

# CONGRESSO NAZIONALE SOCIETÀ ITALIANA FISSAZIONE ESTERNA

Fissazione esterna nel trattamento  
delle emergenze e traumi militari,  
tecniche di ricostruzione degli arti e  
trattamento degli esiti posttraumatici

ROMA

***Pilone tibiale , dal damage  
control alla prevenzione delle  
complicanze e intervento  
successivo***

UOC Ortopedia e Traumatologia  
Ospedale «San Liberatore» di Atri  
***Direttore: Dottor Fascione Fabrizio***

16-17 MAGGIO 2025

2025



# Fratture del pilone tibiale

## AO 43B - 43C

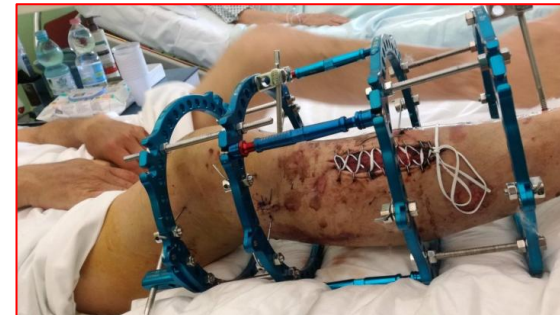
*La fissazione esterna non rappresenta il gold standard come trattamento definitivo*

***SOLO NELLE FRATTURE ESPOSTE?***

***VALUTAZIONE DEI TESSUTI MOLLI E COMMINUZIONE DELLA FRATTURA***

***NECESSITA' DI UNA SINTESI DI MINIMA IN PREVISIONE DI UN INTERVENTO DEFINITIVO (ARTRODESI)***

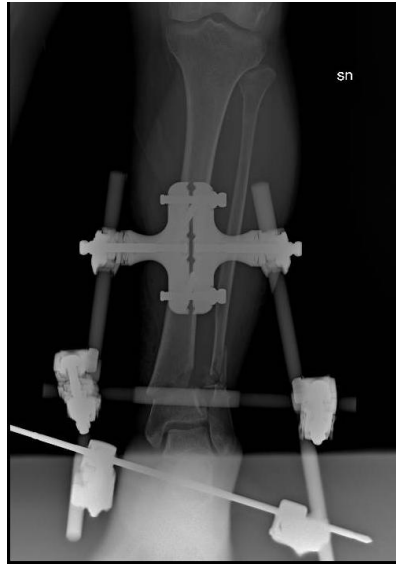
***IN PRESENZA DI FASCIOTOMIE (S. COMPARTIMENTALE) CHE CONTRONDIANO MEZZI DI SINTESI INTERNI***



## FISSAZIONE ESTERNA TEMPORANEA

Nel Damage control la fissazione esterna rappresenta la soluzione da preferire:  
nel rispetto dei tempi, dei canali di sicurezza, dei futuri accessi chirurgici successivi

### *SPAN – SCAN - PLAN*



*La fissazione esterna circolare e/o ibrida non è da utilizzare come trattamento provvisorio nel damage control*

## TRAUMA COMPLESSO

***“ IL DANNO DEI TESSUTI MOLLI TENDE AD AUMENTARE CON IL GRADO DI SEVERITA' DELLA FRATTURA ED E' CORRELATO ALLE FORZE E ALL'ENERGIA CHE HANNO PRODOTTO LA FRATTURA STESSA”***



- Anderson JT, Gustilo RB (1980) Immediate internal fixation in open fractures. Orthop Clin North Am
- Tscherné H, Oestern HJ (1982) A new classification of soft-tissue damage in open and closed fractures. Unfallheilkunde

## Tessuti molli

- DERMATOPOROSI patologia cronica da fragilità cutanea nell'anziano che si manifesta con porpora, cute atrofica e pseudoscaglie
- Diffusa nella popolazione anziana sopra i 65 anni
- Complicazioni frequenti sono lacerazioni cutanee, ritardo di guarigione, ematomi e infezioni sottocutanee

Kaya G et al Dermatolo 2007

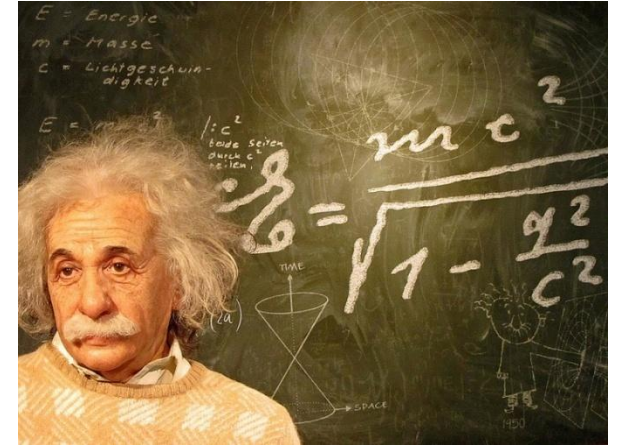
Dyer GM et al J Clin Aesthet Dermatol 2018

Saurat Jh et al J Eur Acad Dermatol Venereol 2017



# Problemi delle fratture metaepifisarie

- **Compromissione dei tessuti molli**
- Timing chirurgico (urgenza?)
- Chirurgia in one or two step
- Comminuzione articolare e metafisaria
- Alta % complicanze (ritardo di guarigione sia cutanea che ossea, rifratture, viziose consolidazioni, artrosi per le fratture articolari)
- Interventi successivi
- Qualità dell'osso





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Chinese Journal of Traumatology 20 (2017) 94–98

2021

SYSTEMATIC REVIEW

## Open Pilon Fracture Postoperative Outcomes with Definitive Surgical Management Options: A Systematic Review and Meta-analysis

Natasha Faye Daniels, BSc<sup>1</sup>; Jiang An Lim, BA<sup>1</sup>; Azeem Thahir, MRCS<sup>2</sup>; Matija Krkovic, PhD<sup>2</sup>

Based on our study, while Ex-Fix and ORIF have similar functional outcomes, Ex-Fix appears to have a significantly higher risk of postoperative complications.



Contents lists available at ScienceDirect

Chinese Journal of Traumatology

journal homepage: <http://www.elsevier.com/locate/CJTEE>

2017

Original article

Clinical efficacy and safety of limited internal fixation combined with external fixation for Pilon fracture: A systematic review and meta-analysis

Shao-Bo Zhang, Yi-Bao Zhang, Sheng-Hong Wang, Hua Zhang, Peng Liu, Wei Zhang, Jing-Lin Ma, Jing Wang

Department of Orthopedics, Key Laboratory of Orthopedics, Second Hospital of Lanzhou University, Lanzhou 730030, China

Based on this meta-analysis, LIFEF has similar effect as ORIF in the treatment of pilon fracture, however, LIFEF group has a significantly higher risk of complications than ORIF group does

2023

Meeting Proceedings



OPEN

## Pilon fractures: Consensus and controversy

Michael Flores, BS<sup>a</sup>, Matthew Ciminero, MD<sup>a</sup>, Stephen A. Kottmeier, MD<sup>b</sup>, Daniel Botros, MD<sup>b</sup>, Boris A. Zelle, MD<sup>c</sup>, David W. Shearer, MD, MPH<sup>a,\*</sup>

Staged open reduction internal fixation remains the gold standard for most cases to achieve anatomic articular reduction while minimizing soft tissue complications and infection

***Given the greater theoretical risk of deep infection with ORIF, the various confounding factors in our studies and the limited number of studies used in the meta-analysis, a firm conclusion of superior technique cannot be made***



## 4<sup>th</sup> Combined Congress

of the ASAMI-BR & ILLRS societies

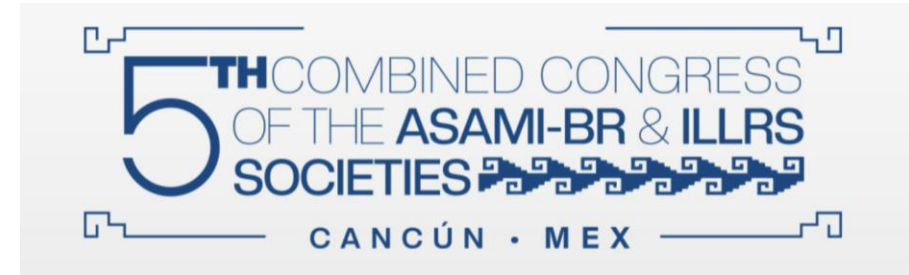
27th - 30th August 2019  
ACC Liverpool, UK



hosted by  
The British Limb Reconstruction Society

Congress Secretariat

Home Programme Registration Exhibitors Travel Hotels



***«... valida alternativa chirurgica nella gestione delle fratture , non solo esposte...»***



Primary arthrodesis may be indicated in cases with severe articular cartilage injury that, in the opinion of the treating surgeon, is likely unsalvageable at the time of the index management. *JBS Am 2023 - Murawsky C et al*





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G.M. 29 aa M

AO 43C3

Esposizione GA III B

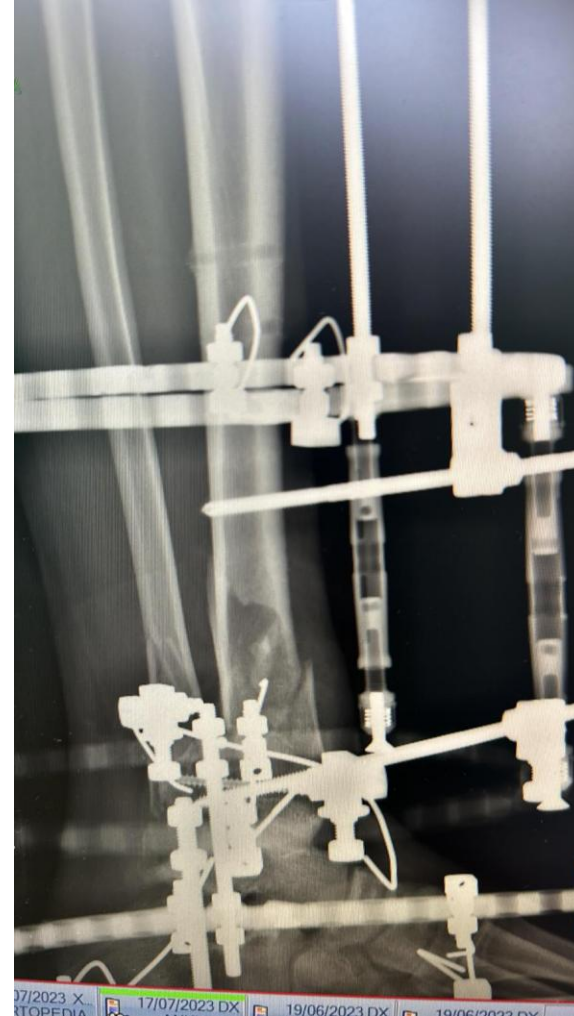
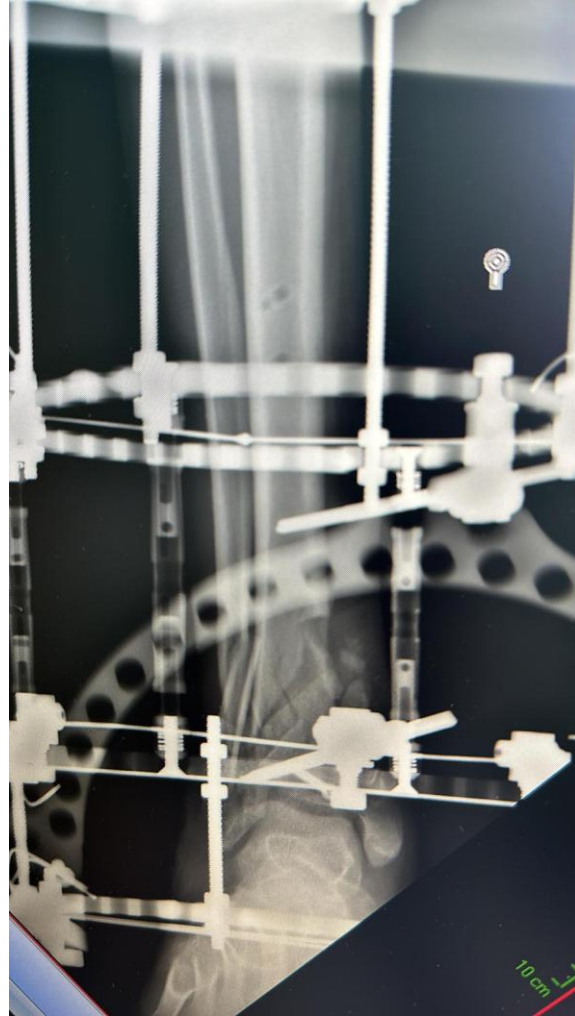
Inviato a noi dopo 40 gg



