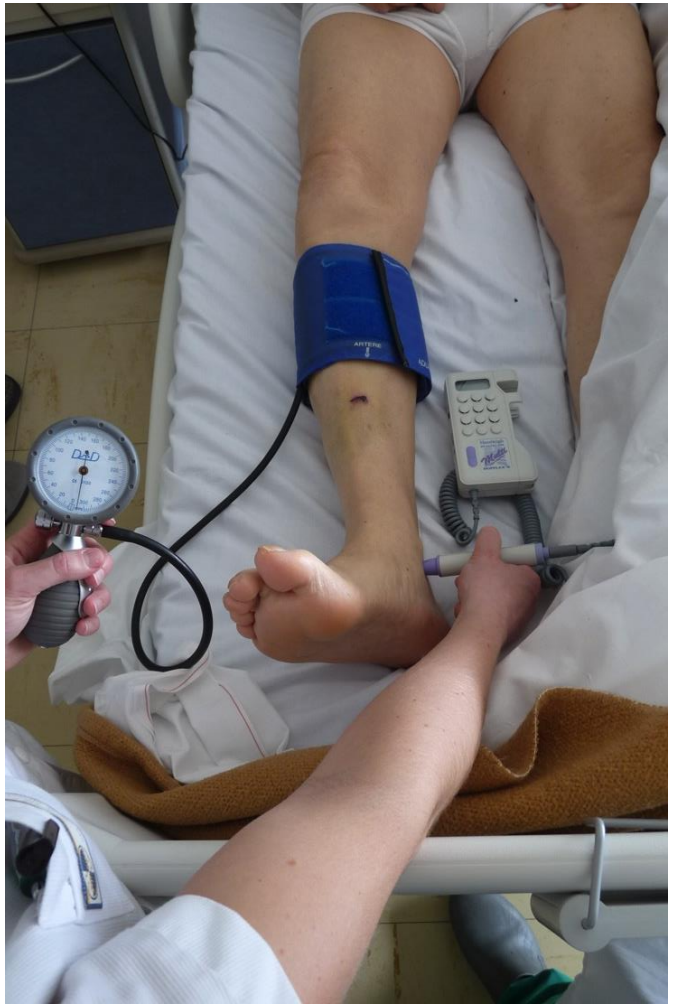
Douleurs de repos ou troubles trophiques

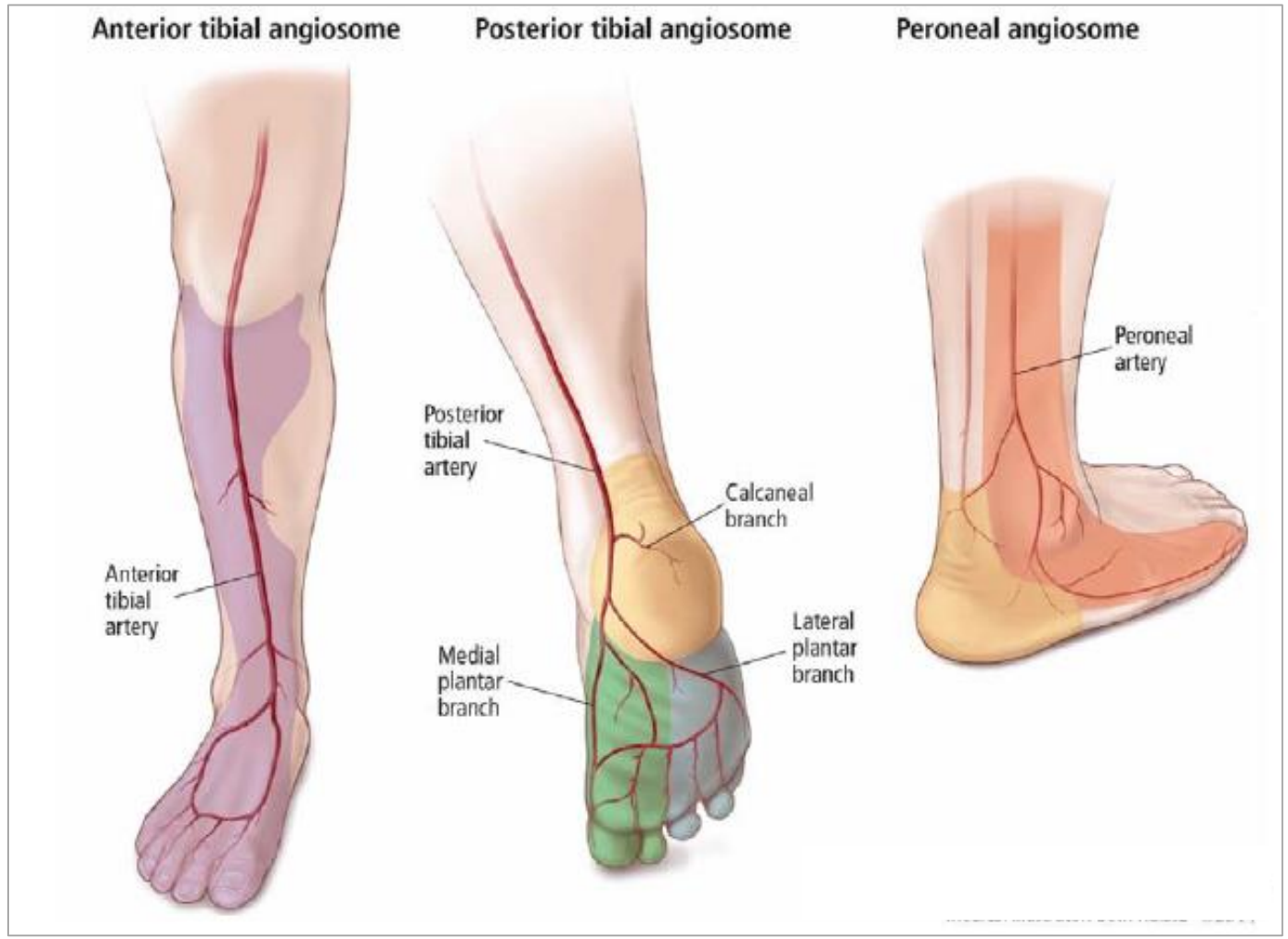
Évolution chronique > 15 jours

Pression artérielle

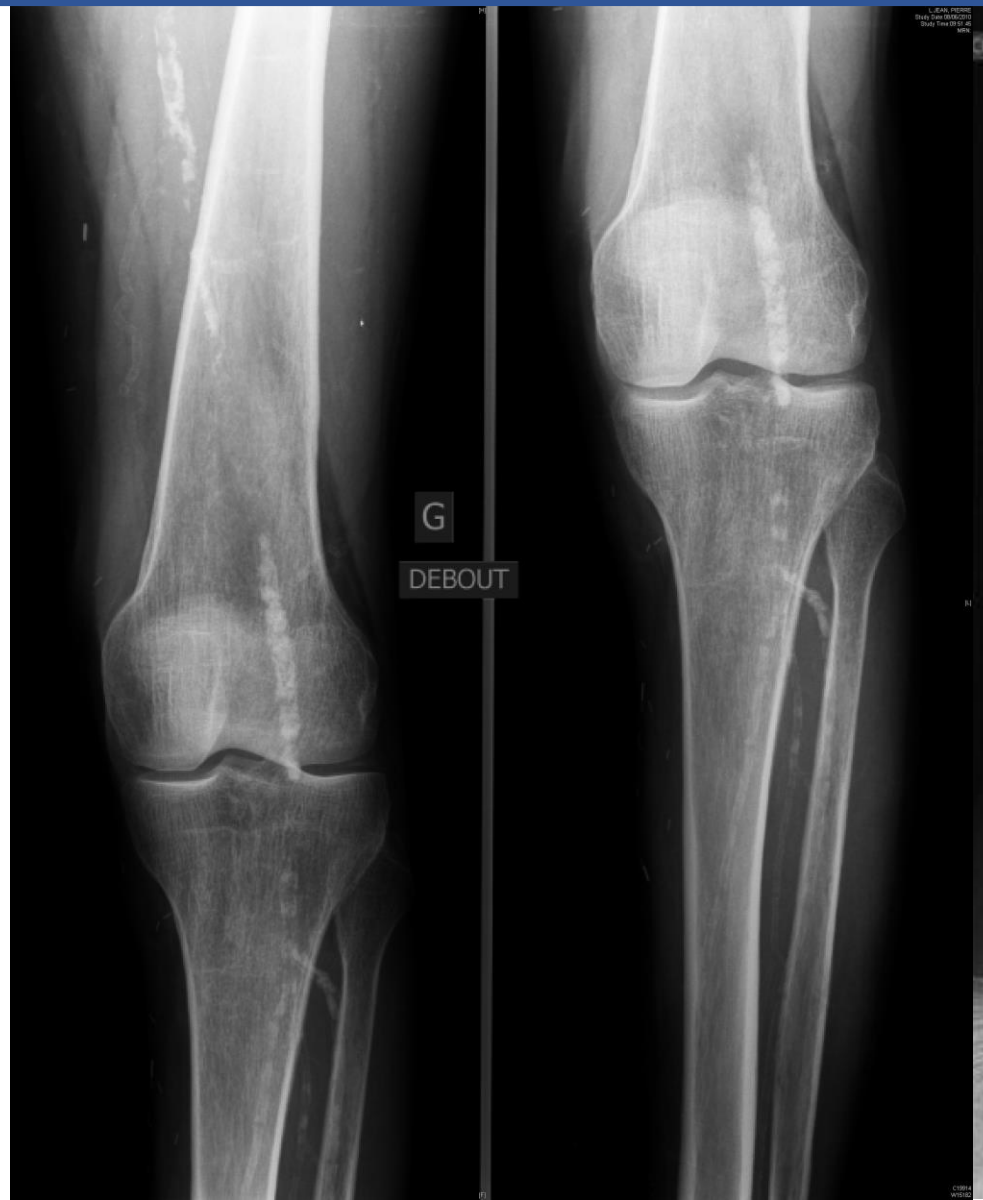
< 50 mmHg à la cheville

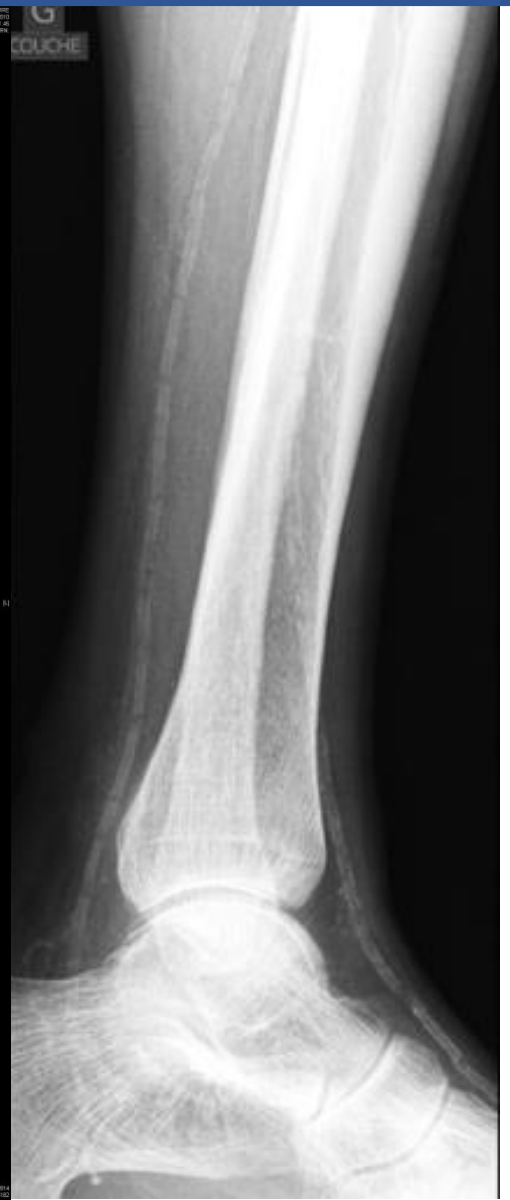
< 30 mmHg a l'hallux

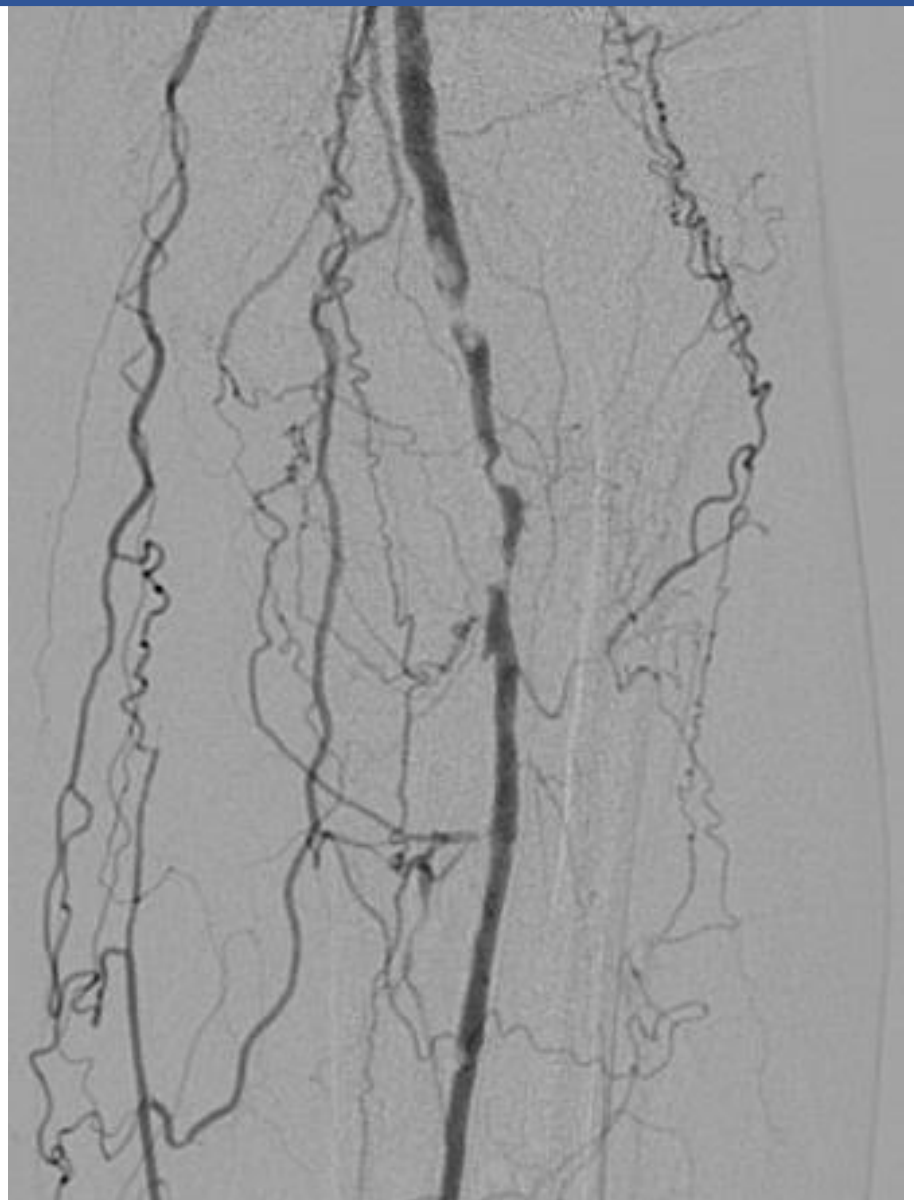



Anterior tibial angiosome
Posterior tibial angiosome
Peroneal angiosome
Anterior tibial artery
Posterior tibial artery
Calcaneal branch
Lateral plantar branch
Medial plantar branch
Peroneal artery