ROMA

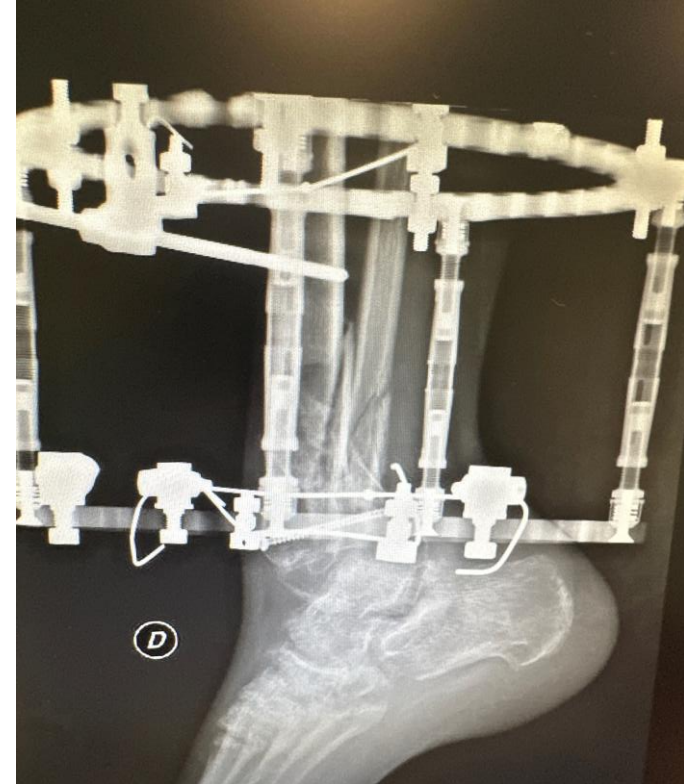


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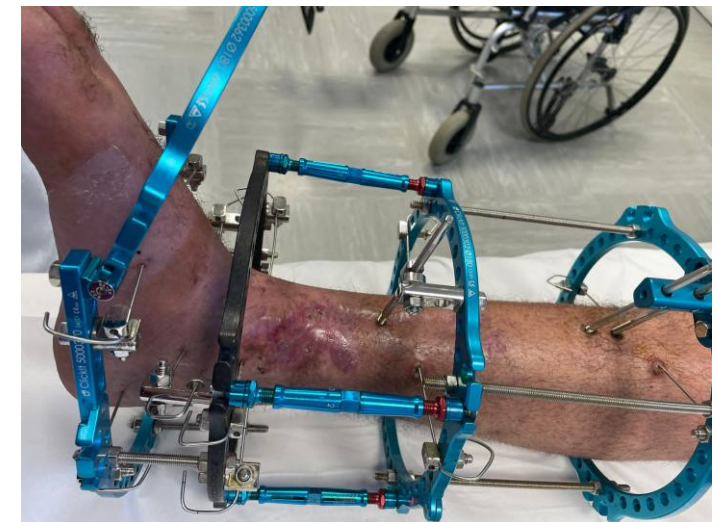
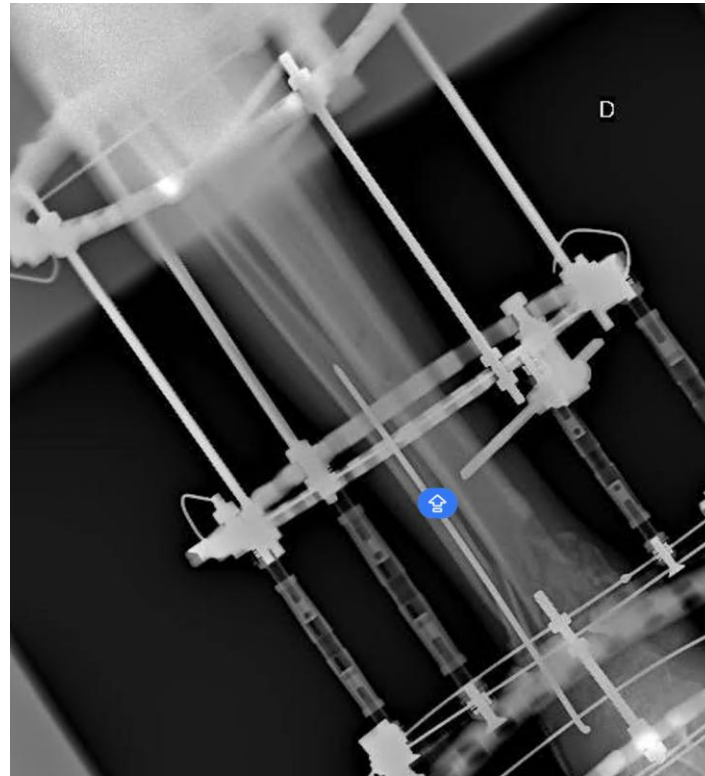
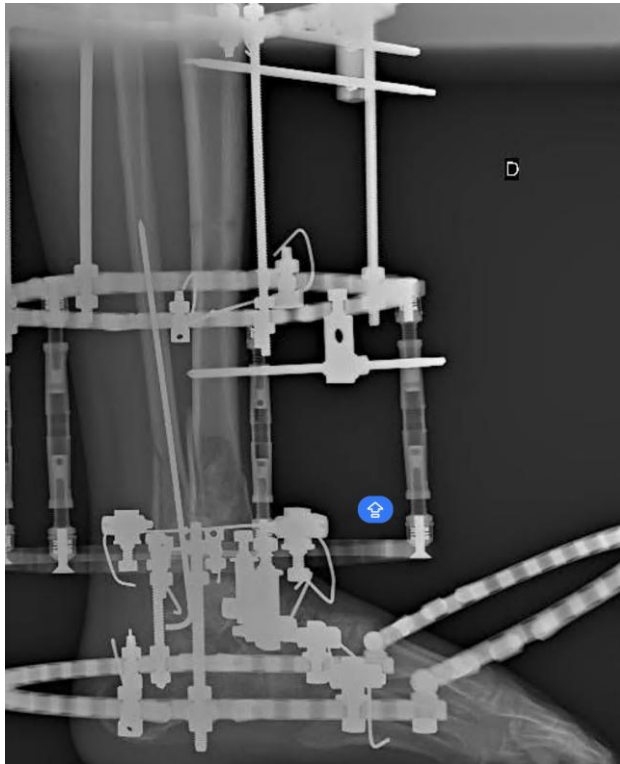
Rimozione Anello piede : scomposizione





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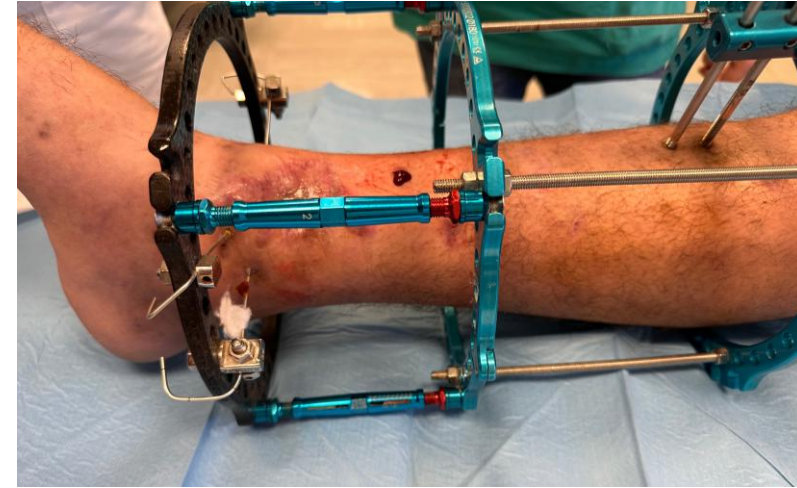
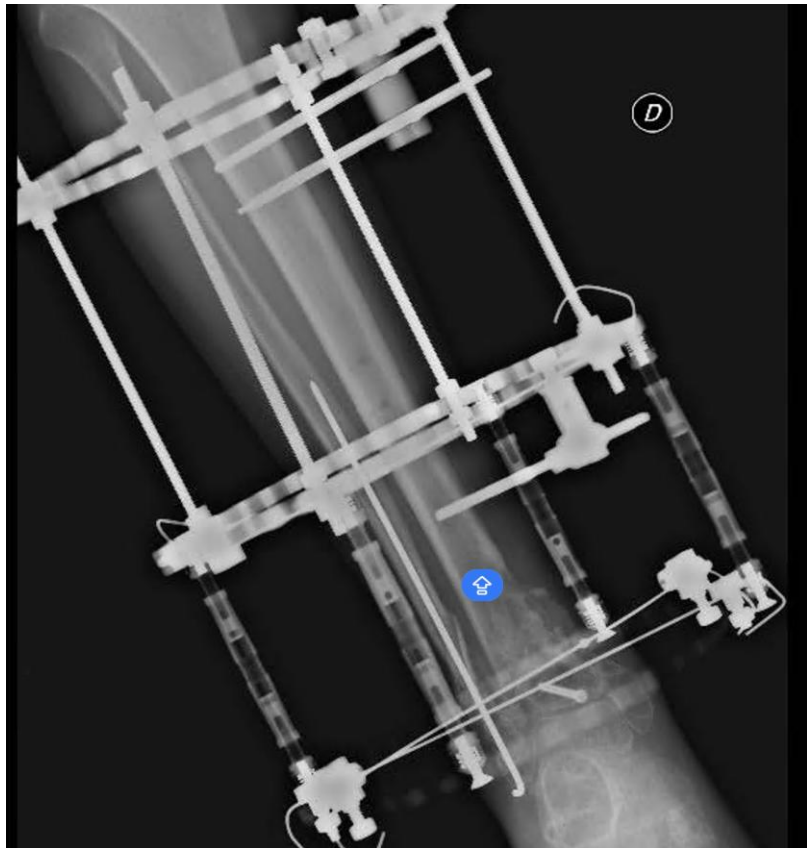
Reintervento : filo perone e anello piede





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Controllo a 4 mesi





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Controllo a 8 mesi





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Controllo a 12 mesi

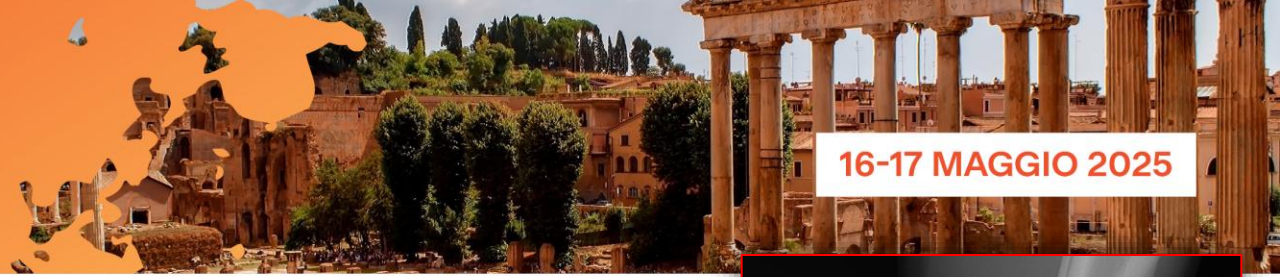






K.F. aa 33 ♂  
Infortunio sul lavoro  
Frattura esposta Gustilo 3A (antero-mediale)  
**AO 4.3.C2**

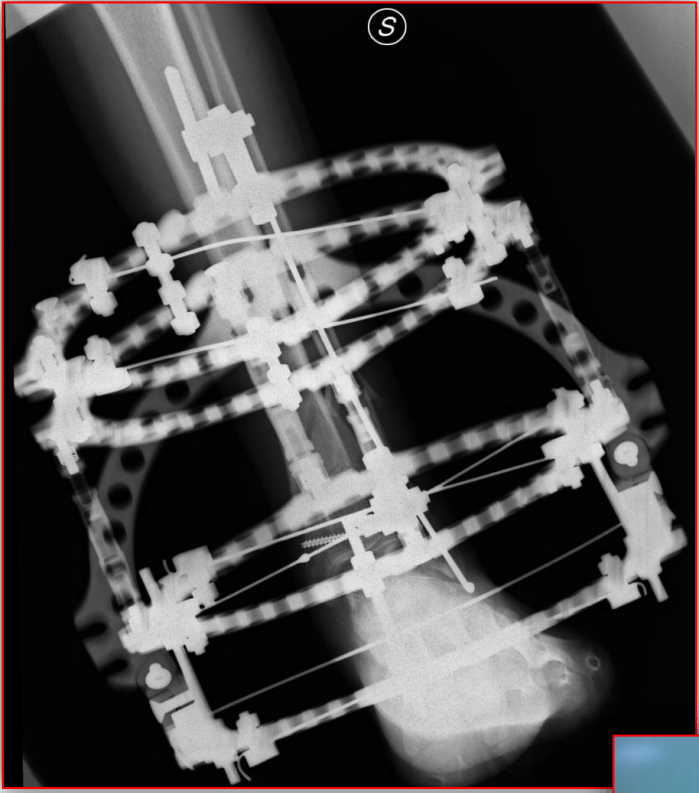




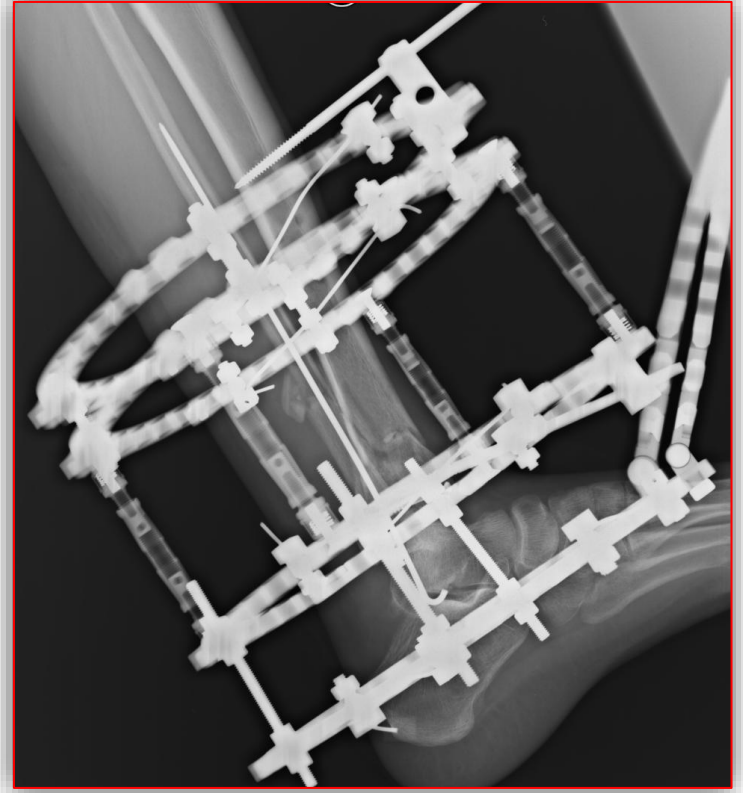
K.F. aa 33 ♂  
Infortunio sul lavoro  
Fissatore a ponte

**IN URGENZA**

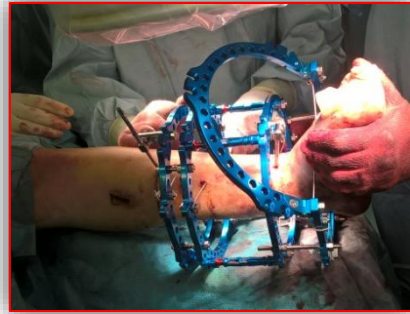
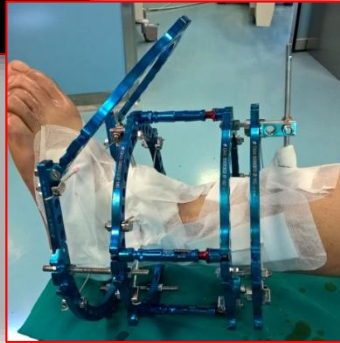


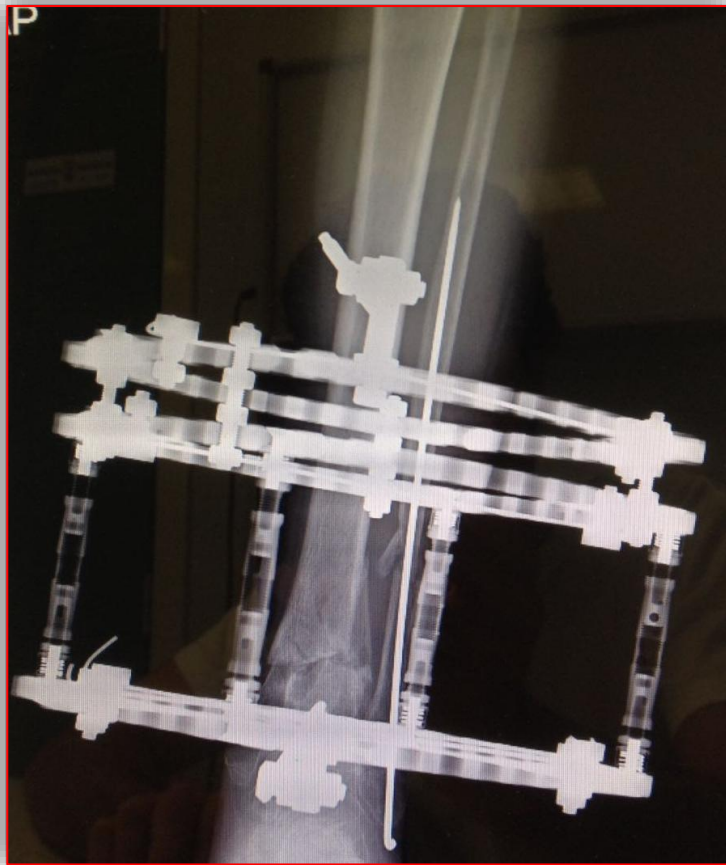


K.F. aa 33 ♂  
Infortunio sul lavoro



DOPO 7 GIORNI





K.F. aa 33 ♂  
Infortunio sul lavoro



**CONTROLLO A 3 MESI**



K.F. aa 33 ♂  
Infortunio sul lavoro

**CONTROLLO A 5 MESI**





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D.S.M.T. aa 64 ♀

**AO 4.3.B2** – Esposizione GA IIIB





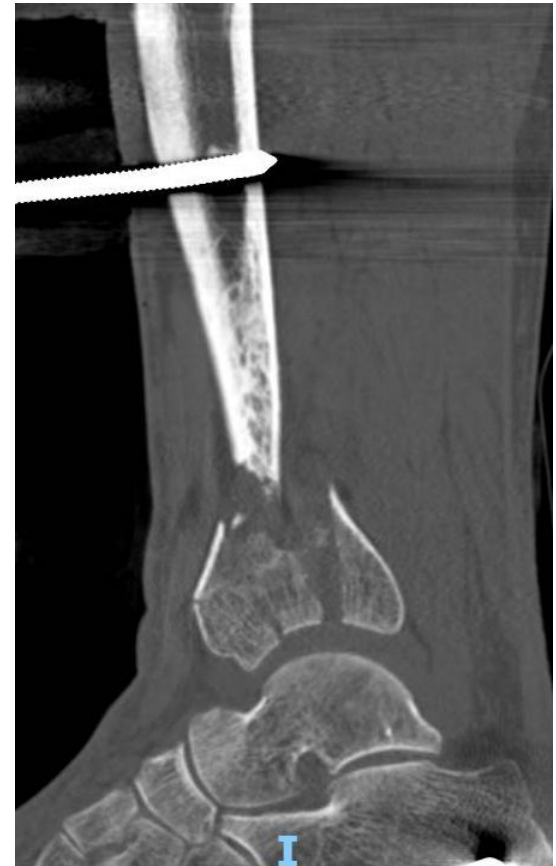
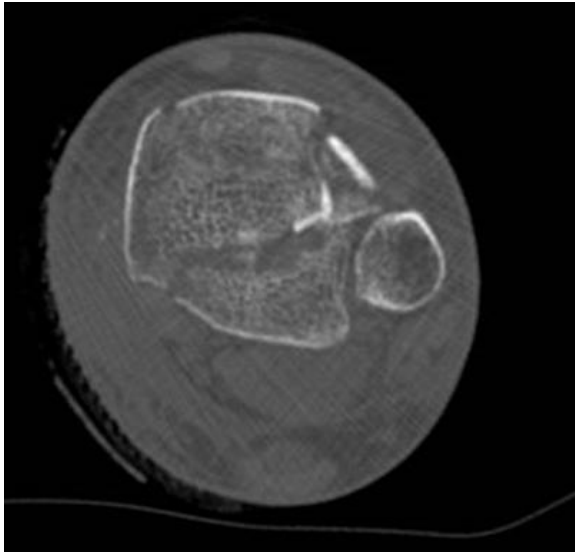
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D.S.M.T. aa 64 ♀  
Fissatore esterno - sutura