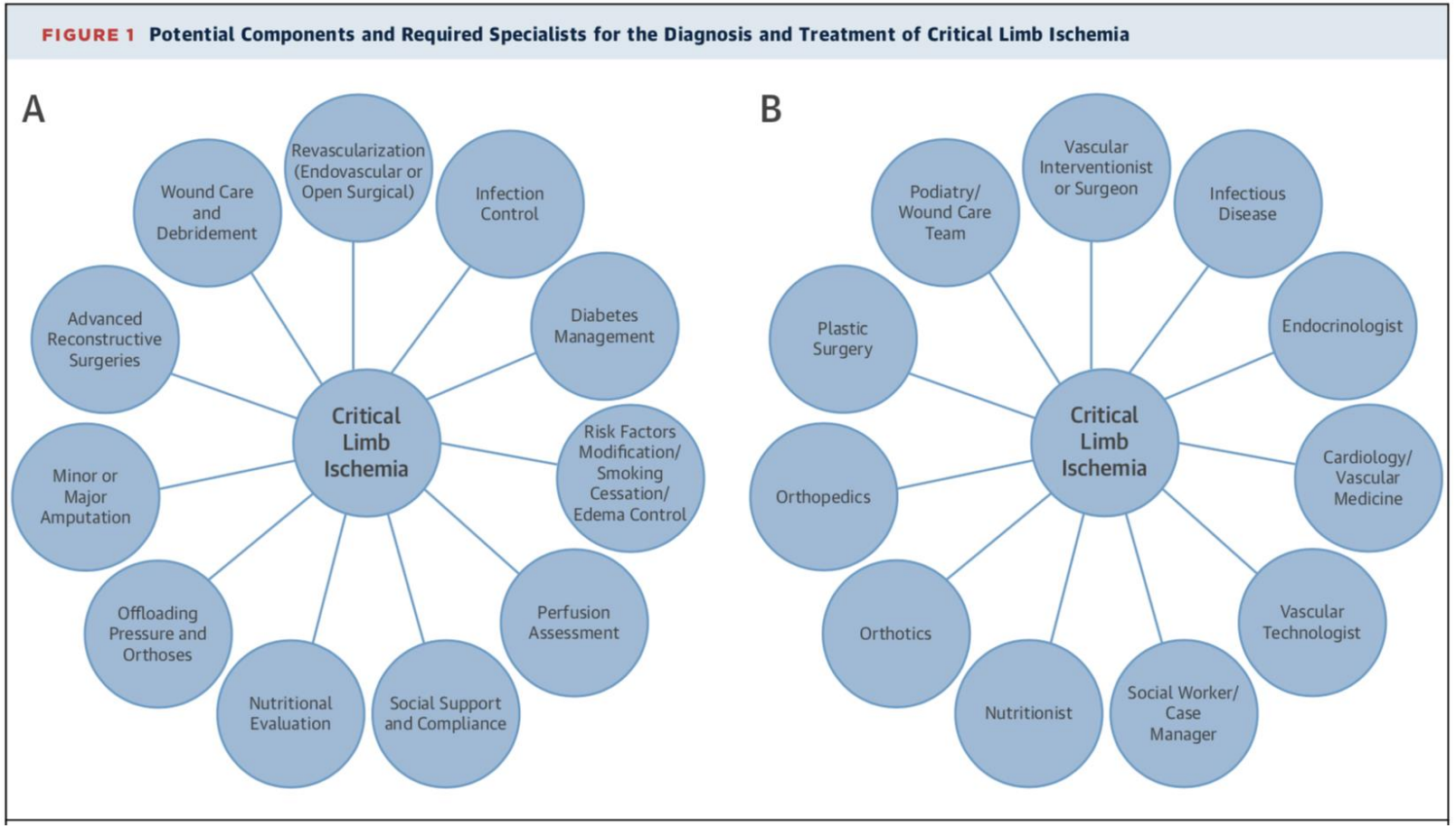
Ischémie critique chez le dialysé







L’ischémie critique



J Am Coll Cardiol 2016;68:2002–15

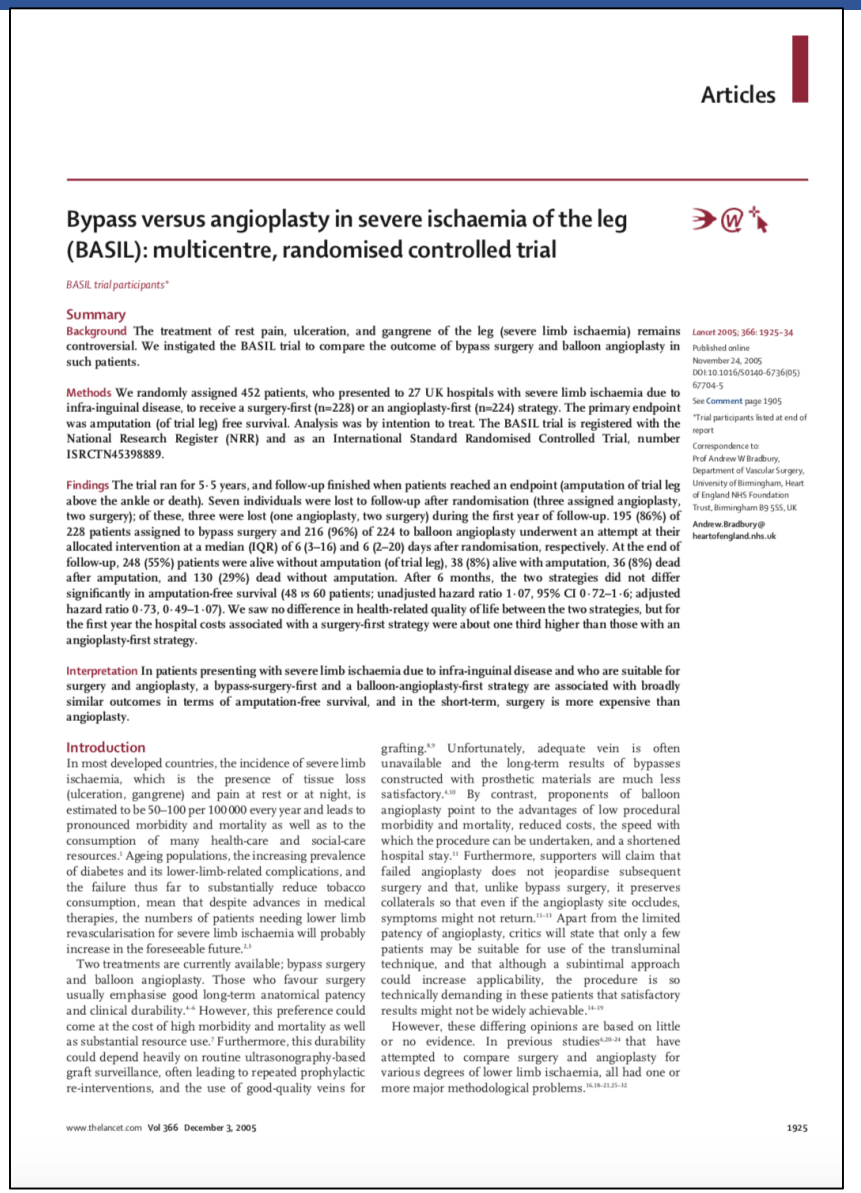
L’ischémie critique

Quelle stratégie utiliser en première intention ?

Chirurgie ou traitement endovasculaire

L’ischémie critique

La stratégie consistant à utiliser en première intention la chirurgie ou le traitement endovasculaire sont comparable en terme de sauvetage de membre



Articles

Bypass versus angioplasty in severe ischaemia of the leg (BASIL): multicentre, randomised controlled trial

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See Comment page 1905

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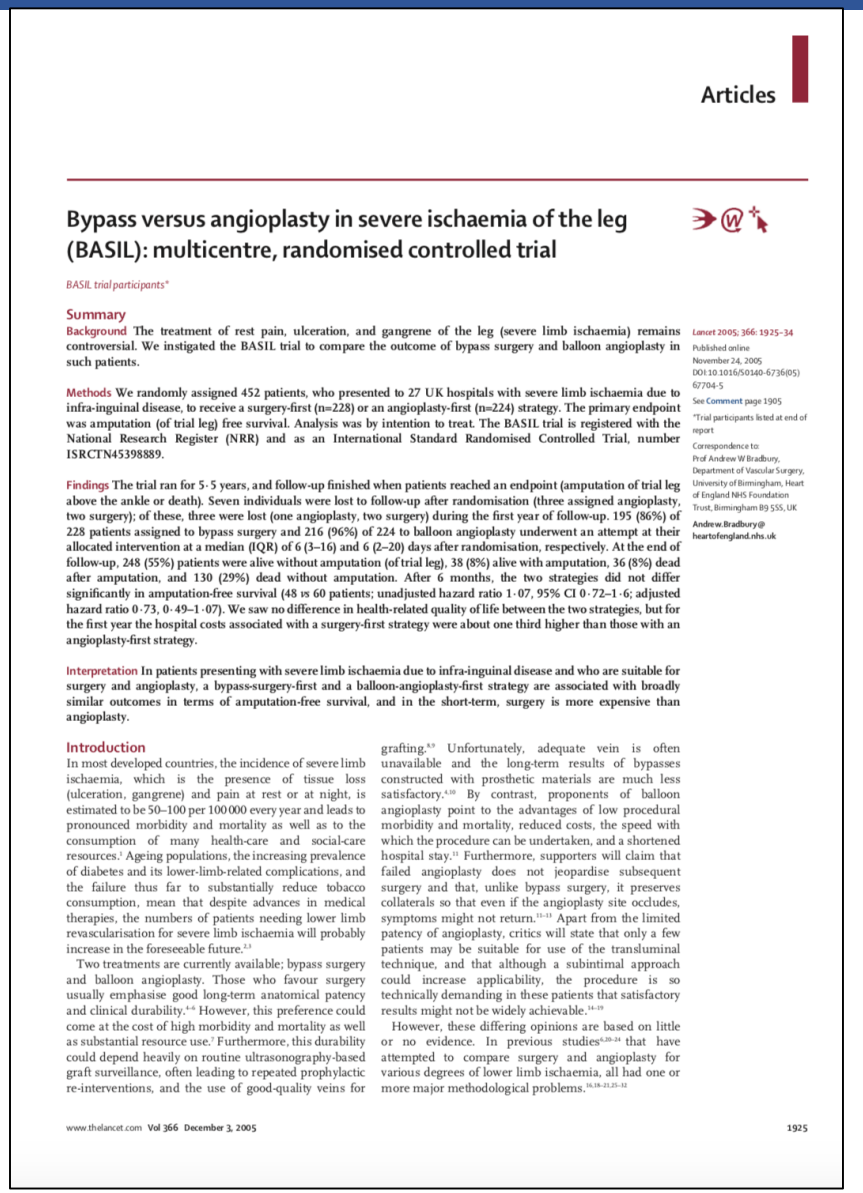
Two treatments are currently available; bypass surgery and balloon angioplasty. Those who favour surgery usually emphasise good long-term anatomical patency and clinical durability.[4–6] However, this preference could come at the cost of high morbidity and mortality as well as substantial resource use.[7] Furthermore, this durability could depend heavily on routine ultrasonography-based graft surveillance, often leading to repeated prophylactic re-interventions, and the use of good-quality veins for grafting.[8,9] Unfortunately, adequate vein is often unavailable and the long-term results of bypasses constructed with prosthetic materials are much less satisfactory.[4,10] By contrast, proponents of balloon angioplasty point to the advantages of low procedural morbidity and mortality, reduced costs, the speed with which the procedure can be undertaken, and a shortened hospital stay.[11] Furthermore, supporters will claim that failed angioplasty does not jeopardise subsequent surgery and that, unlike bypass surgery, it preserves collaterals so that even if the angioplasty site occludes, symptoms might not return.[11–13] Apart from the limited patency of angioplasty, critics will state that only a few patients may be suitable for use of the transluminal technique, and that although a subintimal approach could increase applicability, the procedure is so technically demanding in these patients that satisfactory results might not be widely achievable.[14–19]

However, these differing opinions are based on little or no evidence. In previous studies[6,20–24] that have attempted to compare surgery and angioplasty for various degrees of lower limb ischaemia, all had one or more major methodological problems.[16,18–21,25–32]

L’ischémie critique

À court terme la chirurgie est plus morbide, l’hospitalisation plus longue, les patients plus dépendants

Plus cher de 30%



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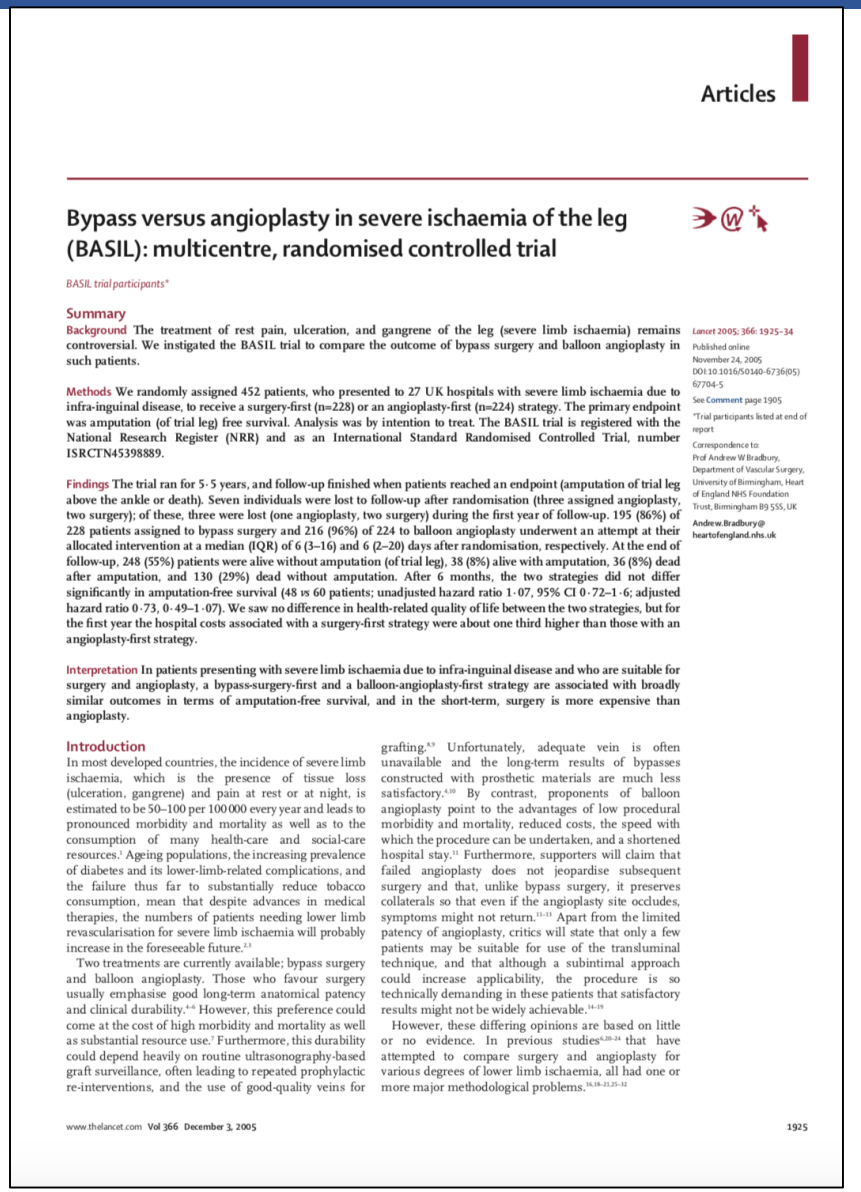
L’ischémie critique

La mortalité n’est pas plus élevée

Même taux d’échec



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L’ischémie critique

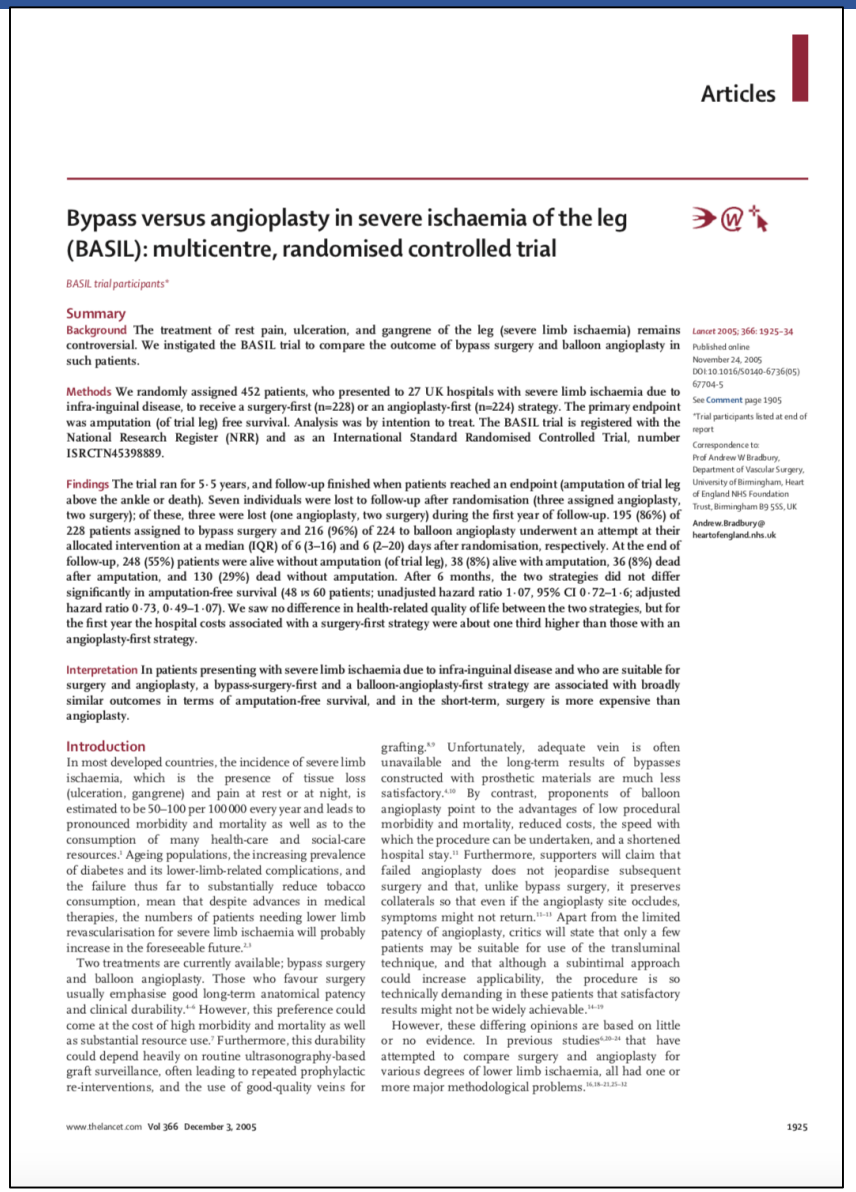
Au delà de 2 ans la chirurgie fonctionne mieux