D.S.M.T. aa 64 ♀  
Fissatore esterno - sutura

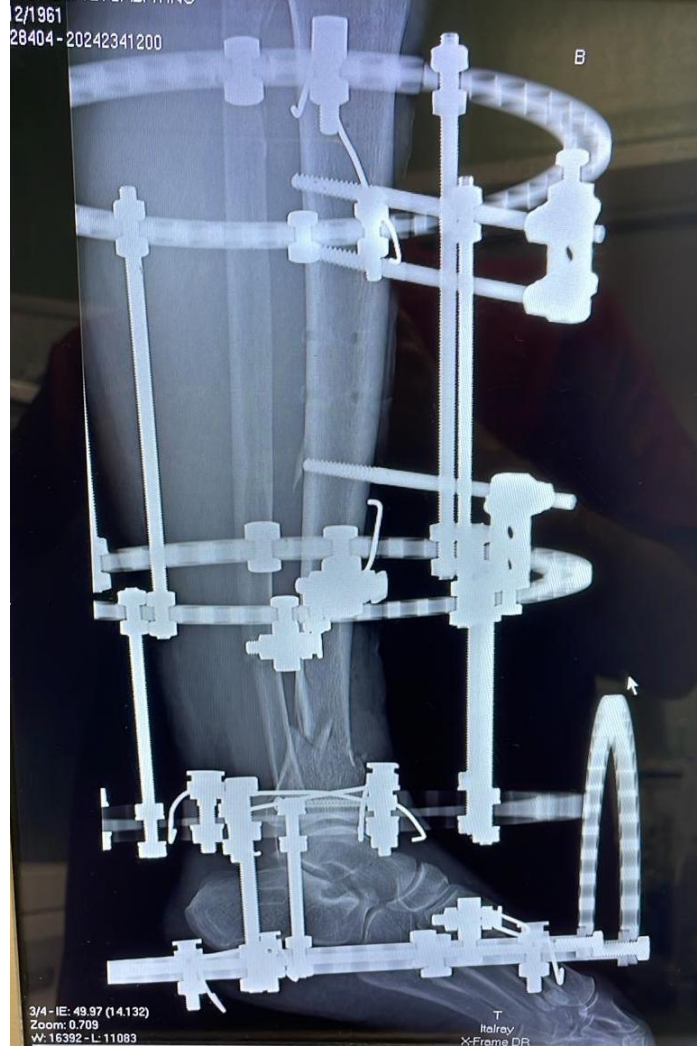






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D.S.M.T. aa 64 ♀

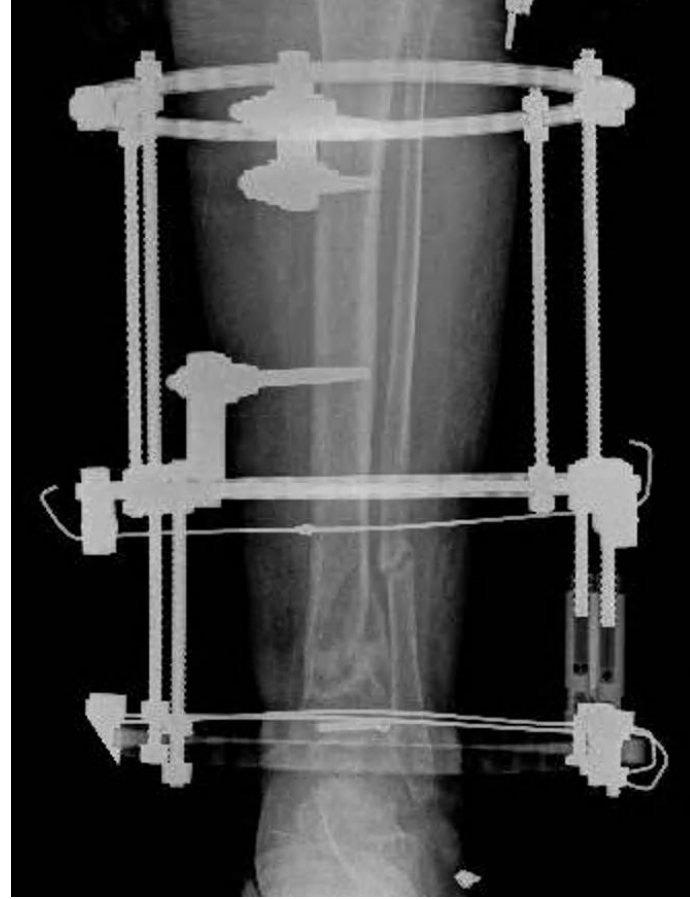
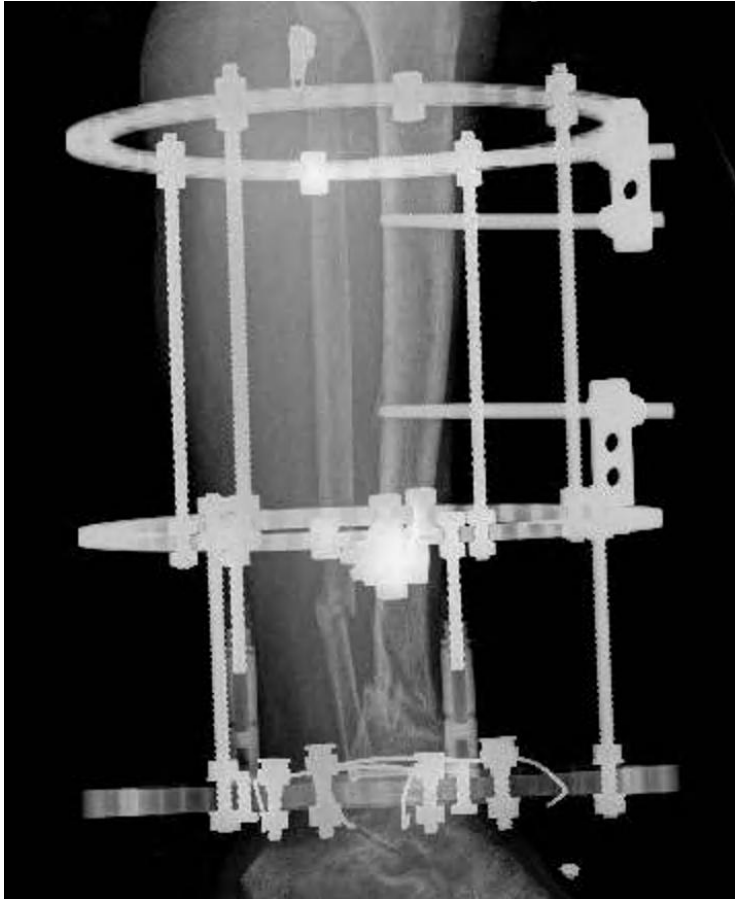




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D.S.M.T. aa 64 ♀

Controllo a 4 mesi





D.S.M.T. aa 64 ♀

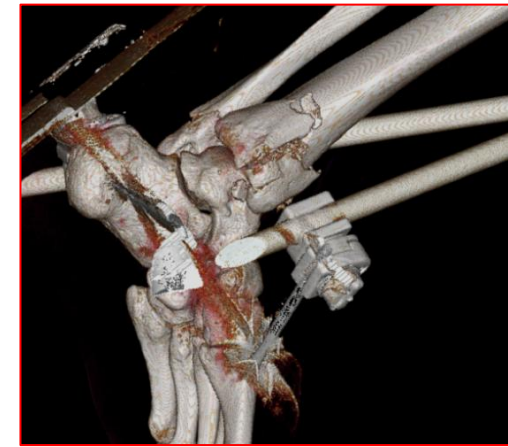
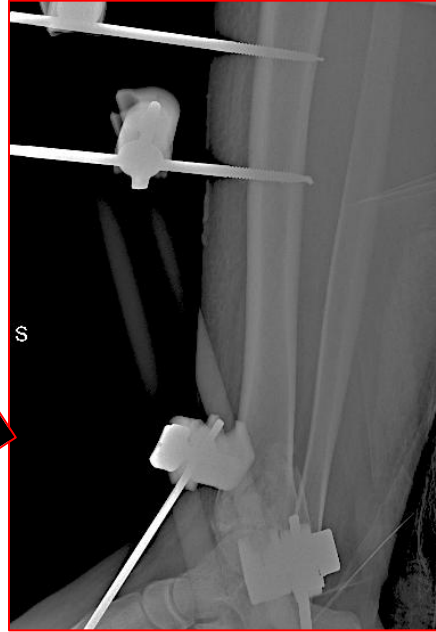
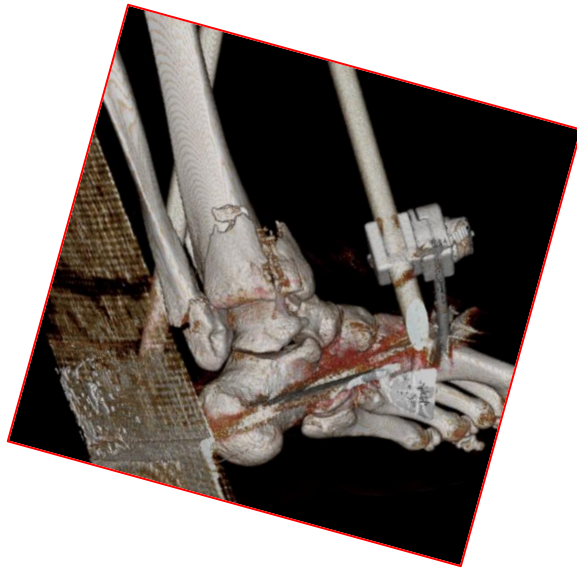




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F. D. aa 18 ♂ 130Kg  
AO 43C3 - Sofferenza cutanea **Tscherne I**  
CADUTO IN BICI