Moins d’amputations

Moins de décès

Bénéfice plus durable

À condition que le pontage soit en veine autologue



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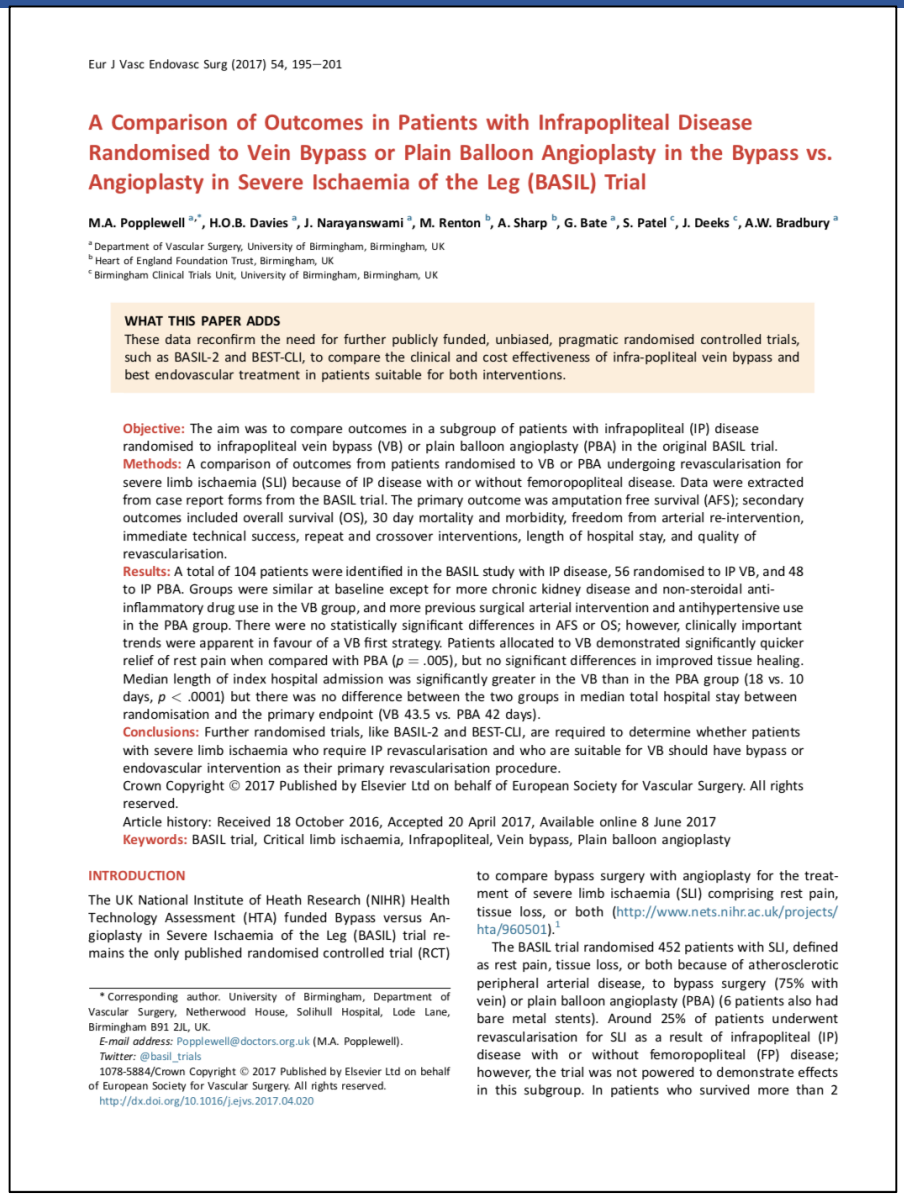
L’ischémie critique

La douleur diminue plus rapidement après la chirurgie



Eur J Vasc Endovasc Surg (2017) 54, 195–201

A Comparison of Outcomes in Patients with Infrapopliteal Disease Randomised to Vein Bypass or Plain Balloon Angioplasty in the Bypass vs. Angioplasty in Severe Ischaemia of the Leg (BASIL) Trial

M.A. Popplewell [a,*], H.O.B. Davies [a], J. Narayanswami [a], M. Renton [b], A. Sharp [b], G. Bate [a], S. Patel [c], J. Deeks [c], A.W. Bradbury [a]

[a] Department of Vascular Surgery, University of Birmingham, Birmingham, UK
[b] Heart of England Foundation Trust, Birmingham, UK
[c] Birmingham Clinical Trials Unit, University of Birmingham, Birmingham, UK

WHAT THIS PAPER ADDS

These data reconfirm the need for further publicly funded, unbiased, pragmatic randomised controlled trials, such as BASIL-2 and BEST-CLI, to compare the clinical and cost effectiveness of infra-popliteal vein bypass and best endovascular treatment in patients suitable for both interventions.

Objective: The aim was to compare outcomes in a subgroup of patients with infrapopliteal (IP) disease randomised to infrapopliteal vein bypass (VB) or plain balloon angioplasty (PBA) in the original BASIL trial.
Methods: A comparison of outcomes from patients randomised to VB or PBA undergoing revascularisation for severe limb ischaemia (SLI) because of IP disease with or without femoropopliteal disease. Data were extracted from case report forms from the BASIL trial. The primary outcome was amputation free survival (AFS); secondary outcomes included overall survival (OS), 30 day mortality and morbidity, freedom from arterial re-intervention, immediate technical success, repeat and crossover interventions, length of hospital stay, and quality of revascularisation.
Results: A total of 104 patients were identified in the BASIL study with IP disease, 56 randomised to IP VB, and 48 to IP PBA. Groups were similar at baseline except for more chronic kidney disease and non-steroidal anti-inflammatory drug use in the VB group, and more previous surgical arterial intervention and antihypertensive use in the PBA group. There were no statistically significant differences in AFS or OS; however, clinically important trends were apparent in favour of a VB first strategy. Patients allocated to VB demonstrated significantly quicker relief of rest pain when compared with PBA ($p = .005$), but no significant differences in improved tissue healing. Median length of index hospital admission was significantly greater in the VB than in the PBA group (18 vs. 10 days, $p < .0001$) but there was no difference between the two groups in median total hospital stay between randomisation and the primary endpoint (VB 43.5 vs. PBA 42 days).
Conclusions: Further randomised trials, like BASIL-2 and BEST-CLI, are required to determine whether patients with severe limb ischaemia who require IP revascularisation and who are suitable for VB should have bypass or endovascular intervention as their primary revascularisation procedure.
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Article history: Received 18 October 2016, Accepted 20 April 2017, Available online 8 June 2017
Keywords: BASIL trial, Critical limb ischaemia, Infrapopliteal, Vein bypass, Plain balloon angioplasty

INTRODUCTION

The UK National Institute of Heath Research (NIHR) Health Technology Assessment (HTA) funded Bypass versus Angioplasty in Severe Ischaemia of the Leg (BASIL) trial remains the only published randomised controlled trial (RCT) to compare bypass surgery with angioplasty for the treatment of severe limb ischaemia (SLI) comprising rest pain, tissue loss, or both (http://www.nets.nihr.ac.uk/projects/hta/960501).[1]

The BASIL trial randomised 452 patients with SLI, defined as rest pain, tissue loss, or both because of atherosclerotic peripheral arterial disease, to bypass surgery (75% with vein) or plain balloon angioplasty (PBA) (6 patients also had bare metal stents). Around 25% of patients underwent revascularisation for SLI as a result of infrapopliteal (IP) disease with or without femoropopliteal (FP) disease; however, the trial was not powered to demonstrate effects in this subgroup. In patients who survived more than 2

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L'ischémie critique

En cas d'échec du traitement endovasculaire, la chirurgie de rattrapage a de moins bons résultats

Intérêt de maitriser les deux techniques pour poser au mieux les indications de traitement

Eur J Vasc Endovasc Surg (2018) 55, 666–671

Editor's Choice — A Comparison of Clinical Outcomes Between Primary Bypass and Secondary Bypass After Failed Plain Balloon Angioplasty in the Bypass versus Angioplasty for Severe Ischaemia of the Limb (BASIL) Trial

Lewis Meecham [a,*], **Smitaa Patel** [b], **Gareth R. Bate** [a], **Andrew W. Bradbury** [a]

[a] University Department of Vascular Surgery, Heart of England NHS Foundation Trust, UK
[b] Birmingham Clinical Trials Unit, Birmingham University, UK

WHAT THIS PAPER ADDS
Angioplasty has been seen as a "free shot" at revascularisation of chronic limb threatening ischaemia. This work suggests that patients requiring secondary bypass after failed initial angioplasty do significantly worse than those who undergo primary bypass surgery.

Objective: Chronic limb threatening ischaemia (CLTI) is a growing global health problem. The UK NIHR HTA funded BASIL trial is still the only randomised controlled trial to have compared a "bypass surgery first" with a "plain balloon angioplasty (PBA) first" strategy for the management of CLTI. In patients who were likely to survive for 2 years and had a suitable vein, primary bypass (PB) was associated with better clinical outcomes. Furthermore, PBA was associated with a high technical and clinical failure rate and many went on to have secondary bypass (SB). This study aimed at comparing clinical outcomes following PB and SB in the BASIL trial.
Methods: Demographic, procedural, and outcome data were obtained from the BASIL case report forms. Outcomes were amputation free survival (AFS), limb salvage (LS), overall survival (OS), and freedom from revascularisation (FFR). The SB cohort comprises patients whose first trial intervention was PBA and who subsequently underwent bypass during follow up. The PB cohort comprises those patients whose first trial intervention was bypass.
Results: The 190 PB and 49 SB patients were well matched except that the SB patients were more likely to be current smokers. At a median of 7 years, PB was associated with better AFS (PB 60% vs. SB 40%; HR 1.58, $p = .04$), LS (PB 85% vs. SB 73%, $p = .06$), and OS (PB 68% vs. 51%, $p = .06$). FFR was equivalent (PB 53% vs. 53%, $p = .3$).
Conclusion: In the BASIL trial, clinical outcomes following PB were significantly better than in patients undergoing SB after failed PBA. Prior to treating patients with CLTI with primary PBA, clinicians should consider that if this should fail, the outcome of attempted subsequent bypass is likely to be significantly worse than if PB were attempted.
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Keywords: Peripheral arterial disease, Bypass, Angioplasty, Ischaemia

INTRODUCTION

Although chronic limb threatening ischaemia (CLTI) is a growing global health problem,[1,2] the evidence underpinning the choice of revascularisation strategy remains poor. The UK NIHR HTA funded Bypass versus Angioplasty for Severe Ischaemia of the Limb (BASIL) trial remains the only randomised controlled trial (RCT) to have compared a "bypass surgery first" with a "plain balloon angioplasty (PBA) first" strategy for CLTI resulting from infra-inguinal disease.[3] An intention to treat analysis (ITT) of BASIL outcome data showed that, in patients who were likely to survive for at least 2 years and who had a suitable vein, primary bypass (PB) led to better clinical outcomes than primary PBA. Furthermore, primary PBA was associated with a high technical and clinical failure rate such that many of the patients went on to have secondary bypass (SB). Despite this 'level 1' evidence in support of surgical bypass as the preferred revascularisation strategy for patients with a suitable vein, enthusiasm for an endovascular first approach to most, perhaps even all, patients with CLTI continues to grow.[4] As a result, vein bypass is increasingly being viewed as a secondary, salvage procedure to be performed when all endovascular revascularisation options have been exhausted.[5,6] There are surprisingly few published reports of outcomes following SB for failed