RX e TAC dopo  
Damage control





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F. D. aa 18 ♂ 130Kg



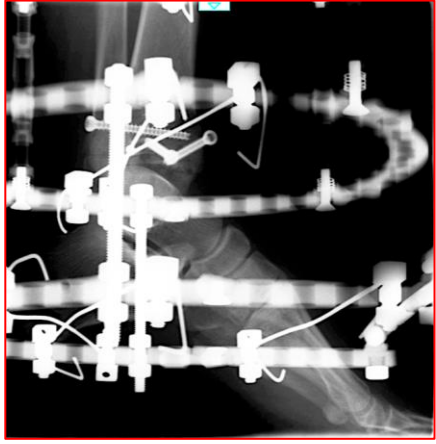


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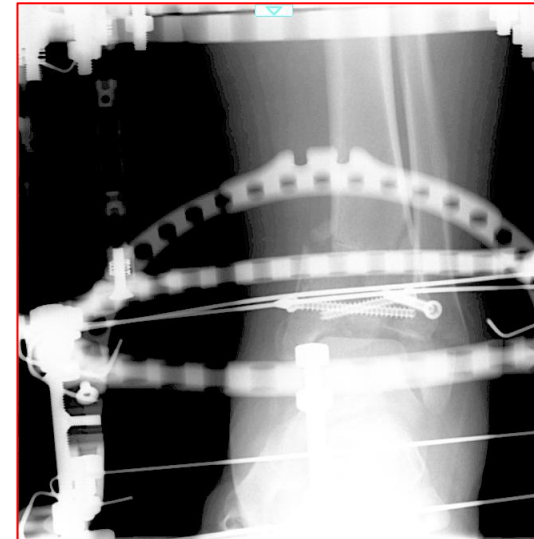
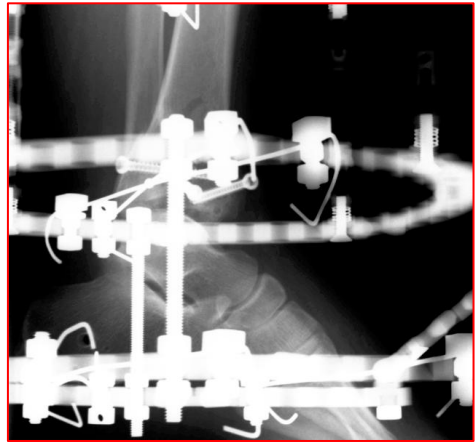
F. D. aa 18 ♂ 130Kg

Dopo 10 giorni





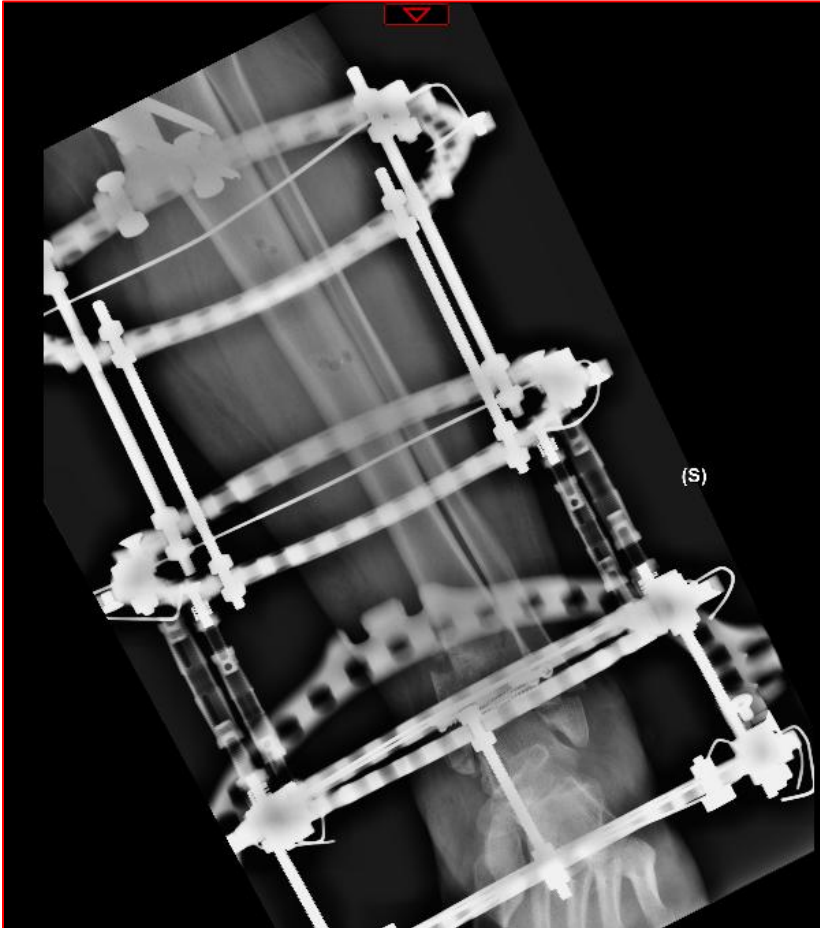
F. D. aa 18 ♂ 130Kg



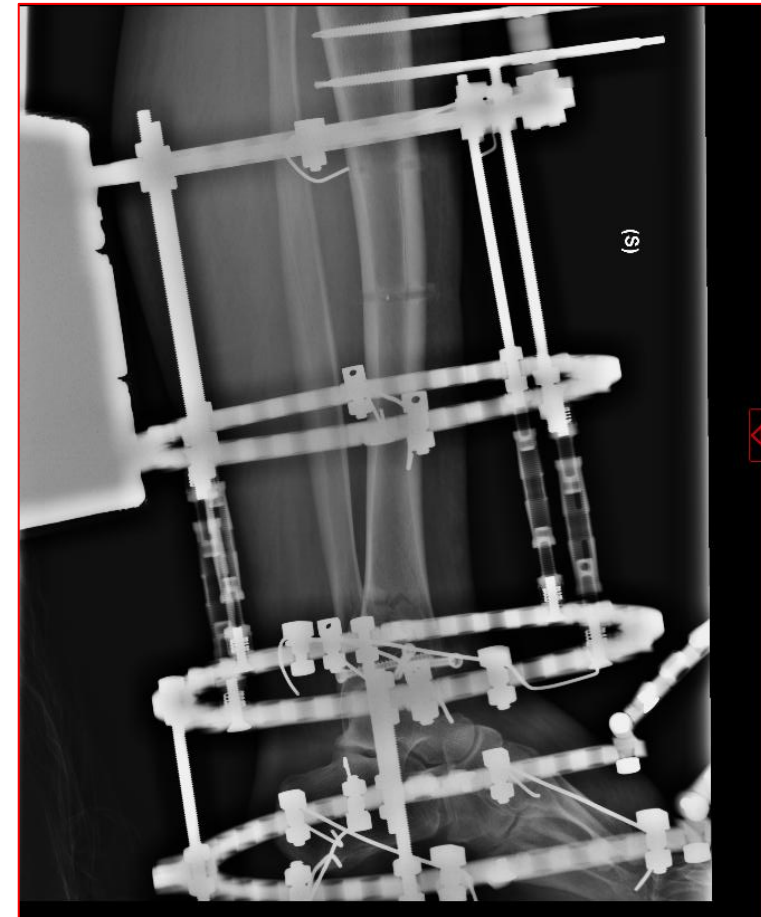
Rx postop



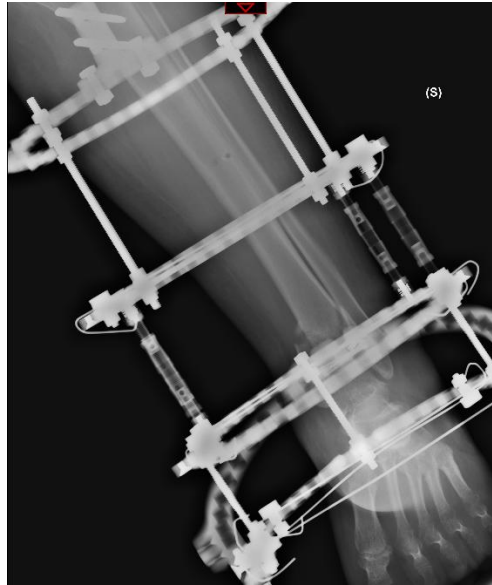
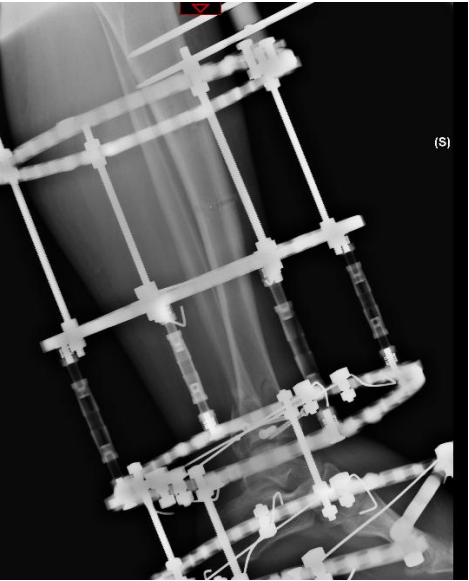
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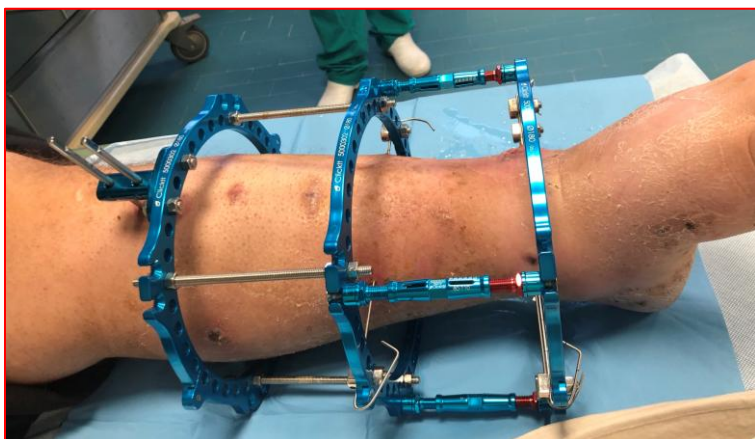
Dopo 15 giorni







Dopo 35 giorni



TAC dopo 45 giorni



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F. D. aa 18 ♂ 130Kg



A.M. aa 33♂ 105Kg

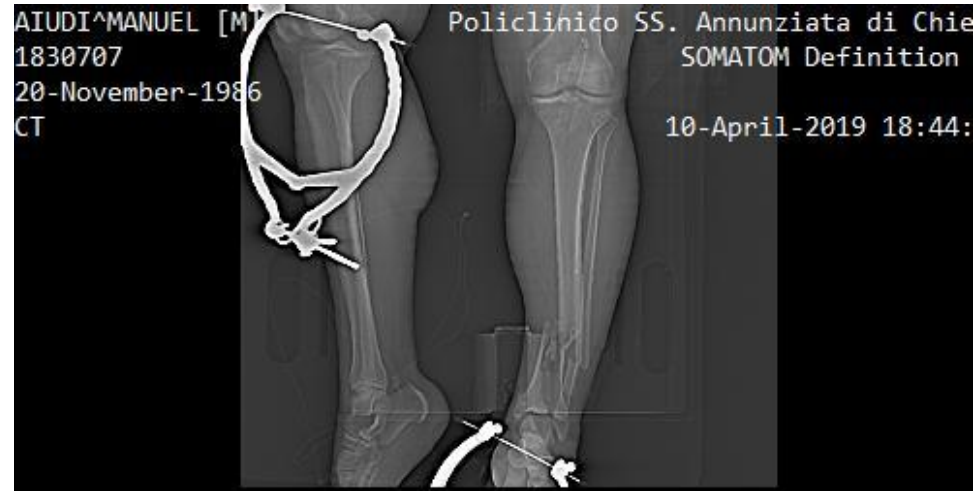
FRATTURA FEMORE DX (32A2) E FRATTURA ESPOSTA TIBIA DISTALE (43C2)

Esposizione Gustilo Anderson IIIA





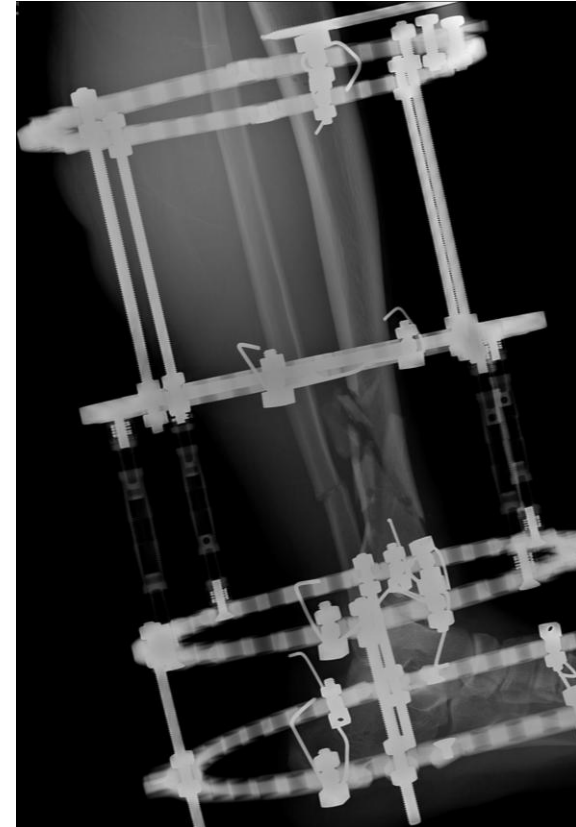
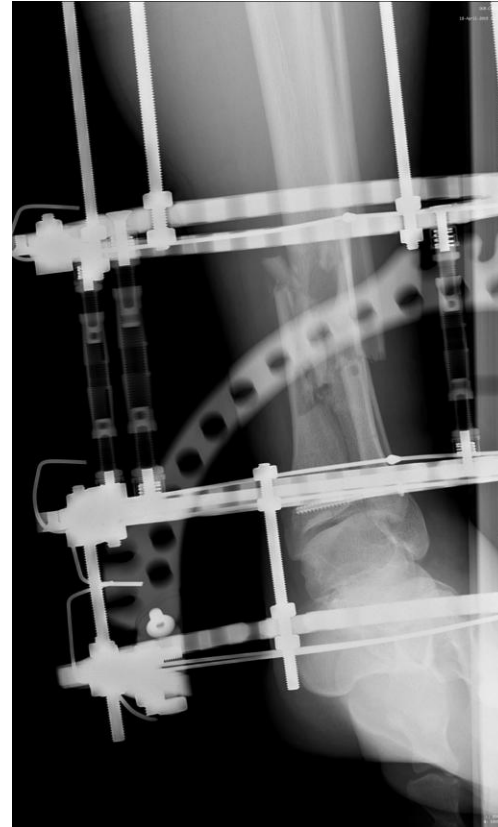
A.M. aa 33♂ 105Kg  
DAMAGE CONTROL - TAC





FRATTURA FEMORE DX: INCHIODAMENTO ENDOMIDOLLARE

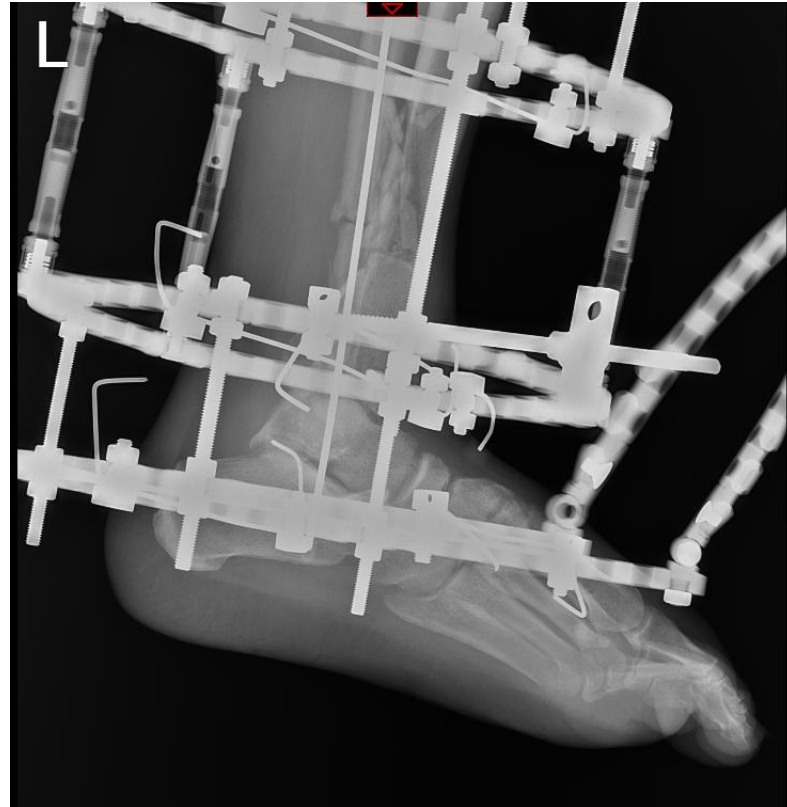
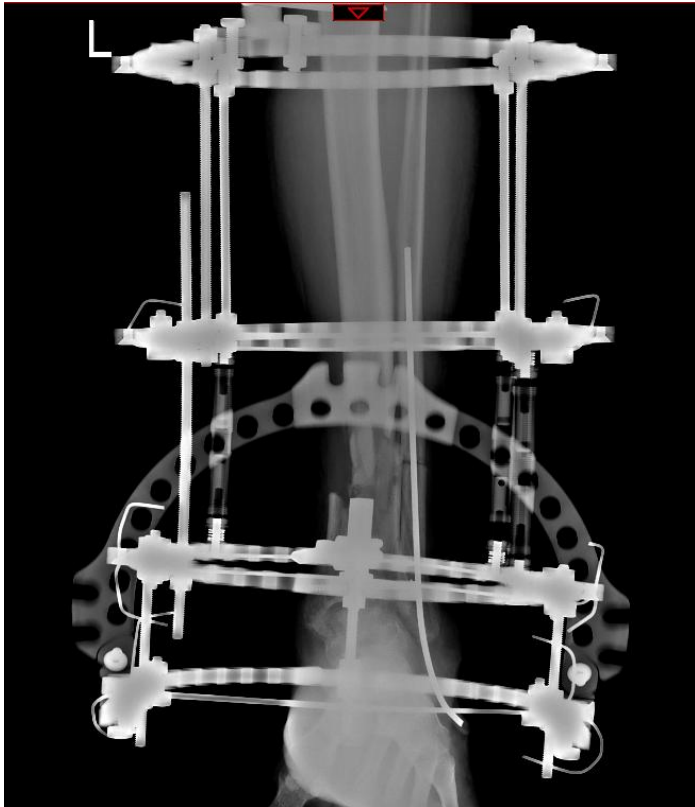
FRATTURA GAMBA ESPOSTA : FISSAZIONE ESTERNA CIRCOLARE





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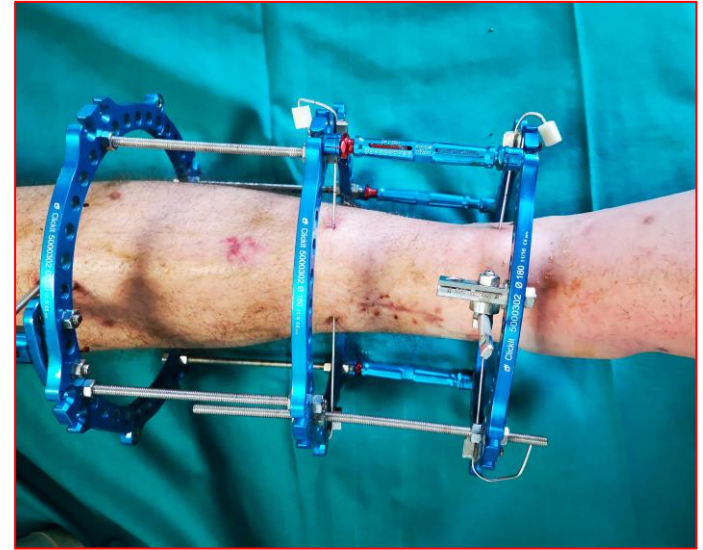
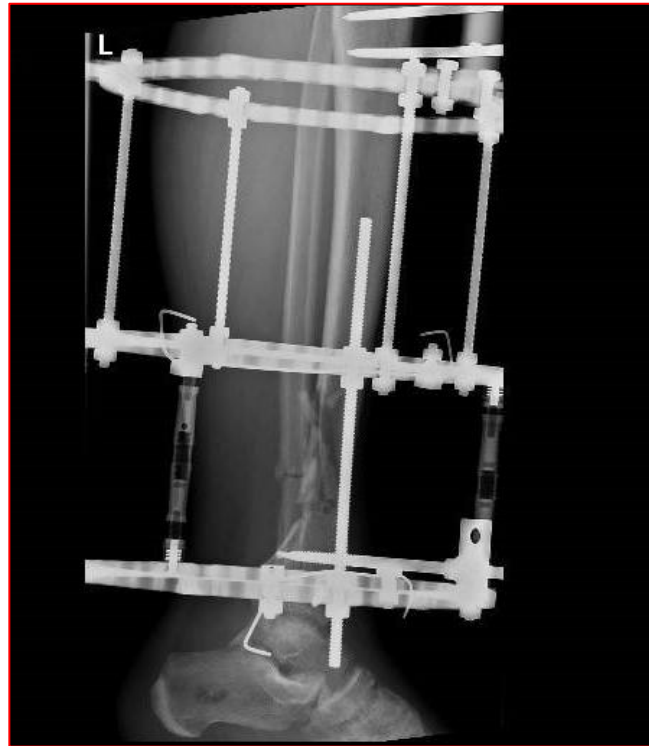
CONTROLLO A 2 MESI  
RIMOZIONE ANELLO PIEDE





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CONTROLLO A 4 MESI  
RIMOZIONE ANELLO PIEDE







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CONTROLLO A 7 MESE



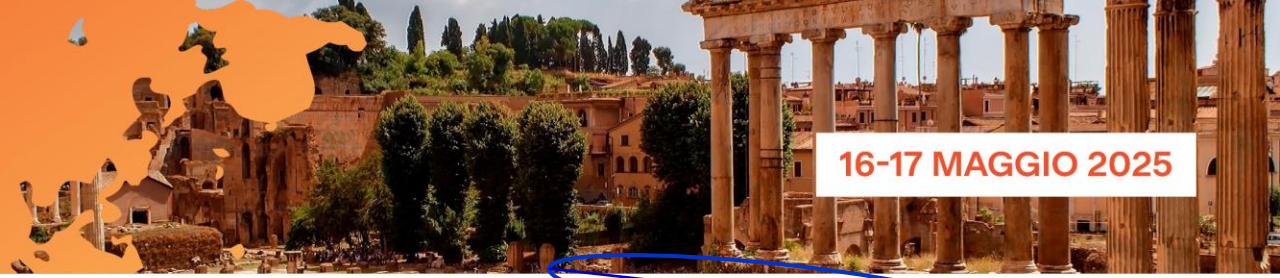
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CONTROLLO A 9 MESI