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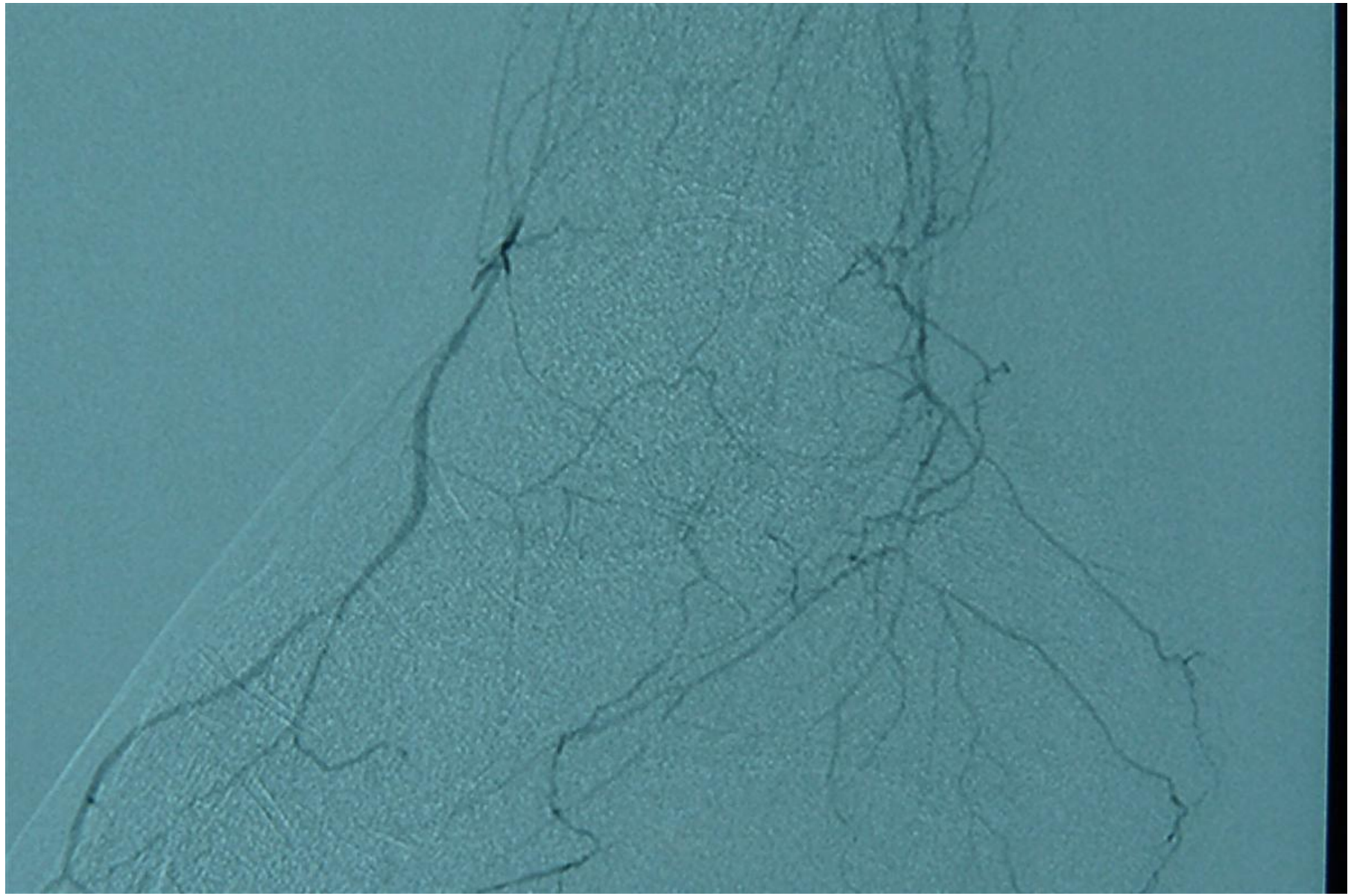
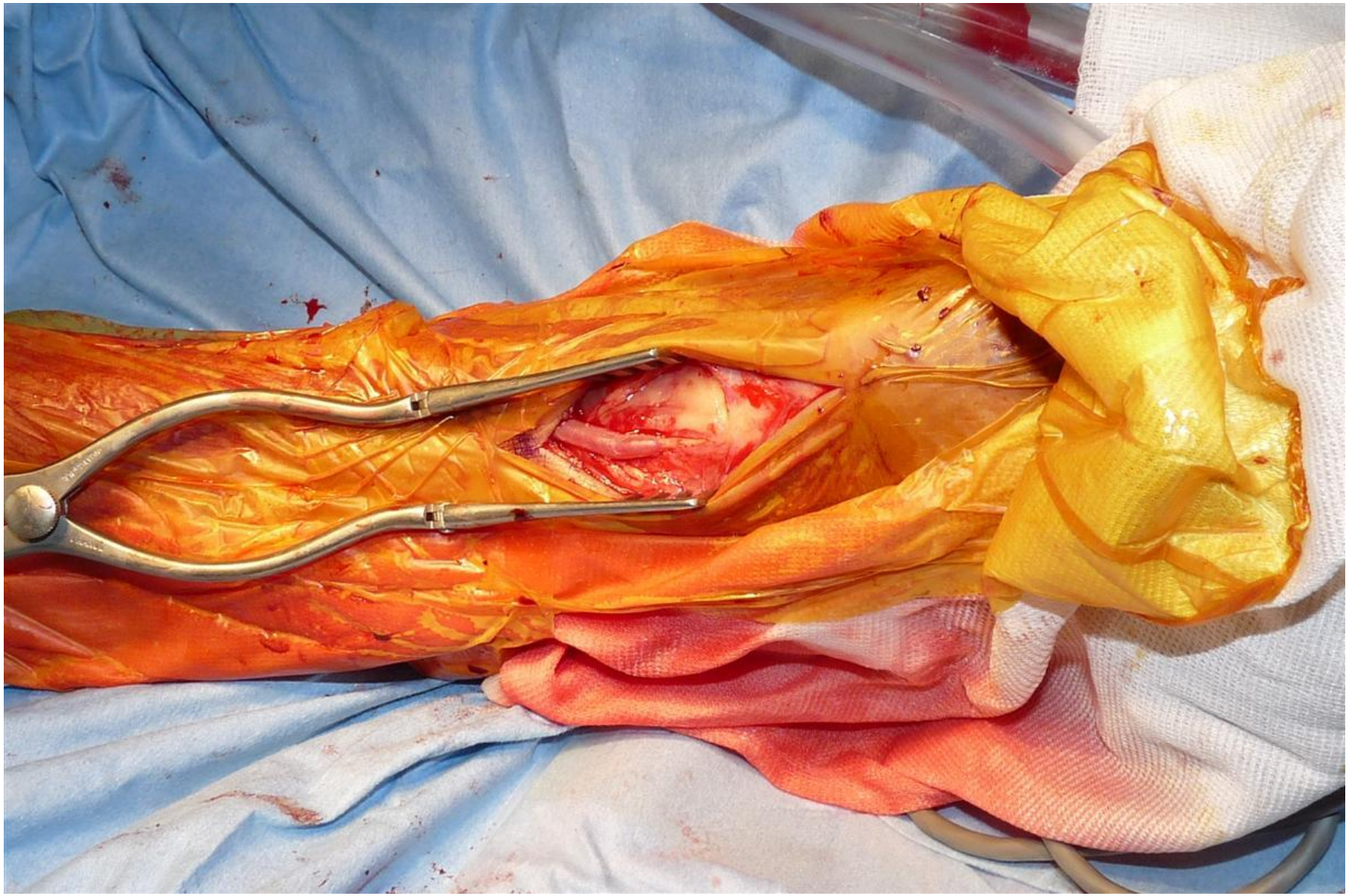
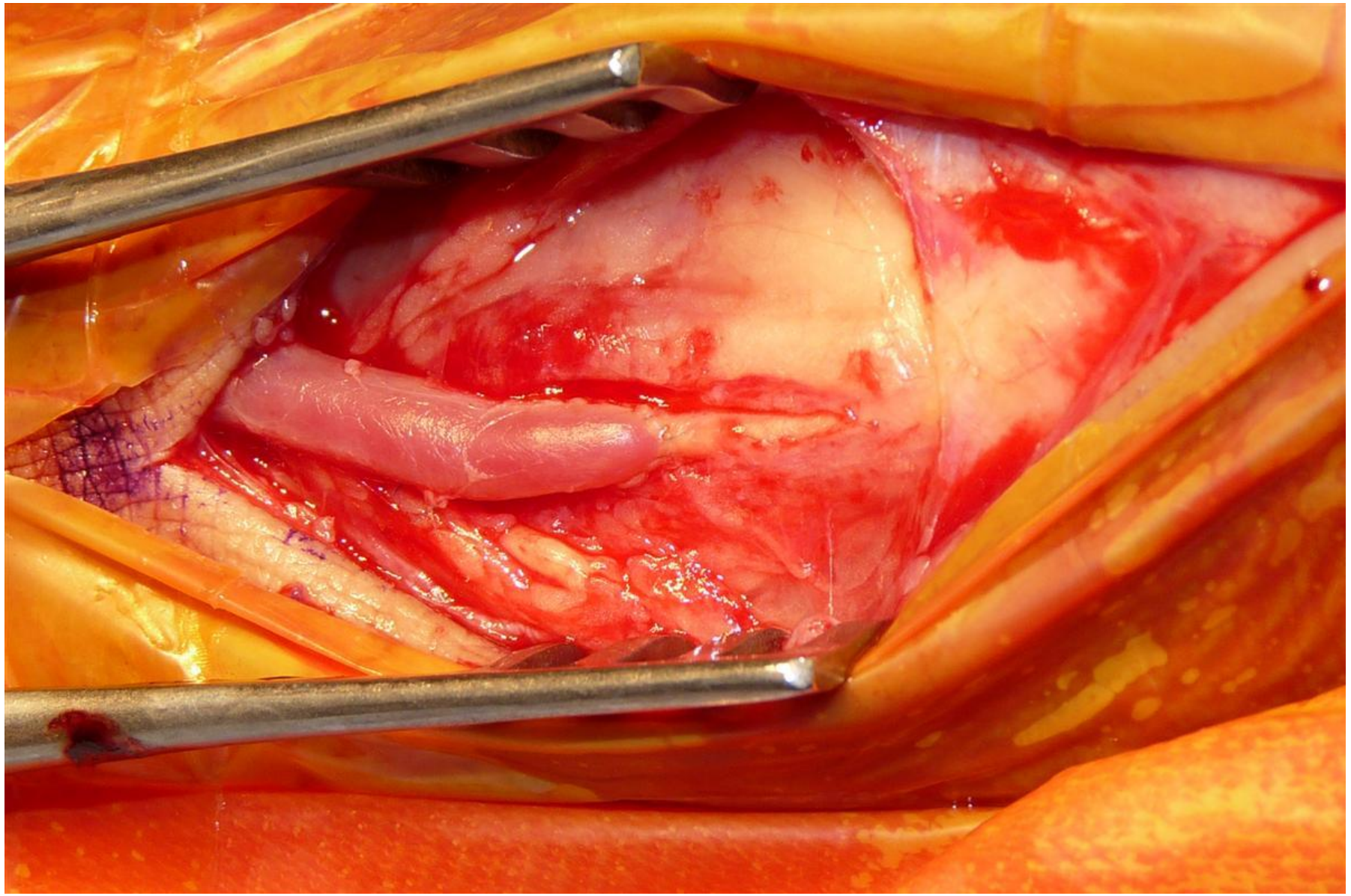
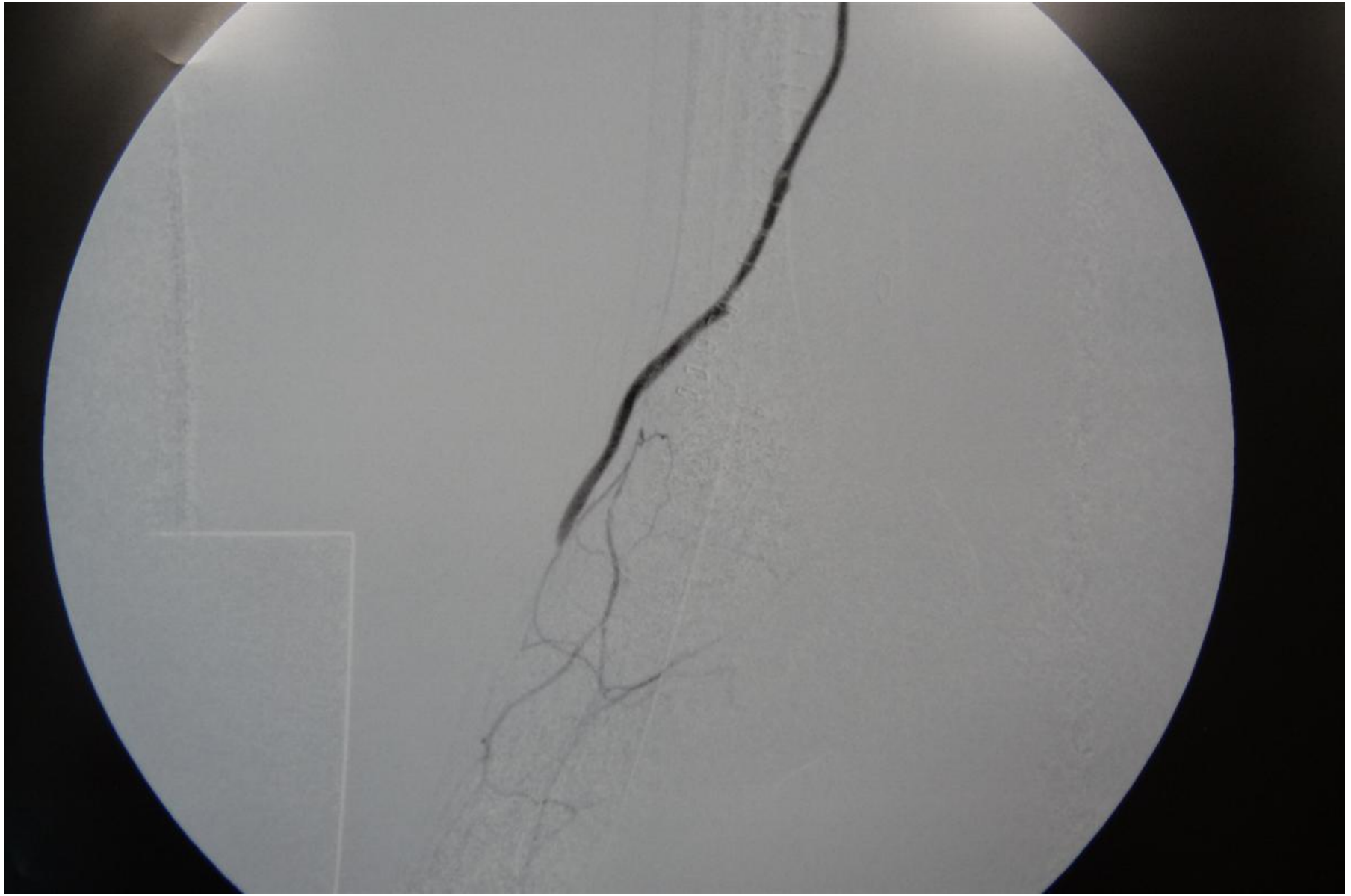
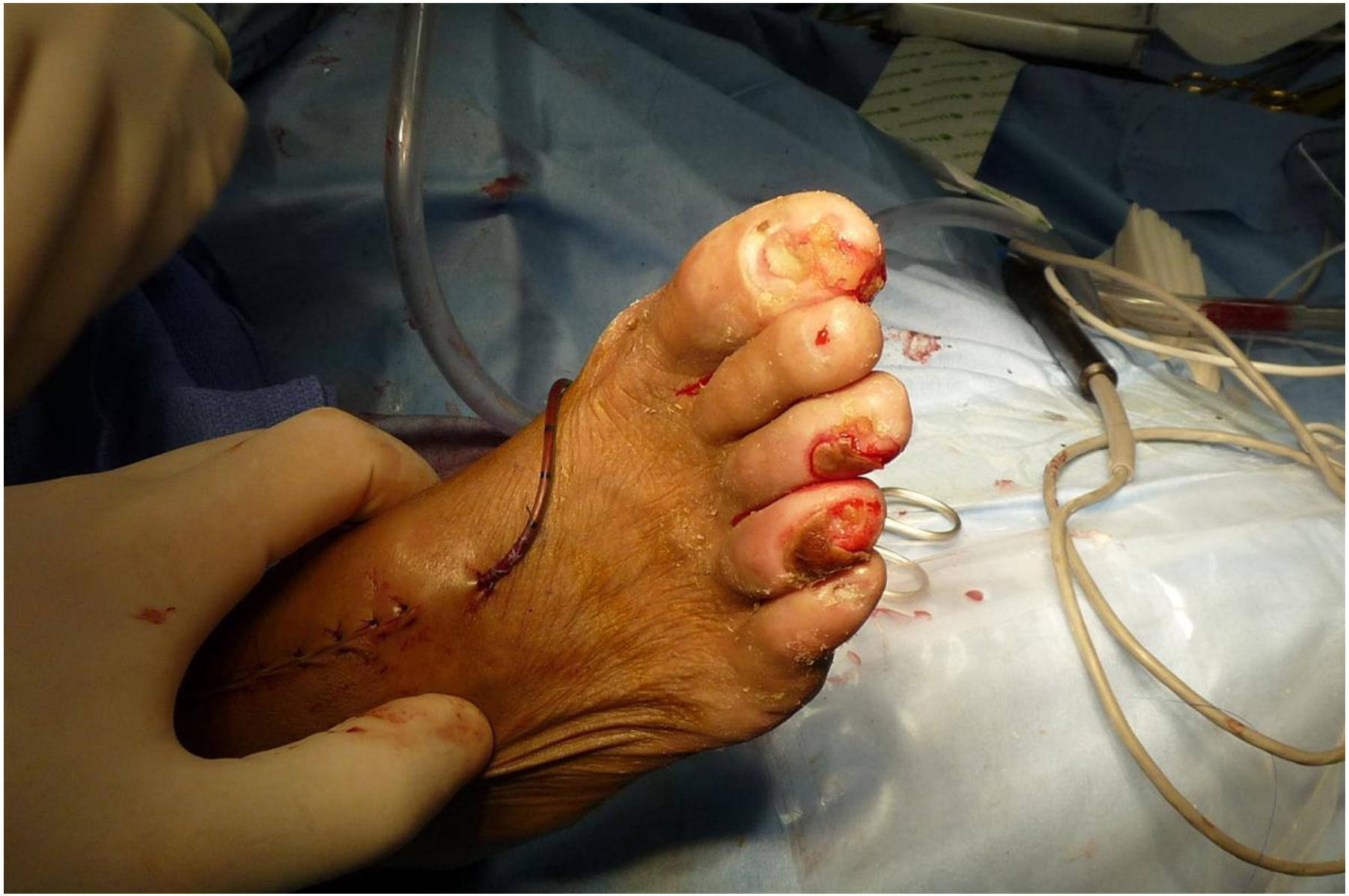
https://doi.org/10.1016/j.ejvs.2018.02.015

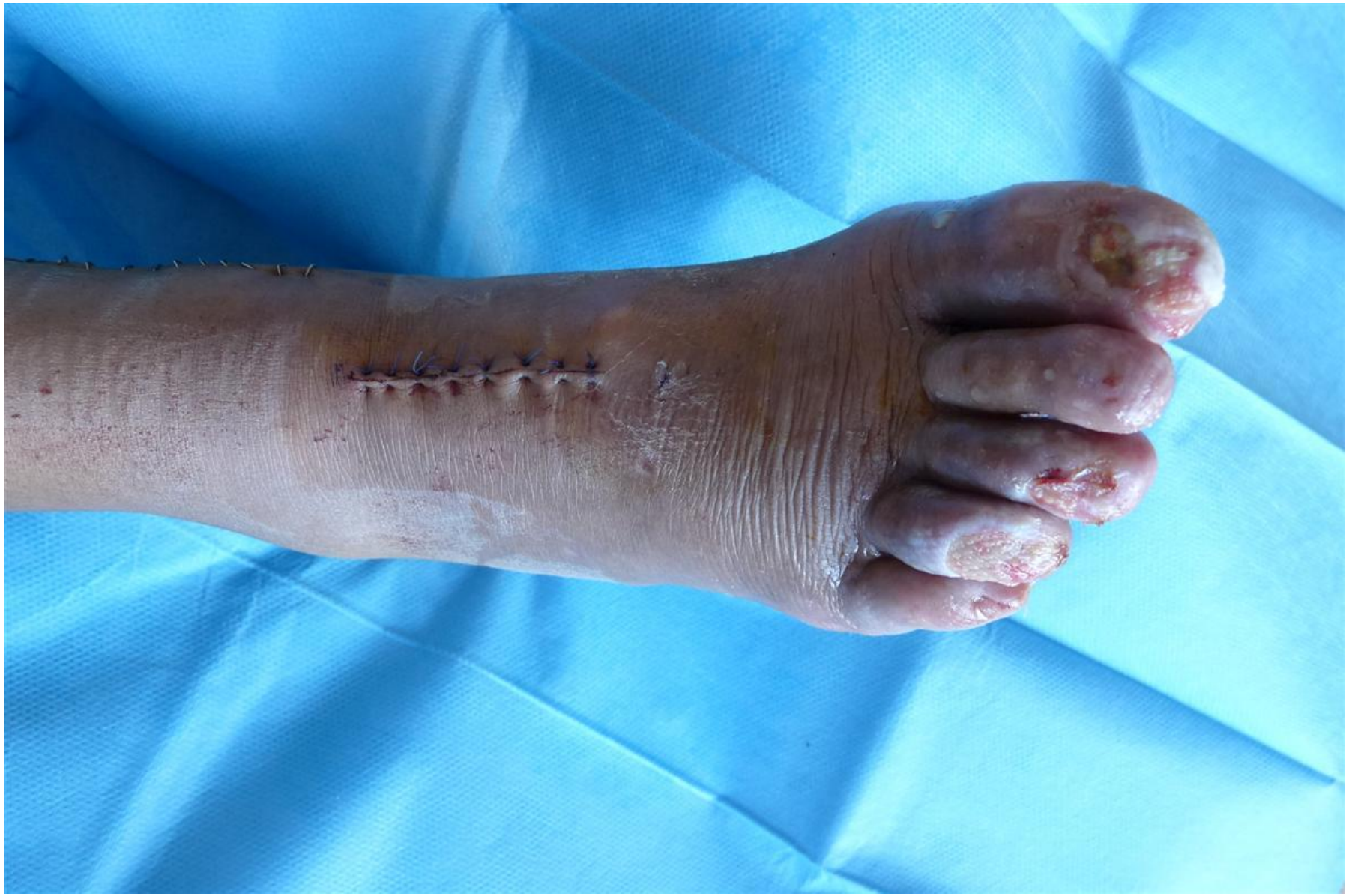










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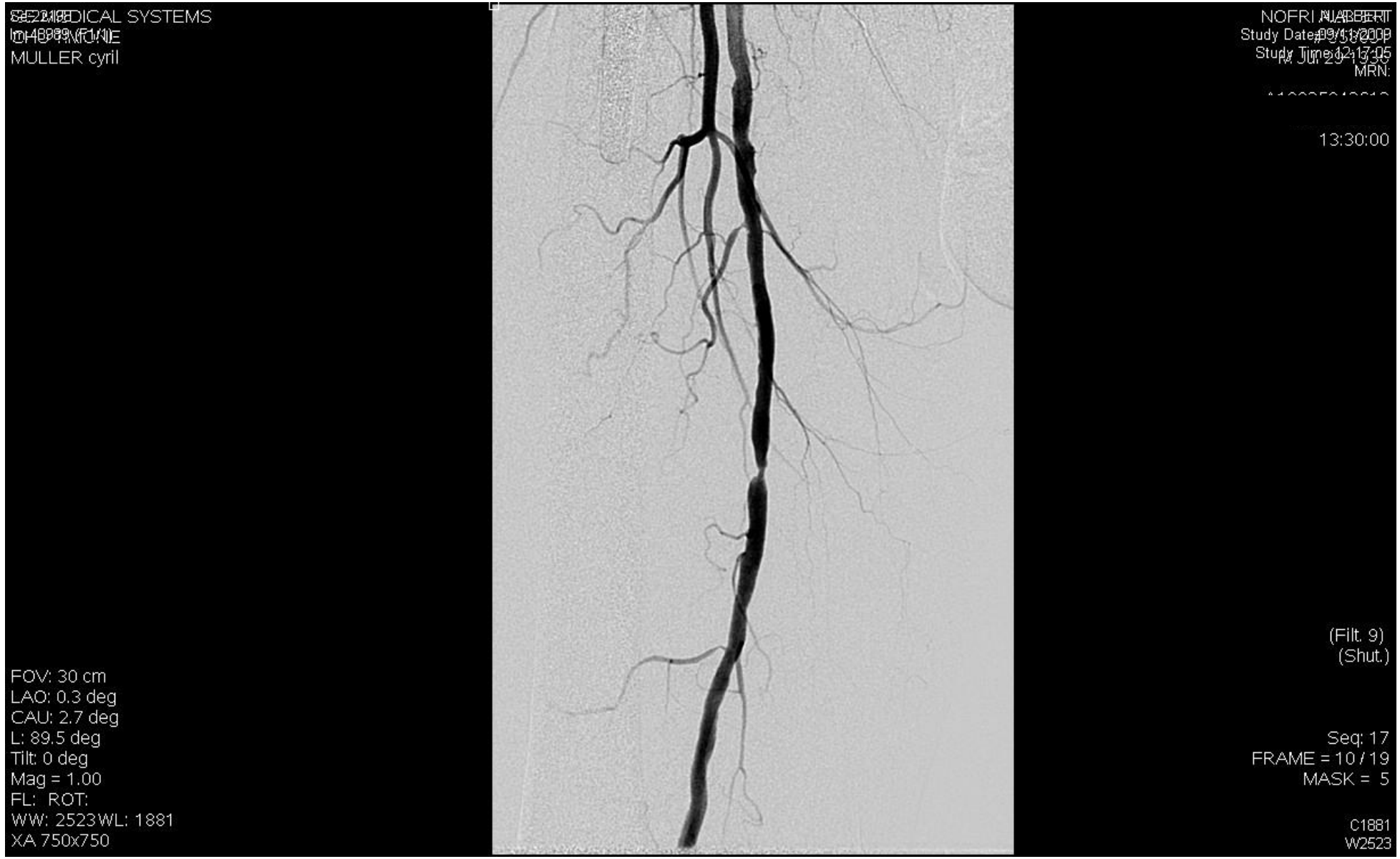
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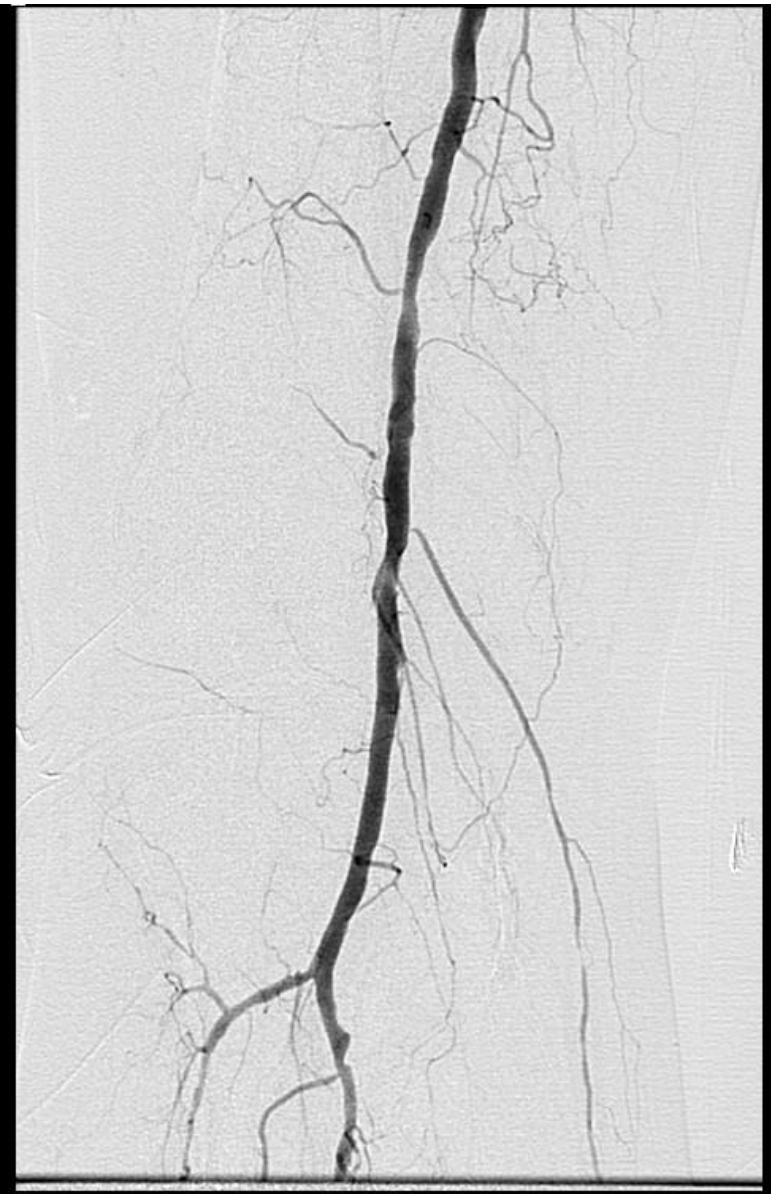
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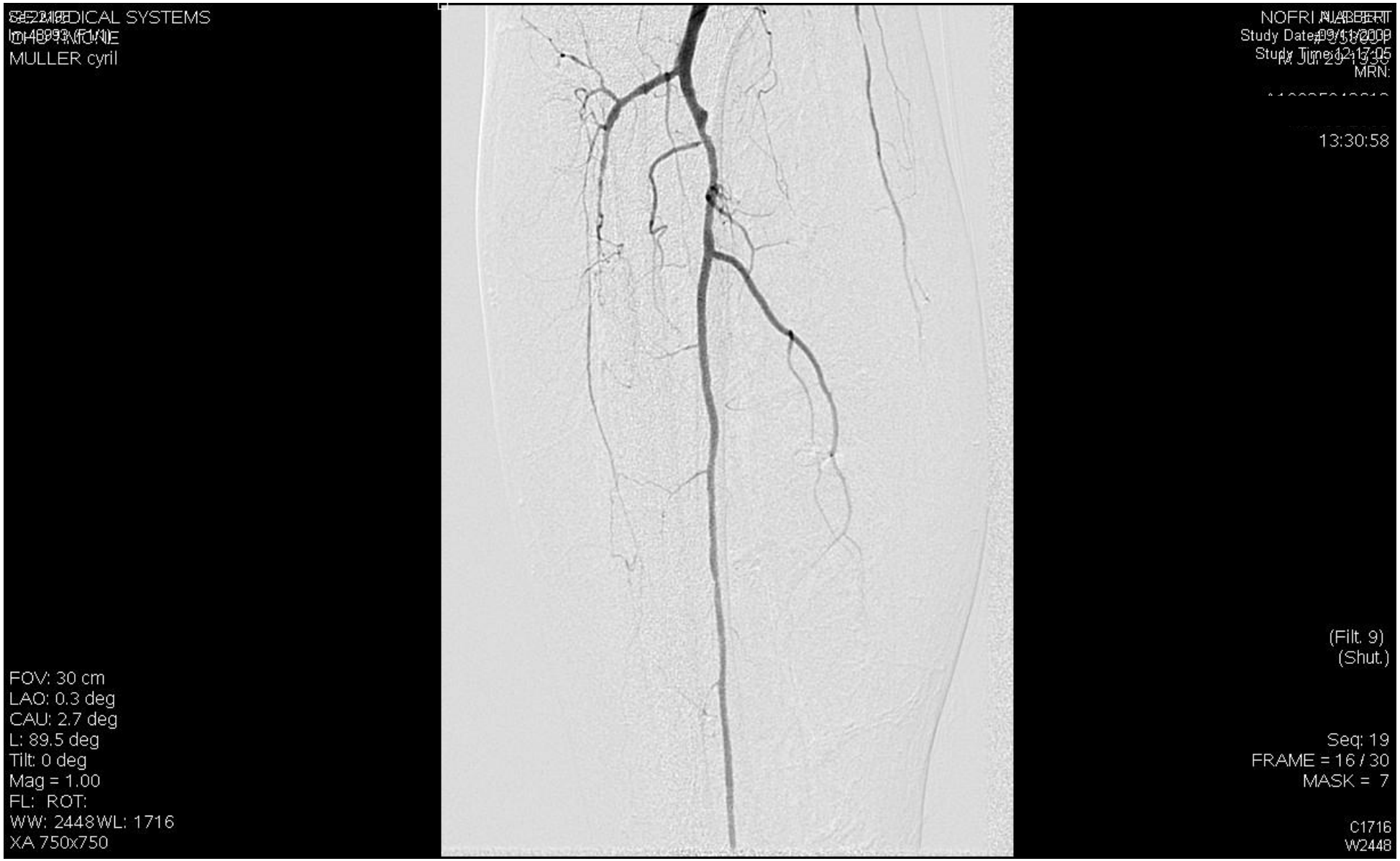
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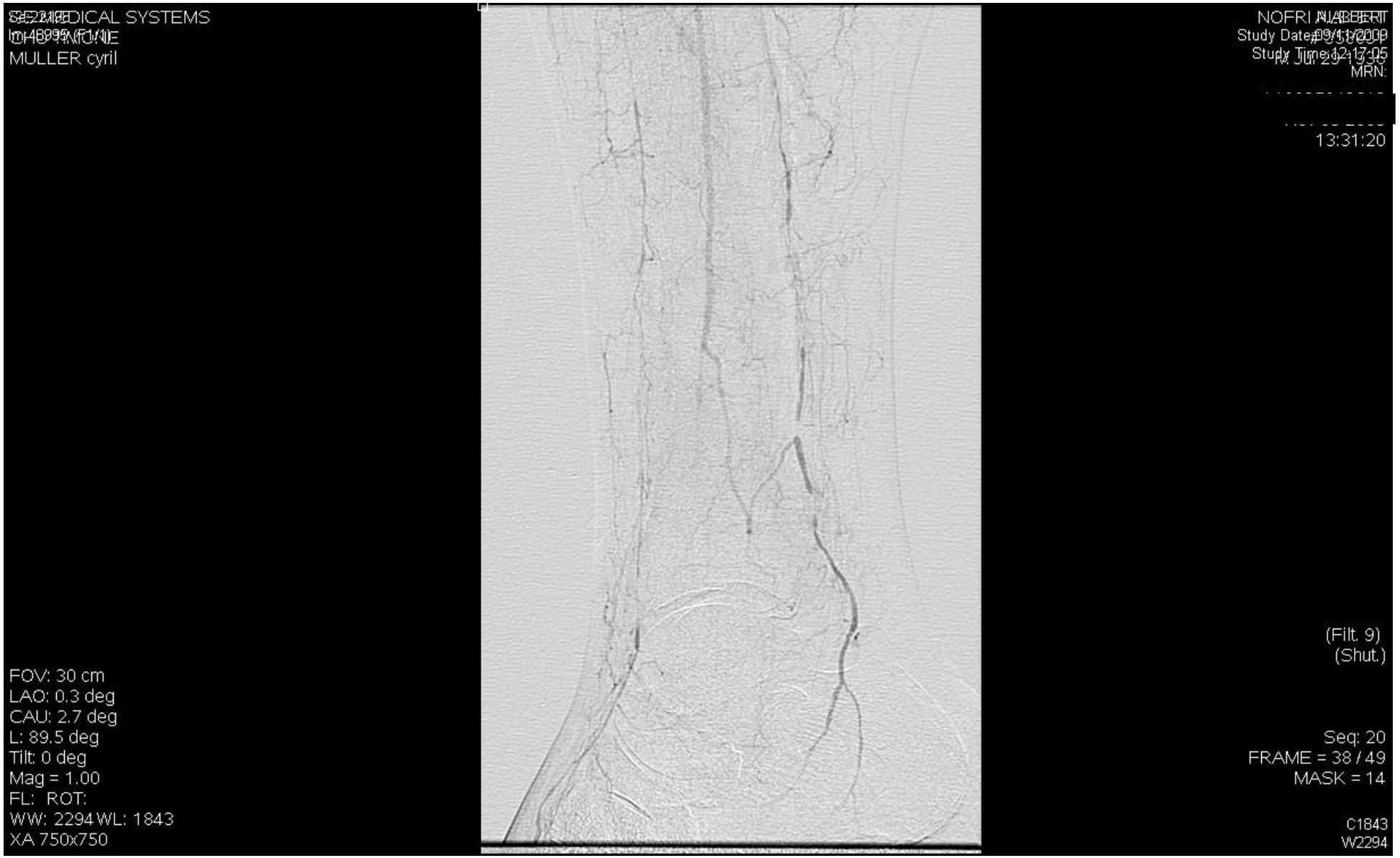
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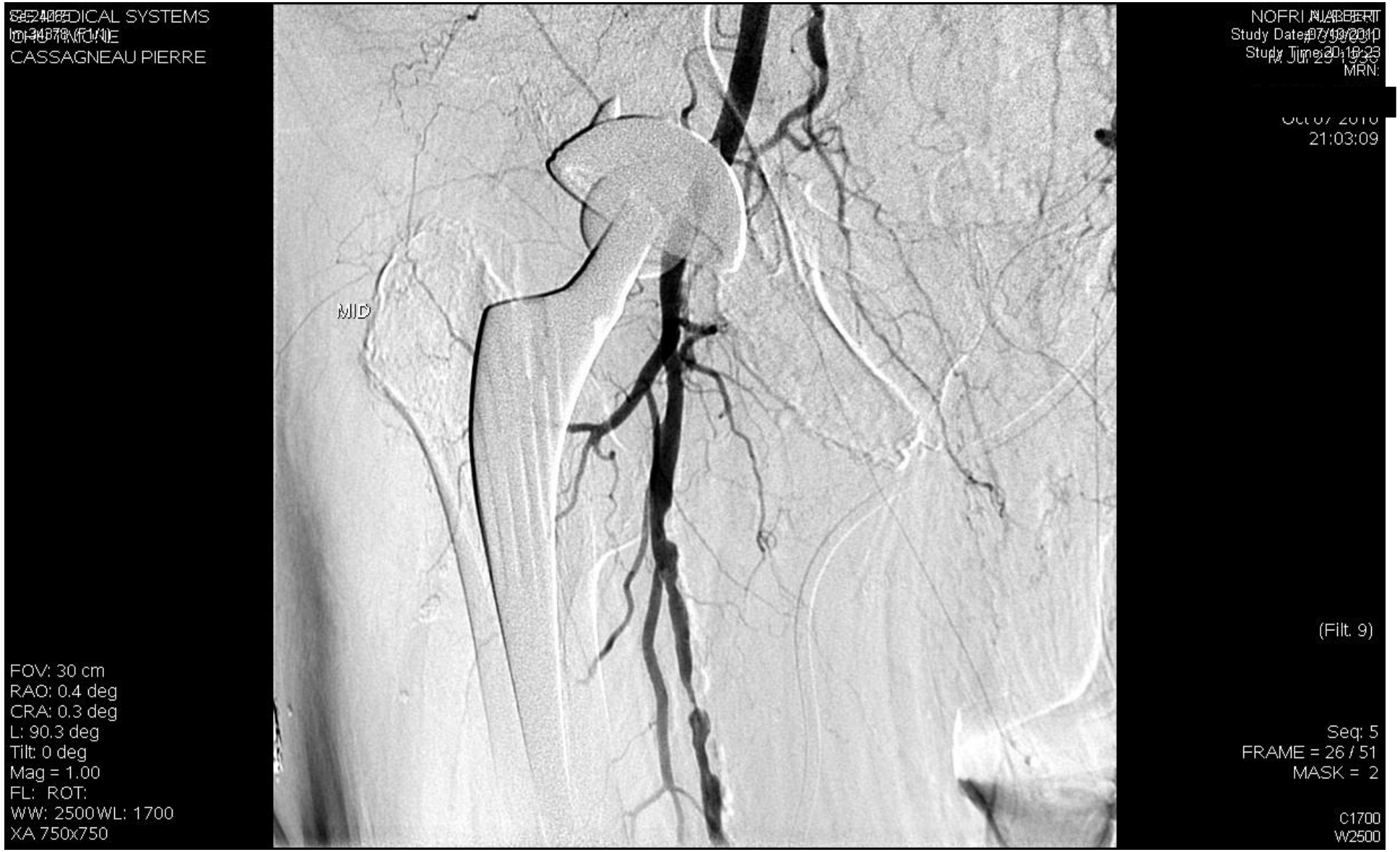