PSEUDOARTROSI TIBIA

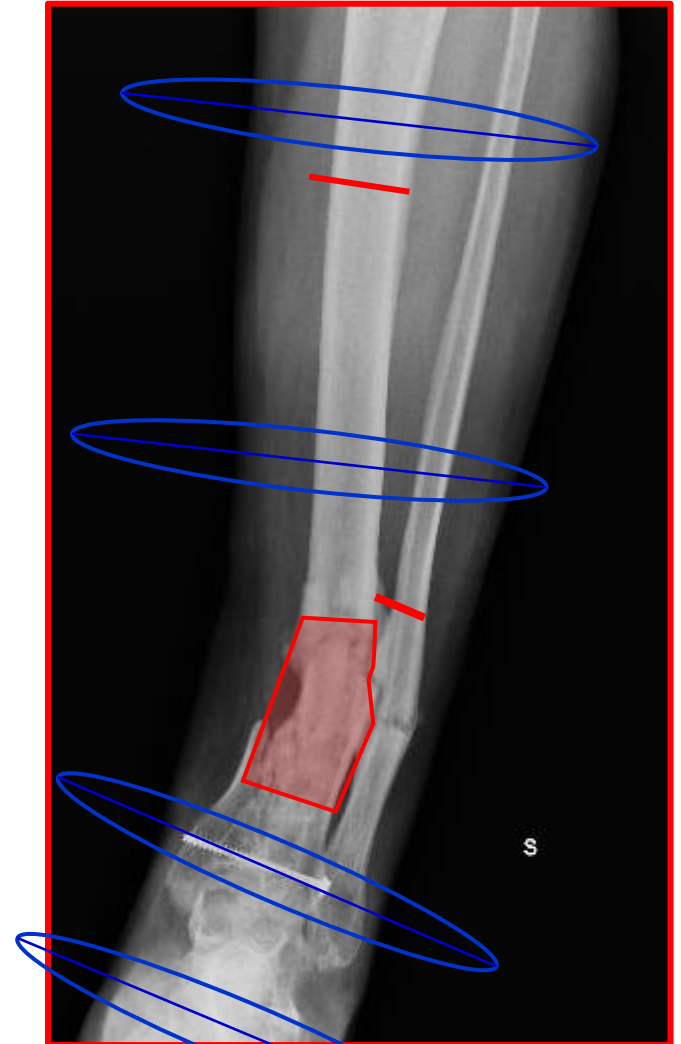
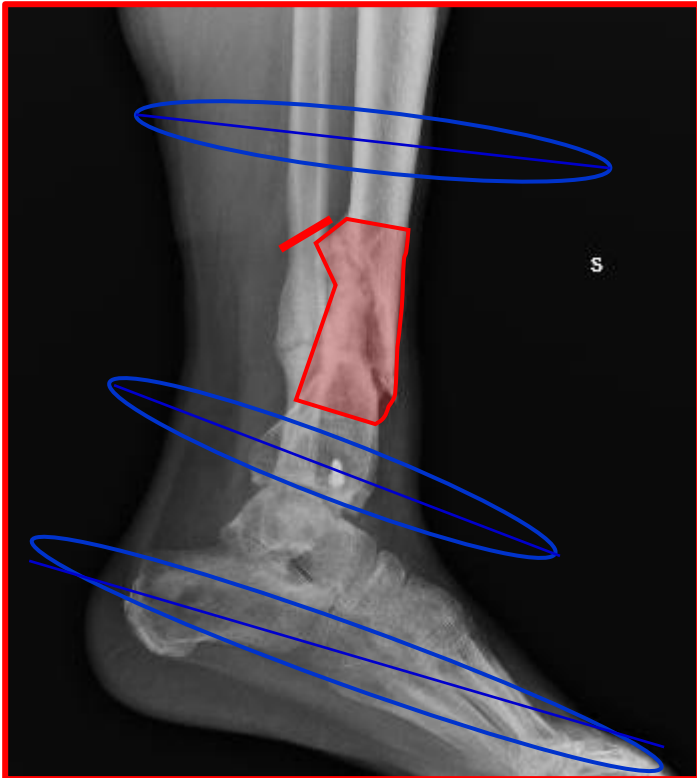
Deformità in varo e procurvato





# Planning preop

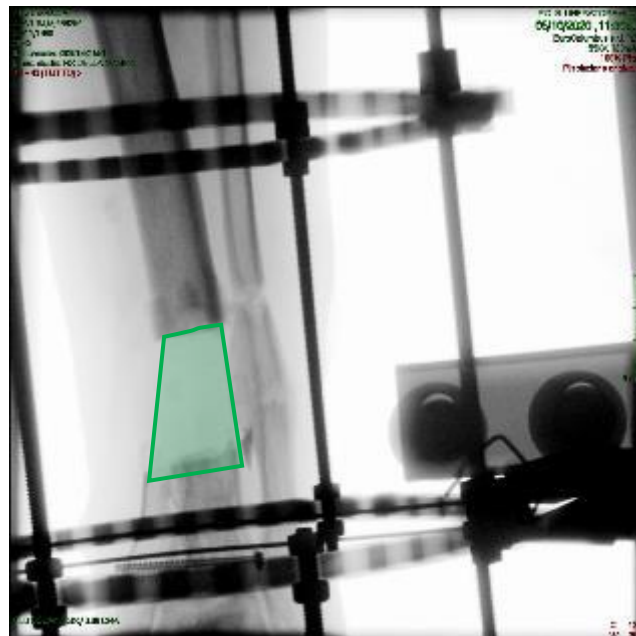
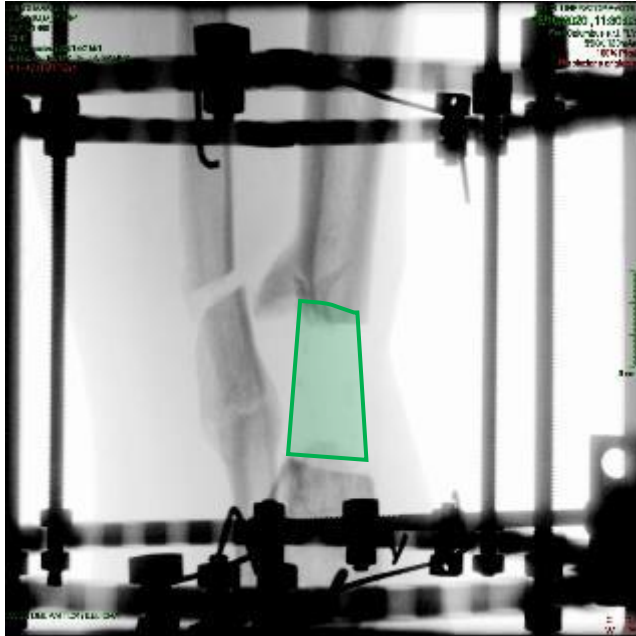
Resezione di circa 6 cm di osso



ROMA



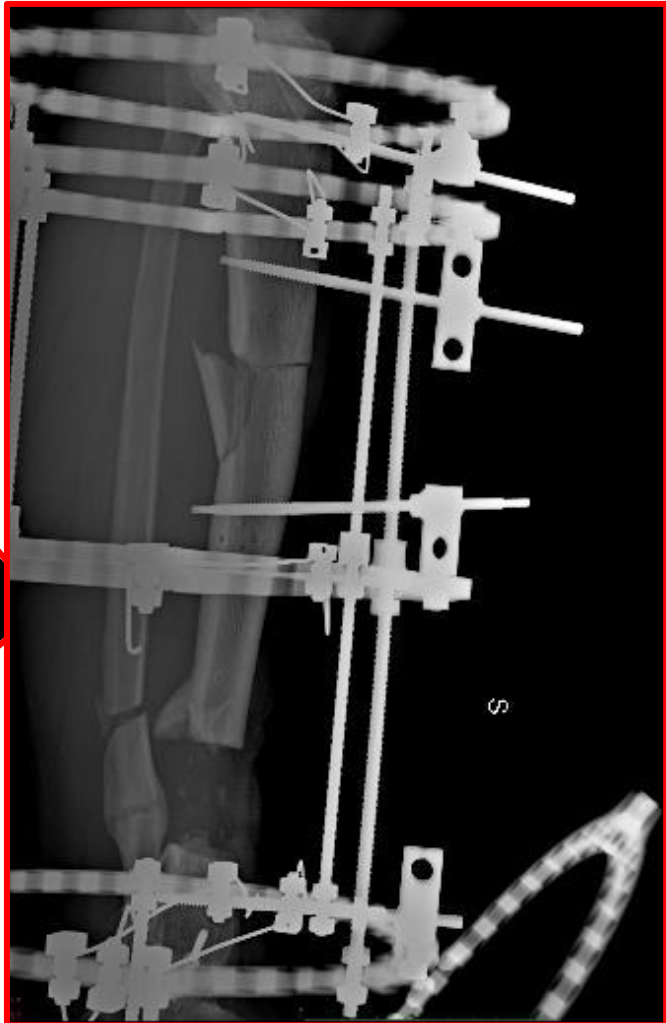
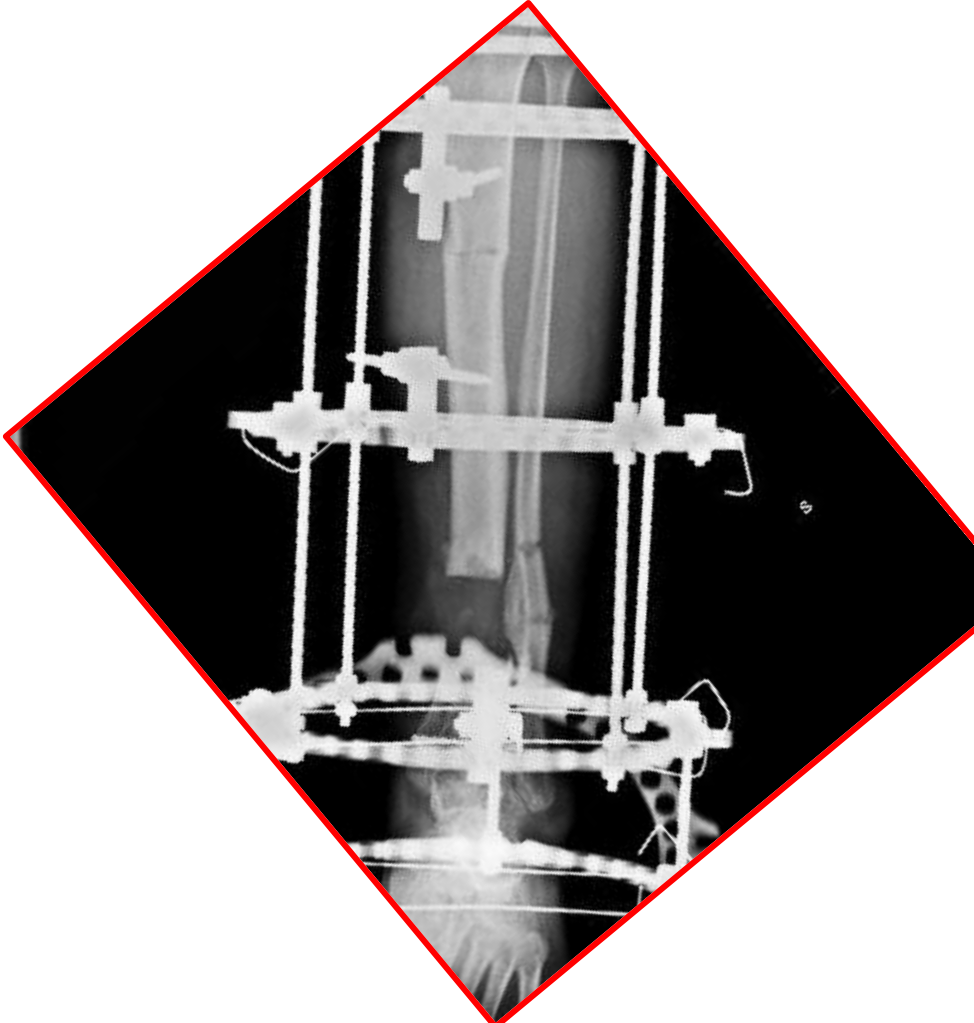
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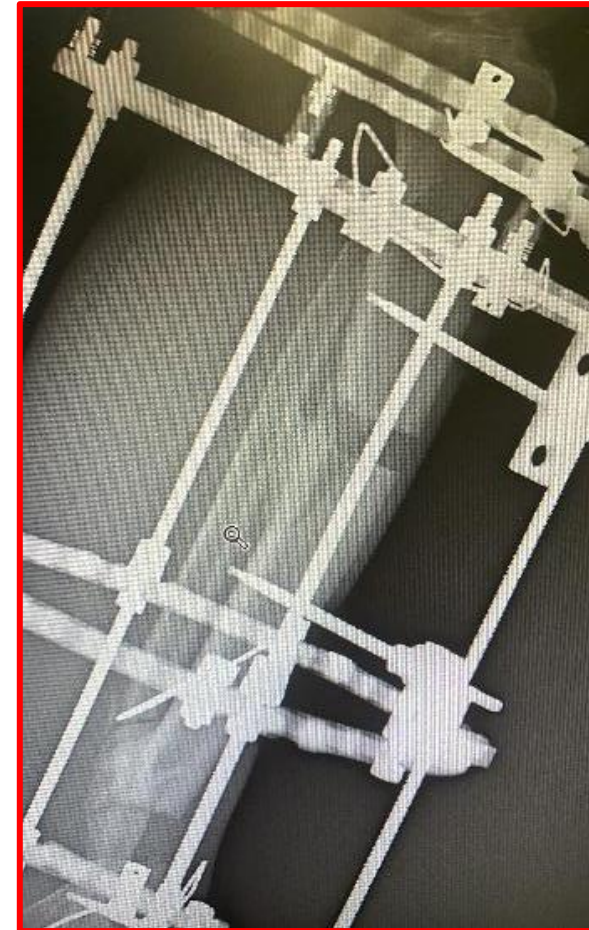
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Postop – attesa 10 gg