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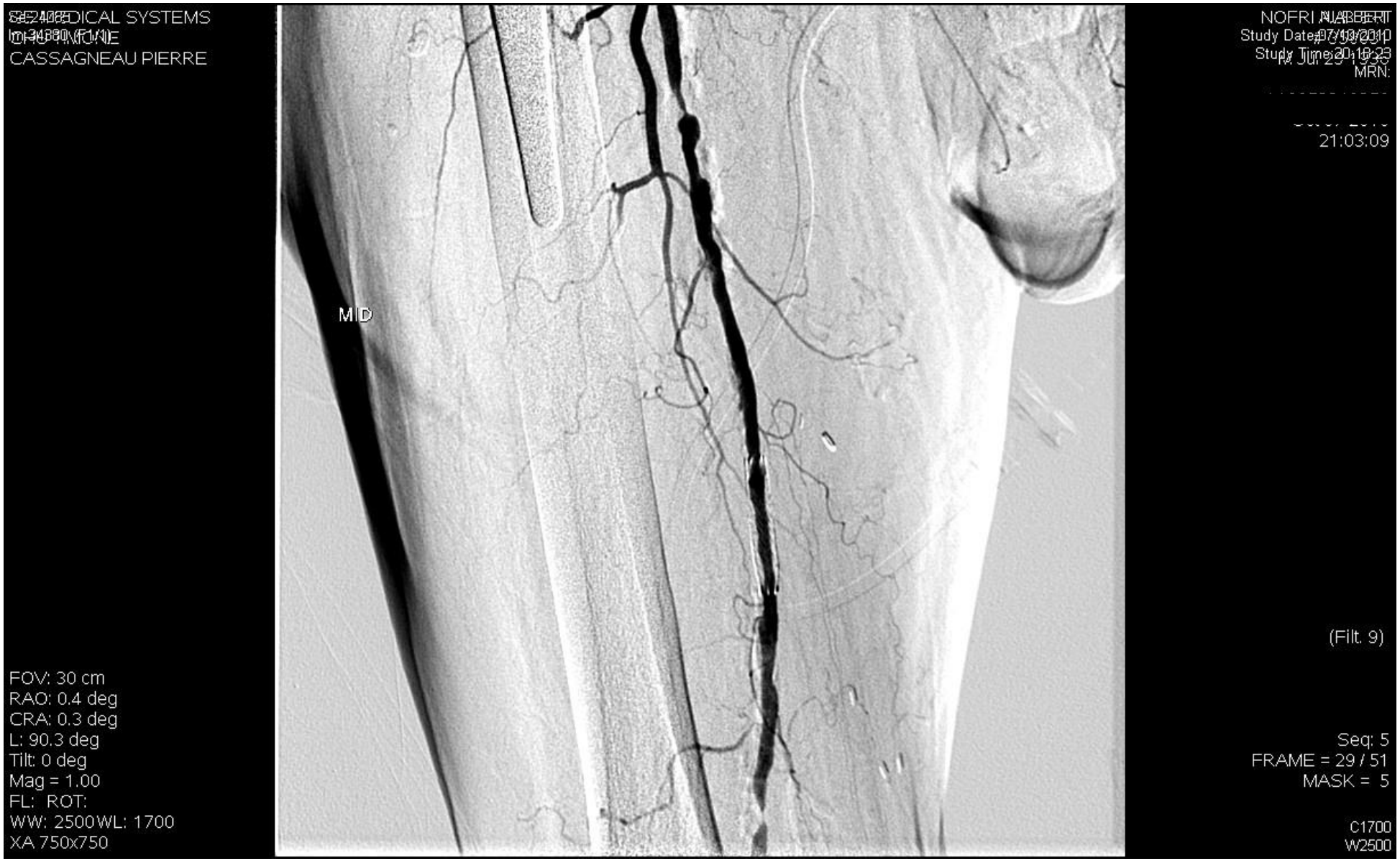
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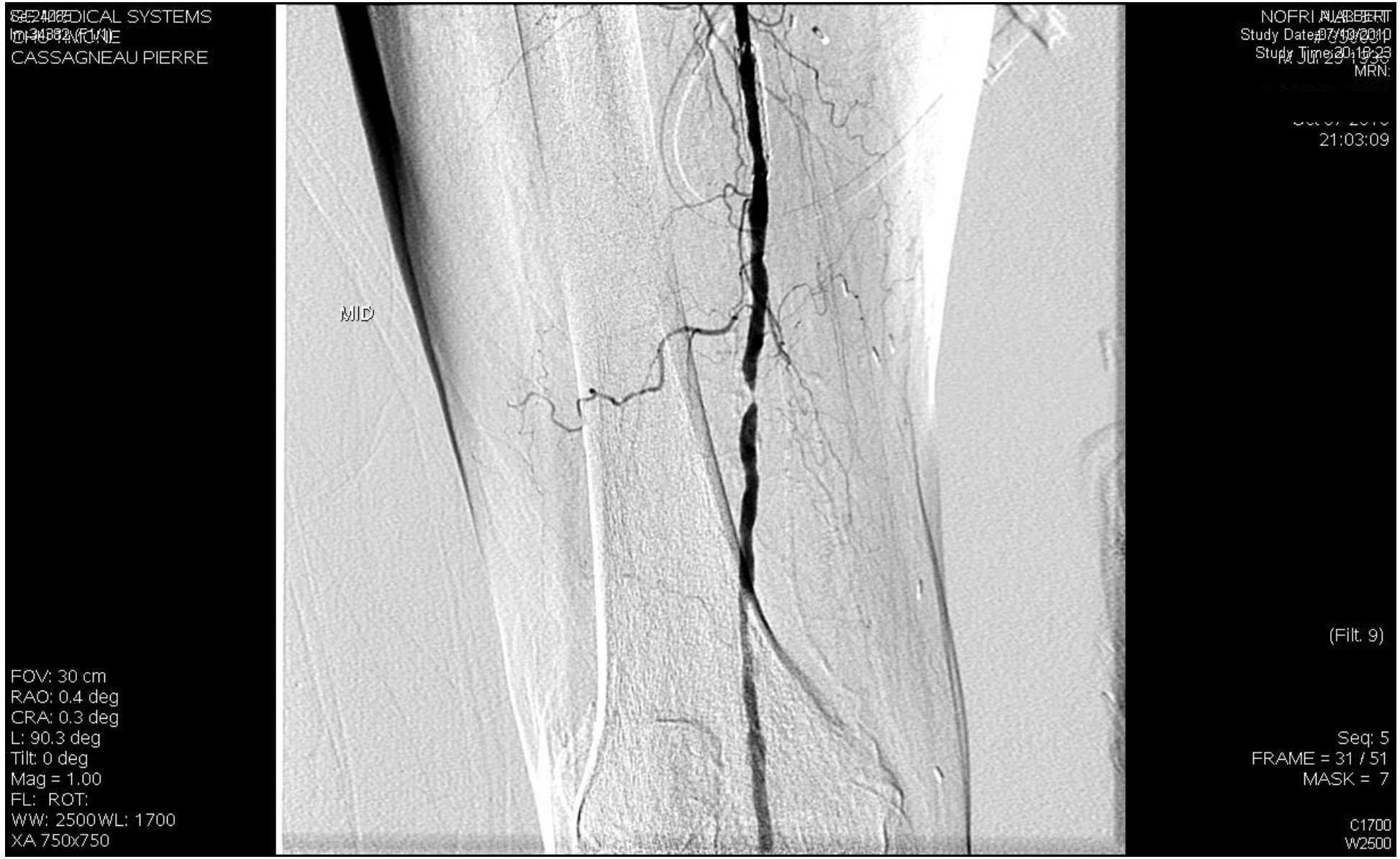
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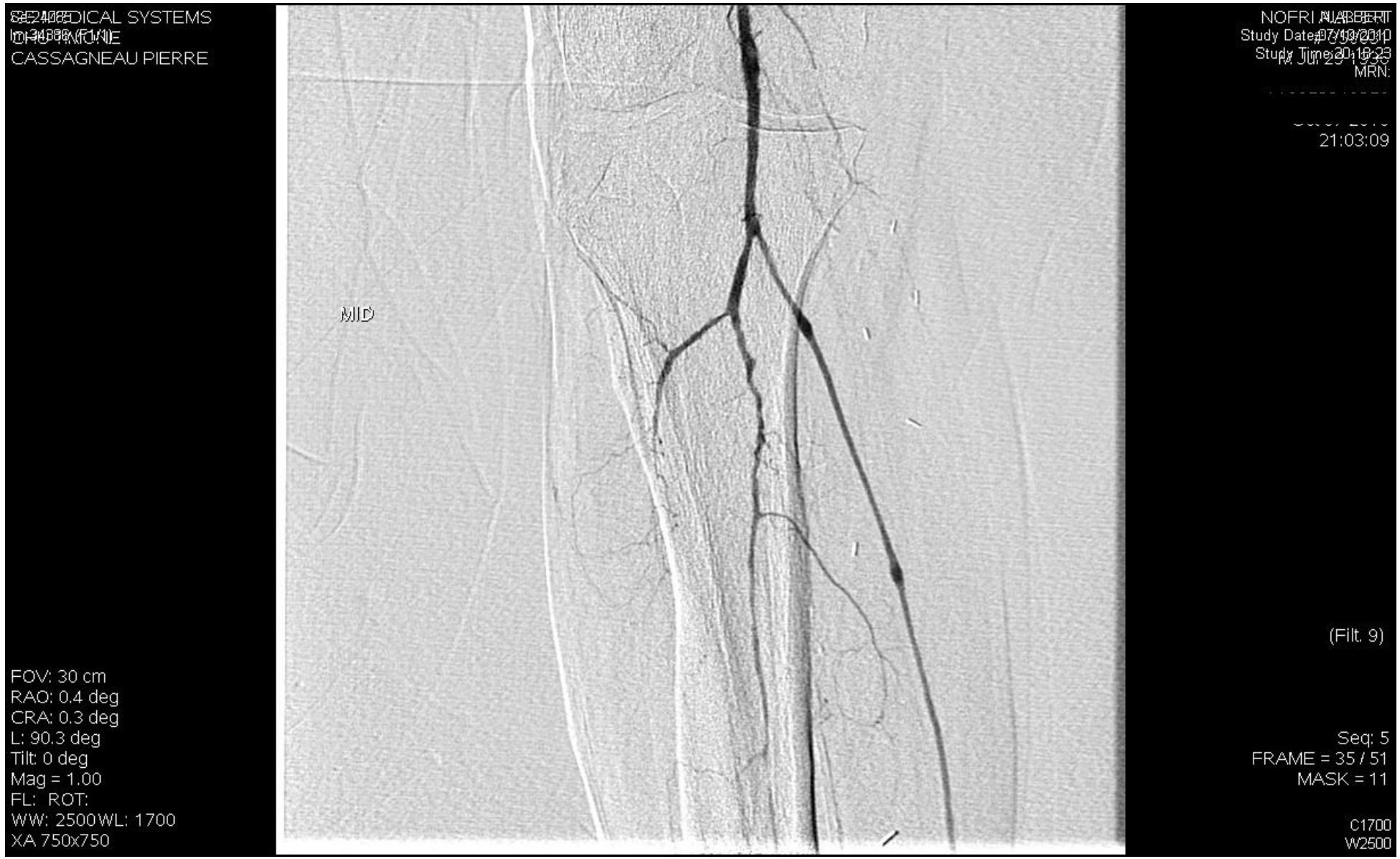
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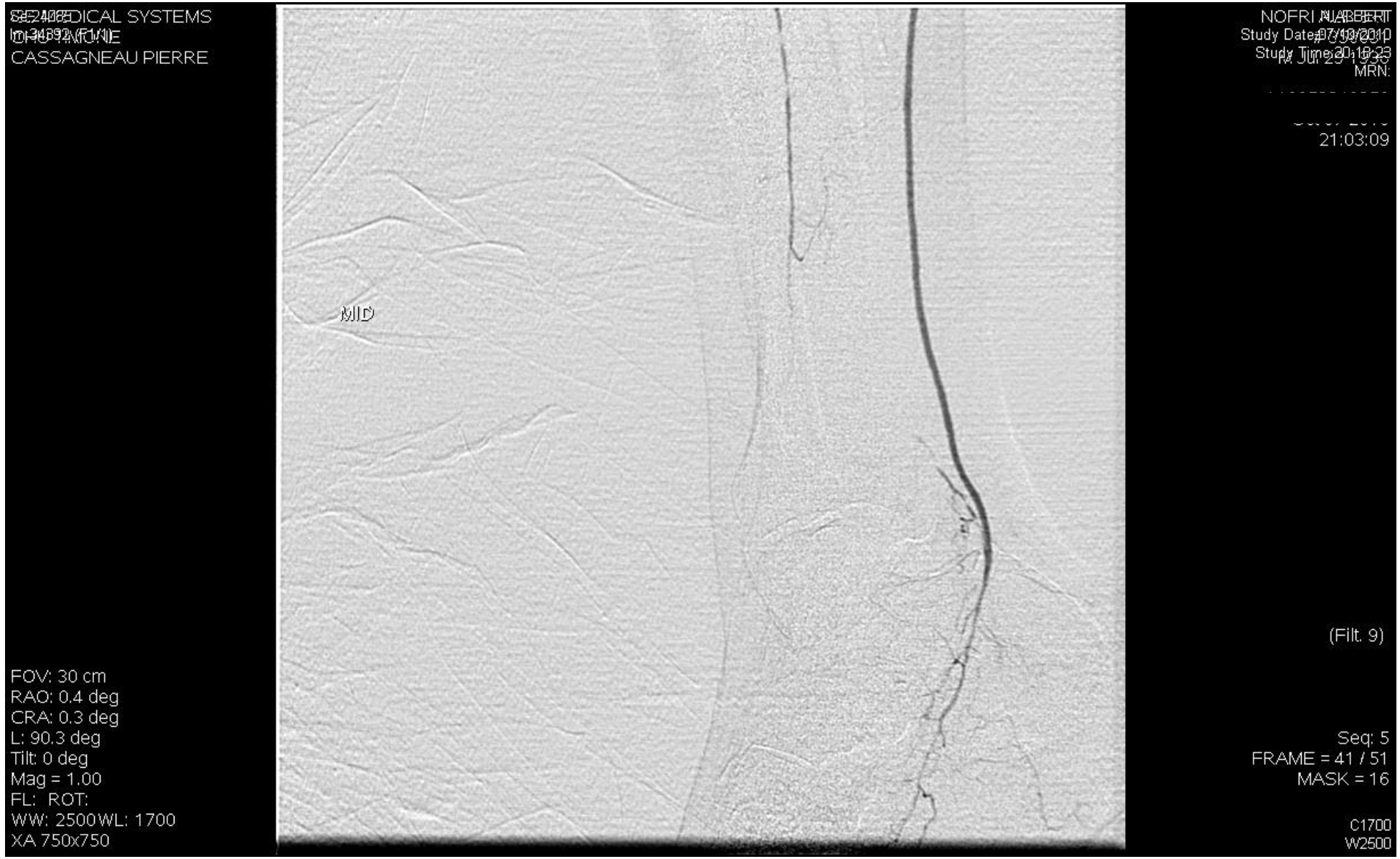
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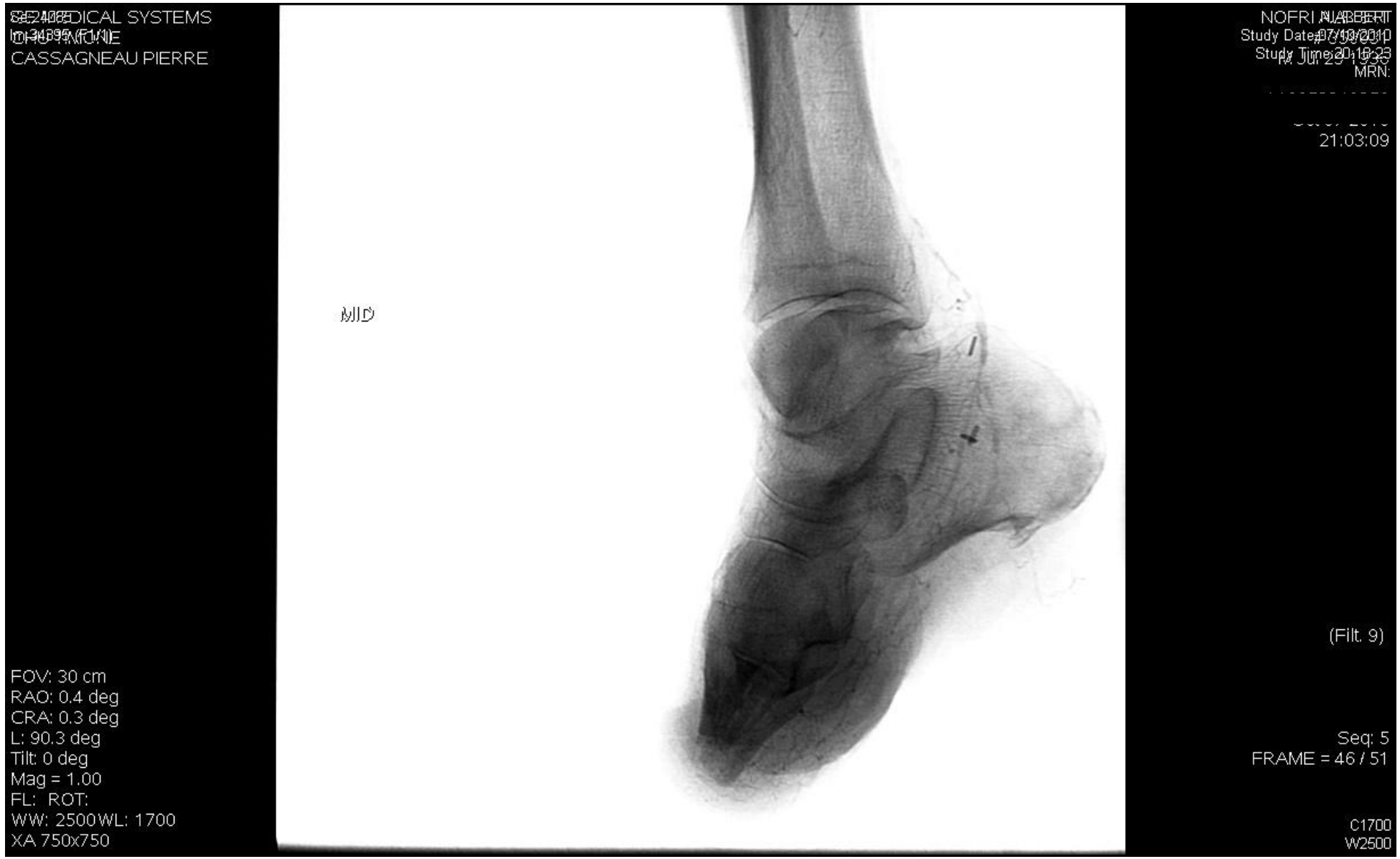
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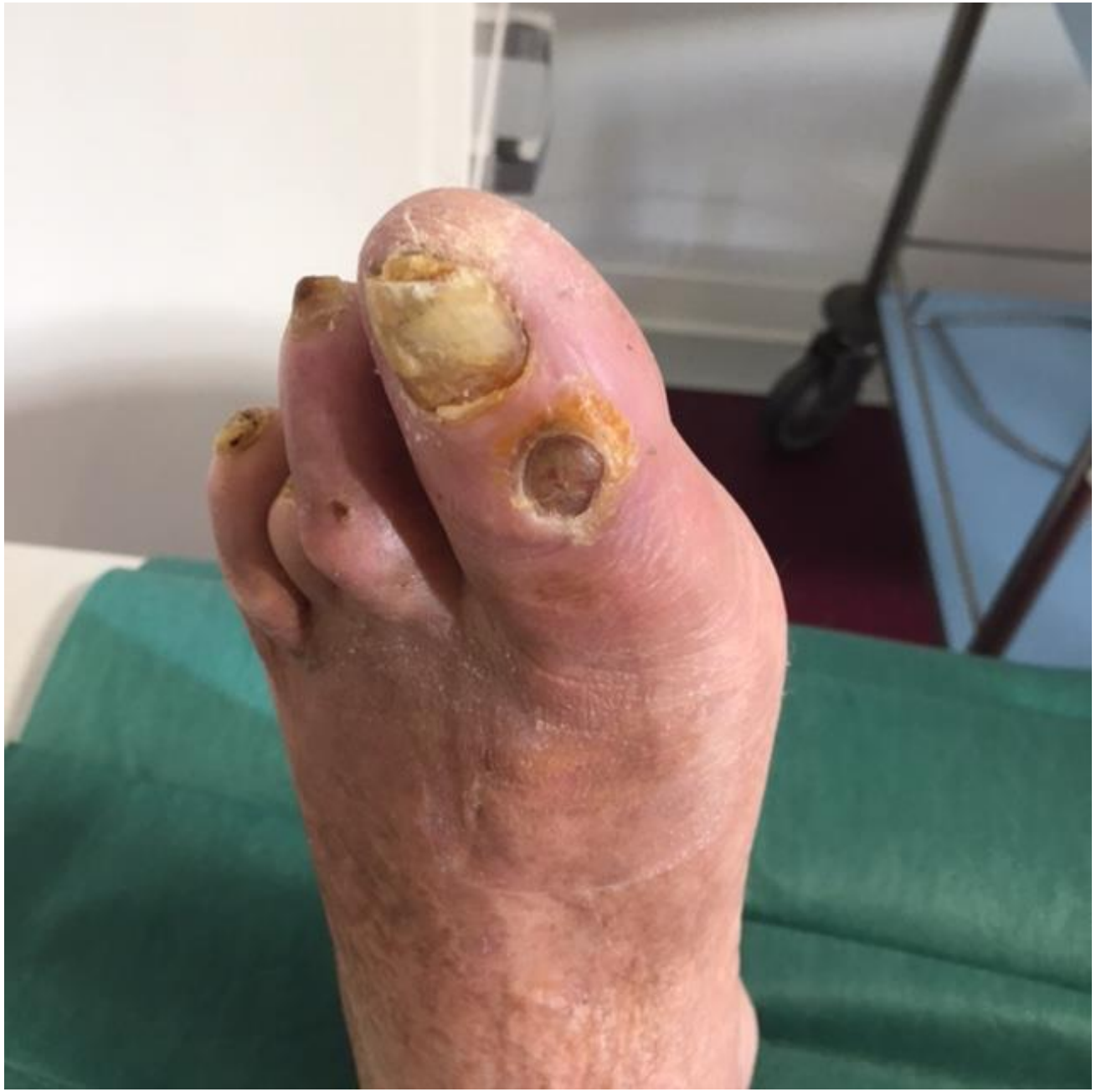

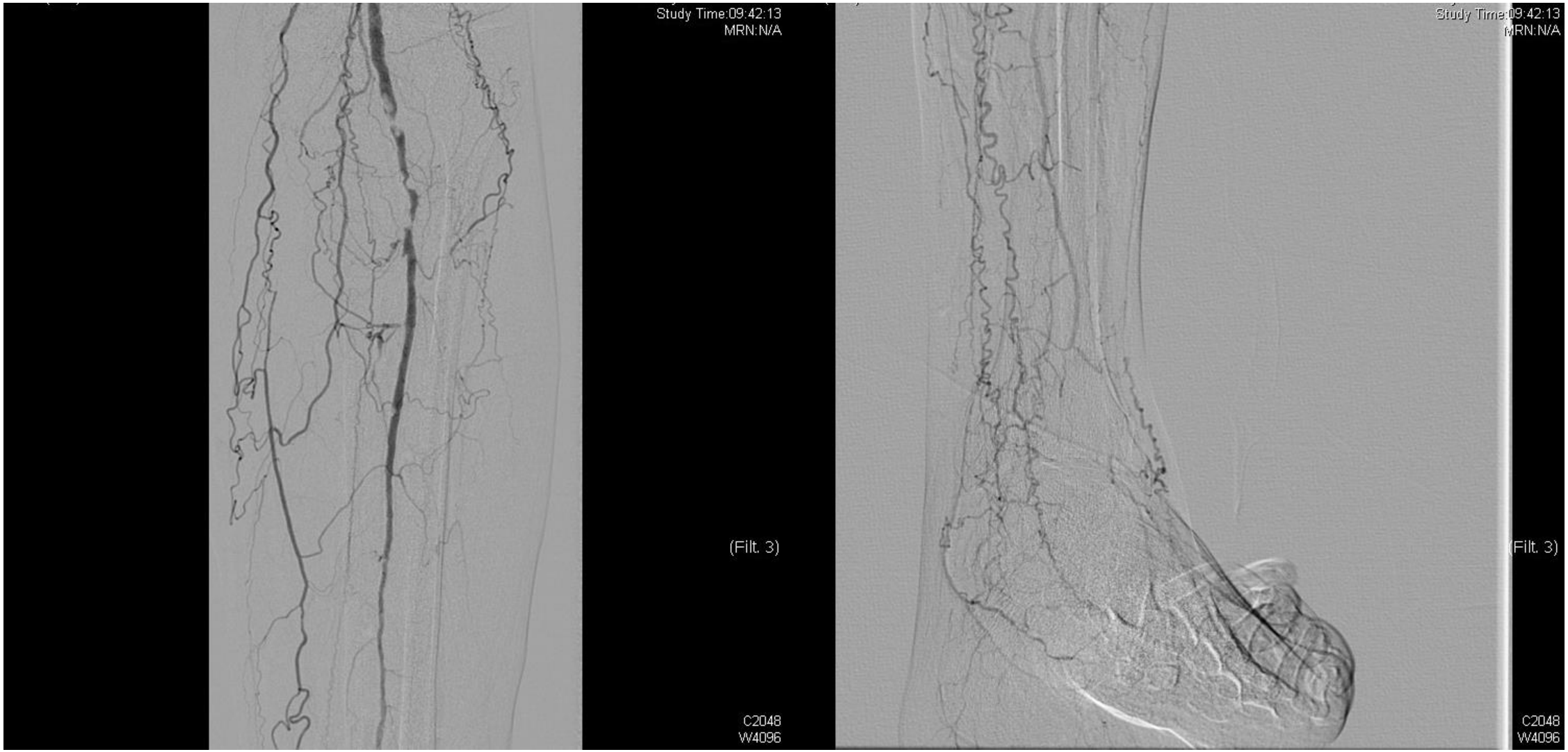
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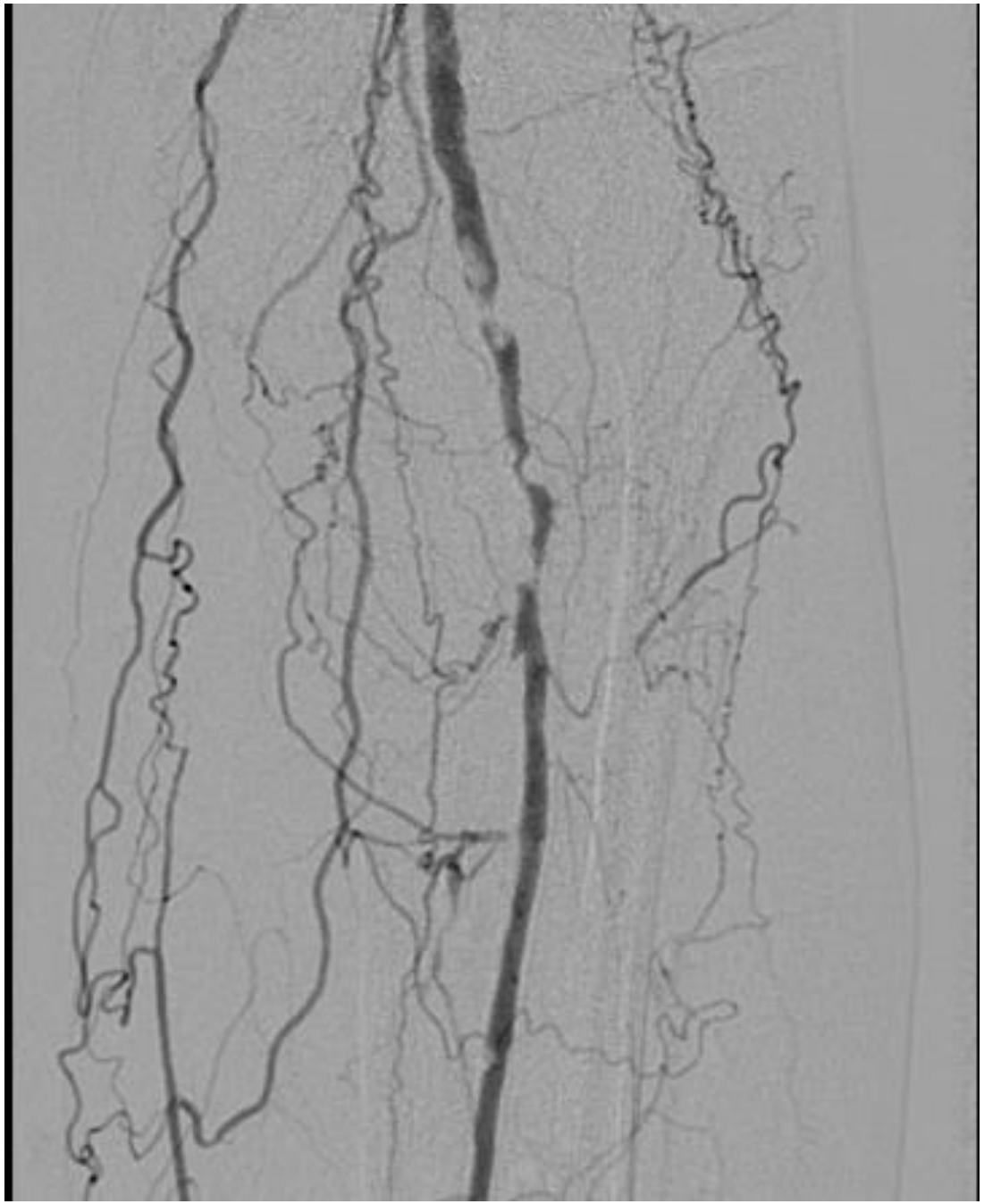

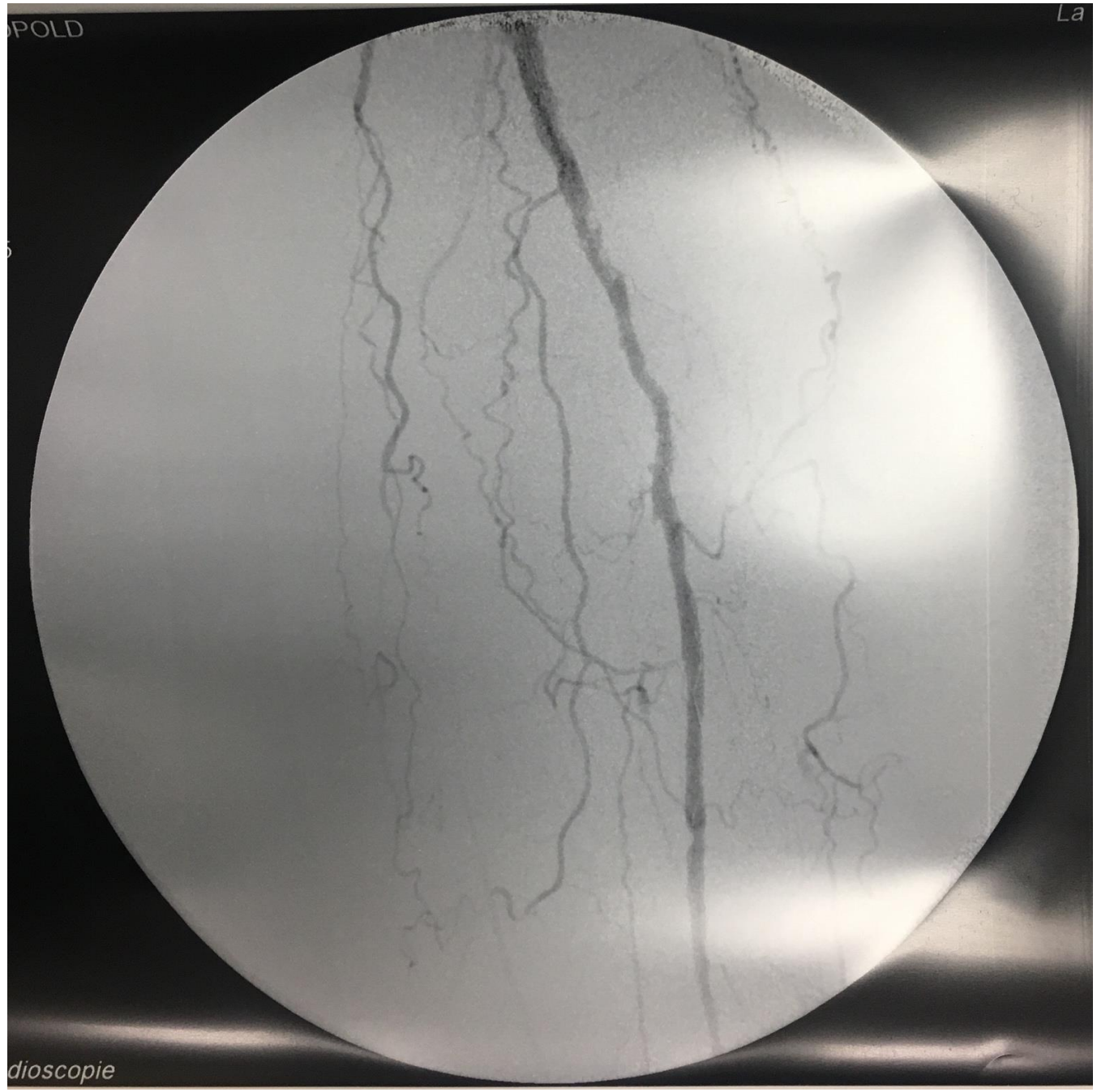
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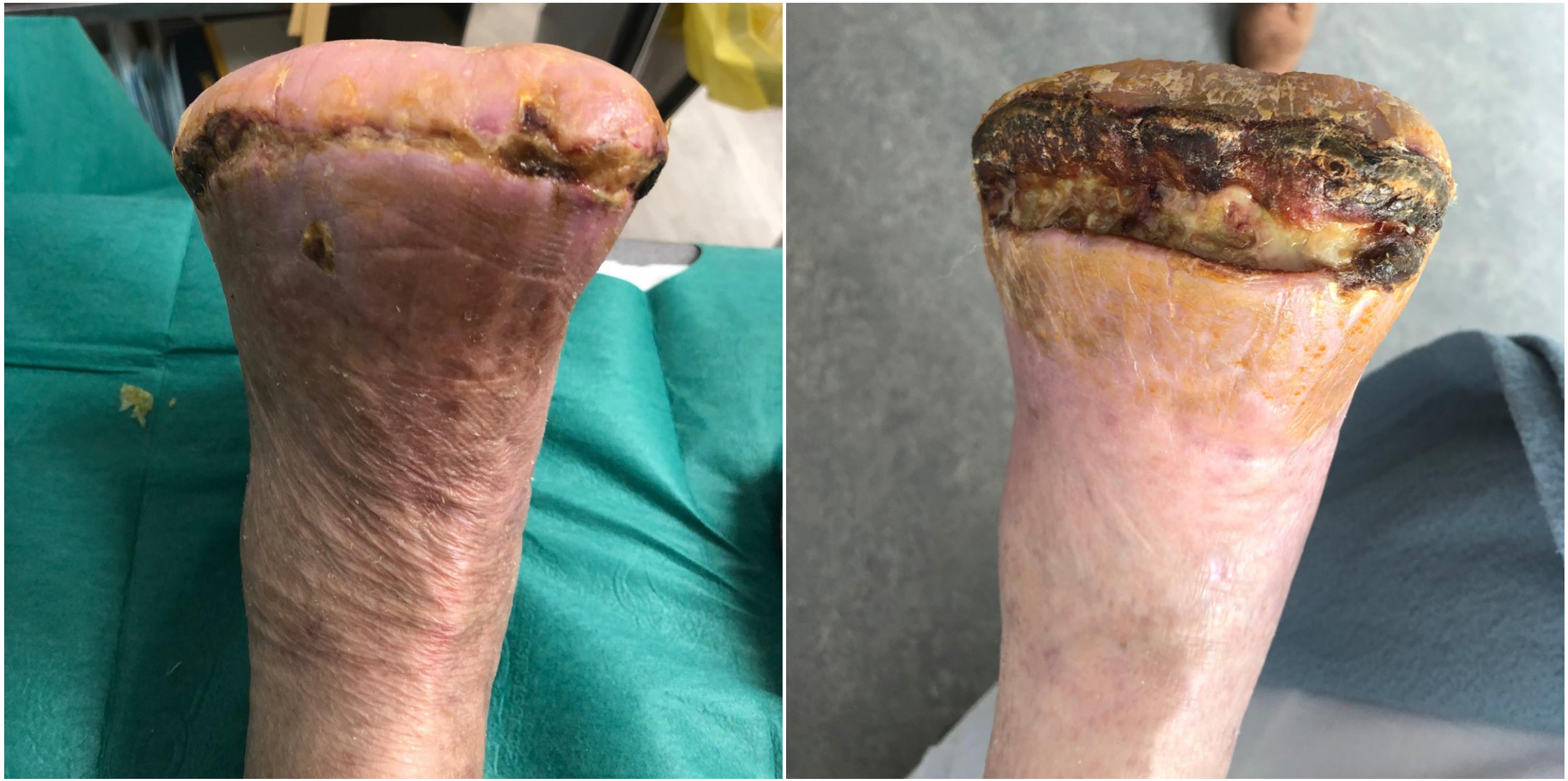

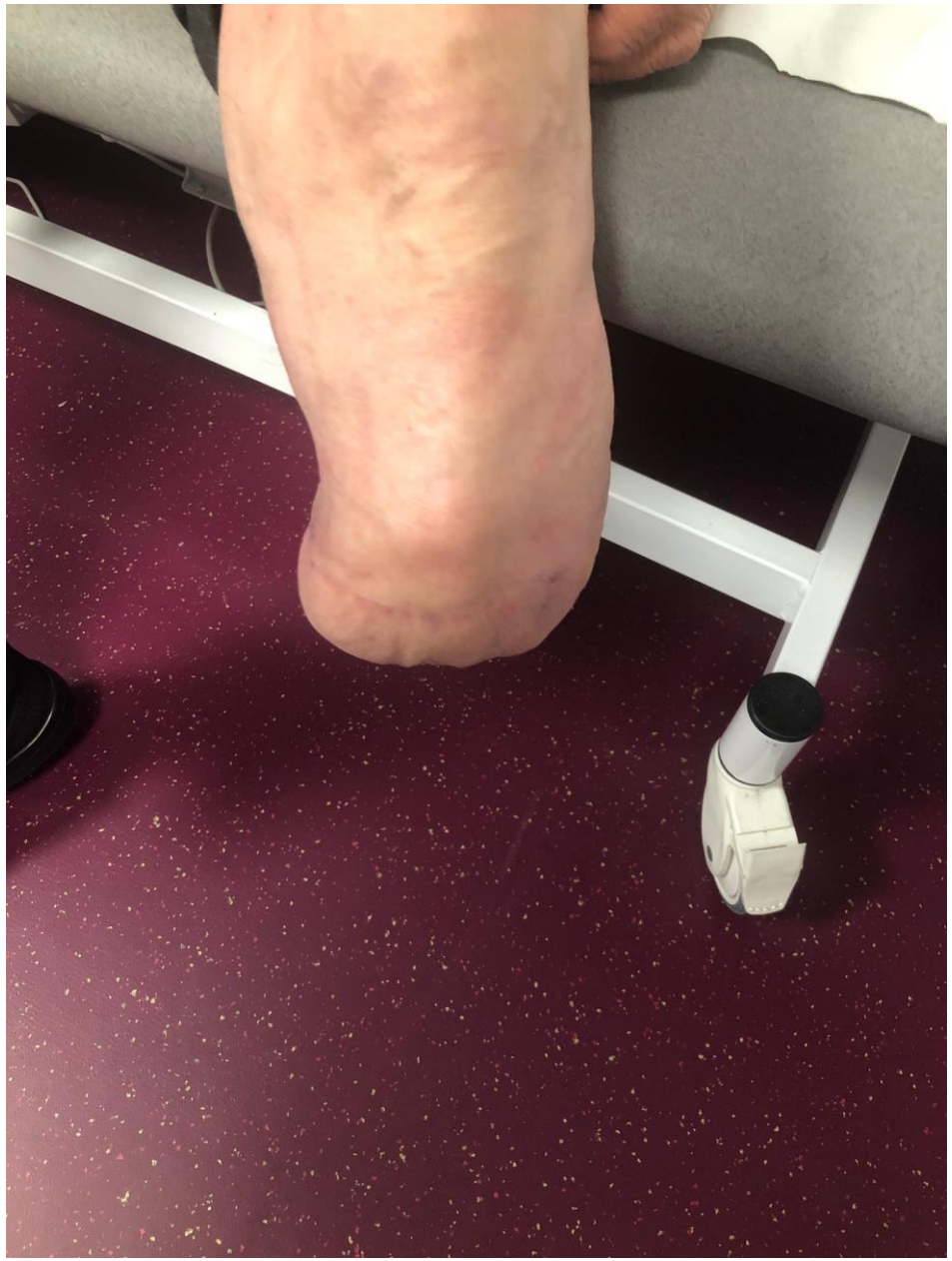

L'ischémie critique chez le dialysé

Base de données de plus 20000 patients dialysés

20% chirurgie / 80% endovasculaire

Chirurgie : moins d'amputations (6.4 vs 8.8%), mortalité plus élevée (10.5 vs 8%)

On ne connait pas le statut en terme de cicatrisation des lésions

Eur J Vasc Endovasc Surg (2019) 57, 248–257

Editor's Choice — Comparison of Outcomes After Open Surgical and Endovascular Lower Extremity Revascularisation Among End Stage Renal Disease Patients on Dialysis

Theodore H. Yuo [a,*], Justin R. Wallace [b], Larry Fish [a], Efthymios D. Avgerinos [a], Steven A. Leers [a], Georges E. Al-Khoury [a], Michel S. Makaroun [a], Rabih A. Chaer [a]

[a]Department of Surgery, University of Pittsburgh School of Medicine, PA, USA
[b]Excela Health, Greensburg, PA, USA

WHAT THIS PAPER ADDS
End stage renal disease (ESRD) patients with peripheral arterial disease are at high risk of complications following open surgical (OSR) or endovascular revascularisation (ER). In this retrospective analysis of a large administrative database, ESRD patients suffer from high mortality and amputation rates following both ER and OSR. Compared with OSR, ER is associated with lower mortality at all time points with equivalent long-term limb salvage. These findings suggest that an endovascular first approach in ESRD patients may be warranted, although a realistic appraisal of the patient's overall medical status and risk of competing mortality is important prior to attempting revascularisation.

Objectives: End stage renal disease (ESRD) patients with peripheral arterial disease (PAD) are at high risk of complications following open surgical revascularisation (OSR). Endovascular revascularisation (ER) is an option, but its role is unclear. This study sought to characterise the outcomes of ER and OSR in ESRD patients treated for claudication or critical limb ischaemia (CLI).
Methods: The United States Renal Data System was used to investigate outcomes after lower extremity ER and OSR from 2005 to 2011. Primary outcomes were mortality, amputation, and peri-procedural myocardial infarction (MI). Kaplan-Meier (K-M) estimates were generated for mortality and amputation, logistic regression models for 30 day predictors, and proportional hazards models for long-term predictors.
Results: A total of 20,347 patients underwent OSR and ER (20.3% OSR, 79.7% ER). CLI was the indication in 80.8% of ER and 88.4% of OSR. The unadjusted major amputation rate at 30 days was higher after ER compared with OSR (8.8% vs. 6.4%, $p < .001$). Conversely, the unadjusted mortality rate at 30 days was lower after ER compared with OSR (8.0% vs. 10.5%, $p < .001$). Multivariable logistic regression models adjusting for medical covariables and CLI versus claudication status demonstrated increased 30 day mortality risk with OSR compared with ER (OR 2.00, 95% CI 1.43–1.79, $p < .001$), MI (OR 1.38, 1.23–1.54, $p < .001$), and the combined endpoint of mortality and major amputation (OR 1.57, 1.16–2.12, $p = .004$), but lower odds of 30 day major amputation alone (OR 0.67, 0.58–0.77, $p < .001$). Proportional hazards models demonstrated increased long-term mortality risk with OSR compared with ER (HR 1.05, 1.00–1.09, $p = .037$), without a difference in major amputation (HR 0.99, 0.93–1.05, $p =$ NS).
Conclusions: In this retrospective analysis of an administrative database, ESRD patients suffer from high mortality and amputation rates following lower extremity revascularisation. Compared with ER, OSR is associated with higher mortality. OSR has better 30 day limb salvage, although long-term outcomes are similar.

Keywords: End stage renal disease, Endovascular revascularisation, Lower extremity, Open surgical revascularisation, Peripheral arterial disease,

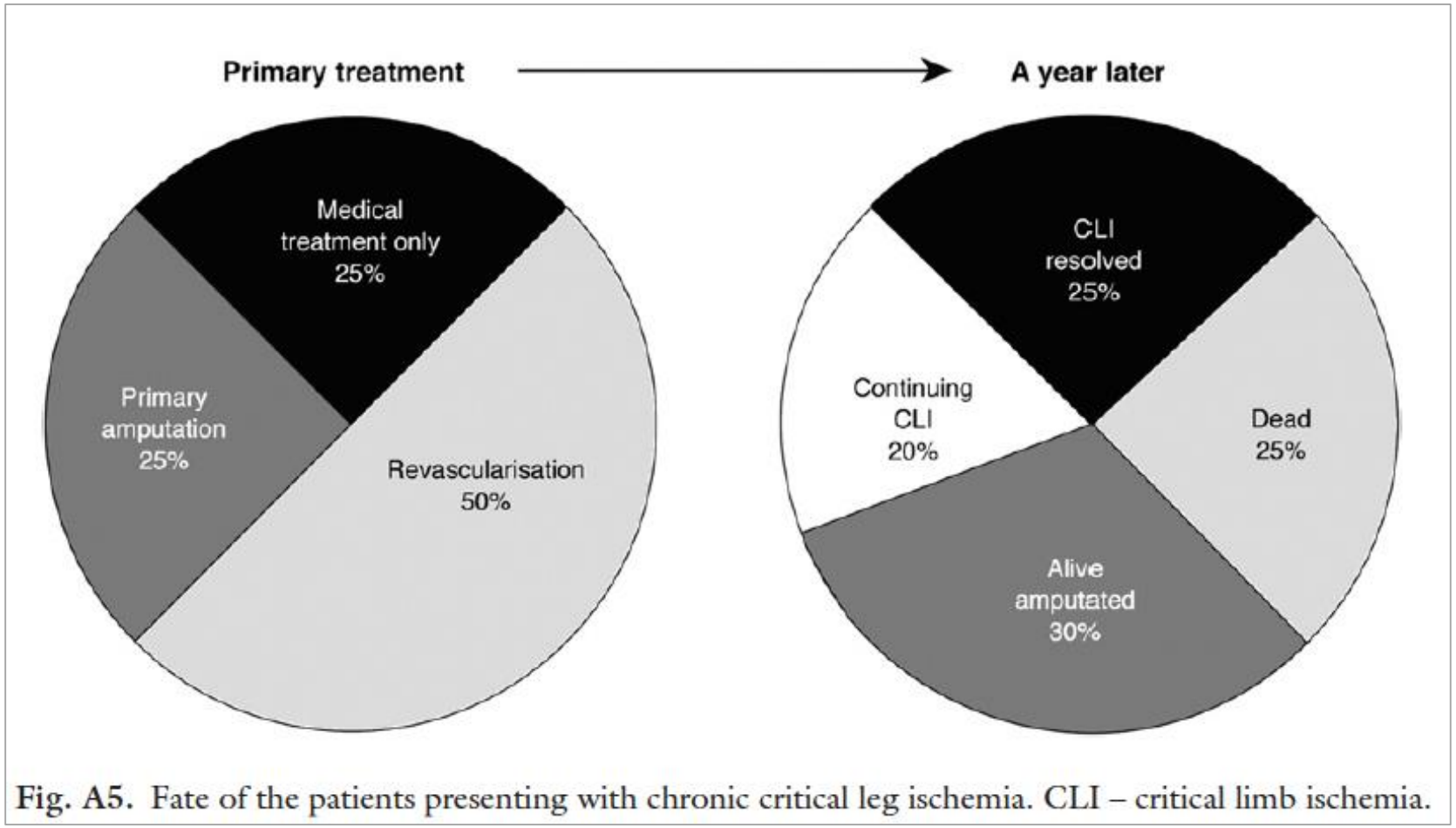

Fig. A5. Fate of the patients presenting with chronic critical leg ischemia. CLI – critical limb ischemia.

Conclusions

Il ne sert à rien d'opposer les techniques car elles sont complémentaires

Besoin d'essais randomisés de qualité

Classification des malades en IC

Profil du malade en IC : qui est à risque, qui s'aggrave ?

Quel traitement pour quel malade ?