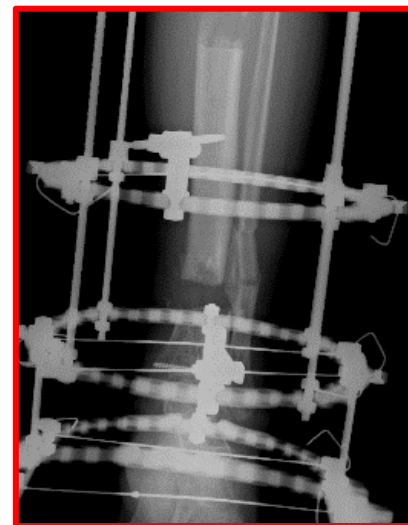
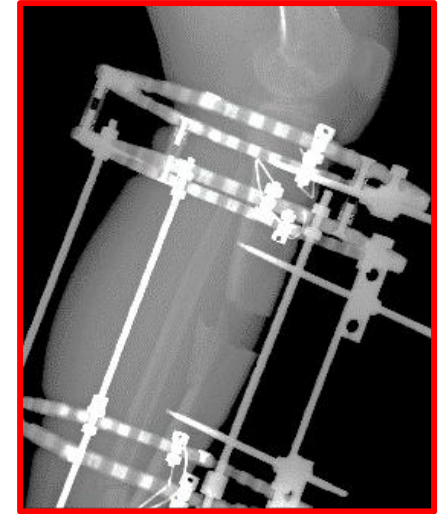
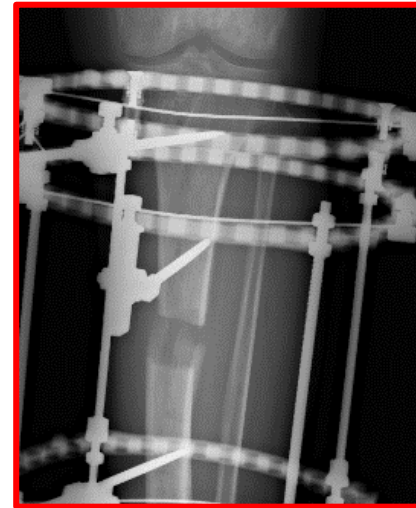
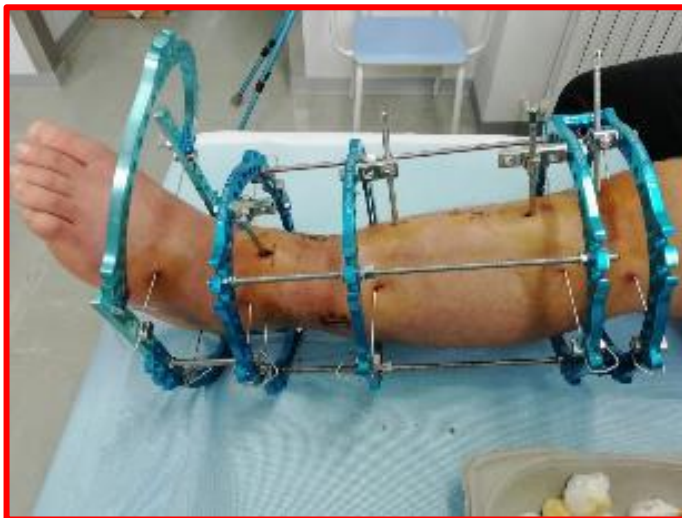


Dopo 15gg trasporto





Dopo 40 gg



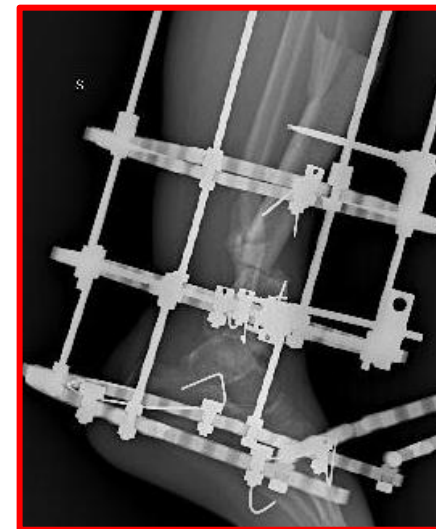
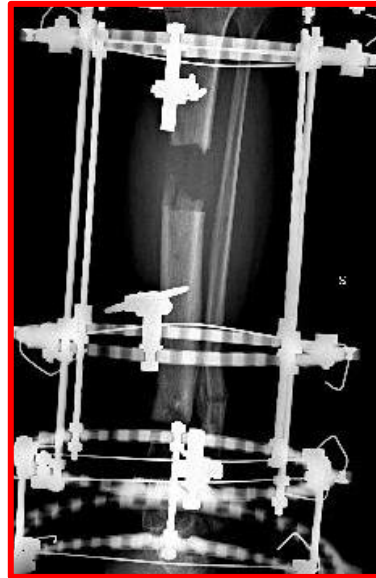


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Dopo 60 gg

Terminato trasporto

Rimozione anello piede







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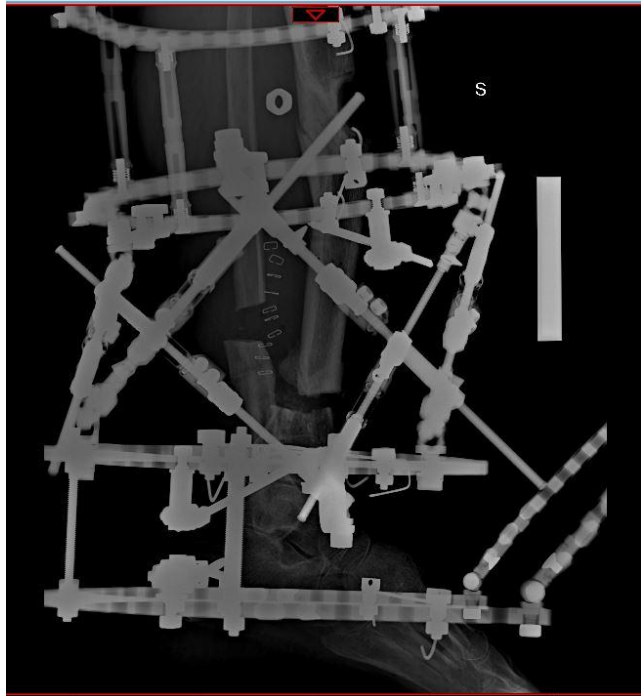
Dopo 6 mesi



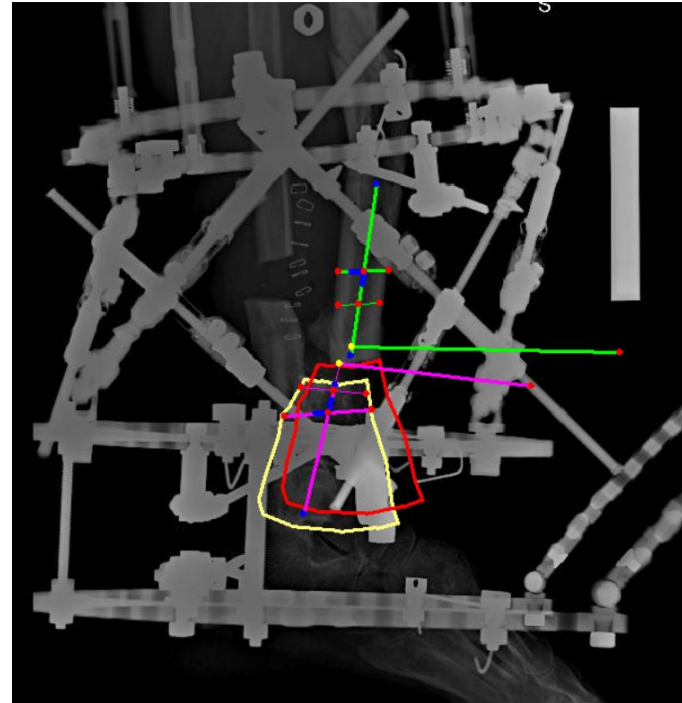


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Reintervento sul DOCKING-POINT con fissatore esapodalico



*RX Post intervento*



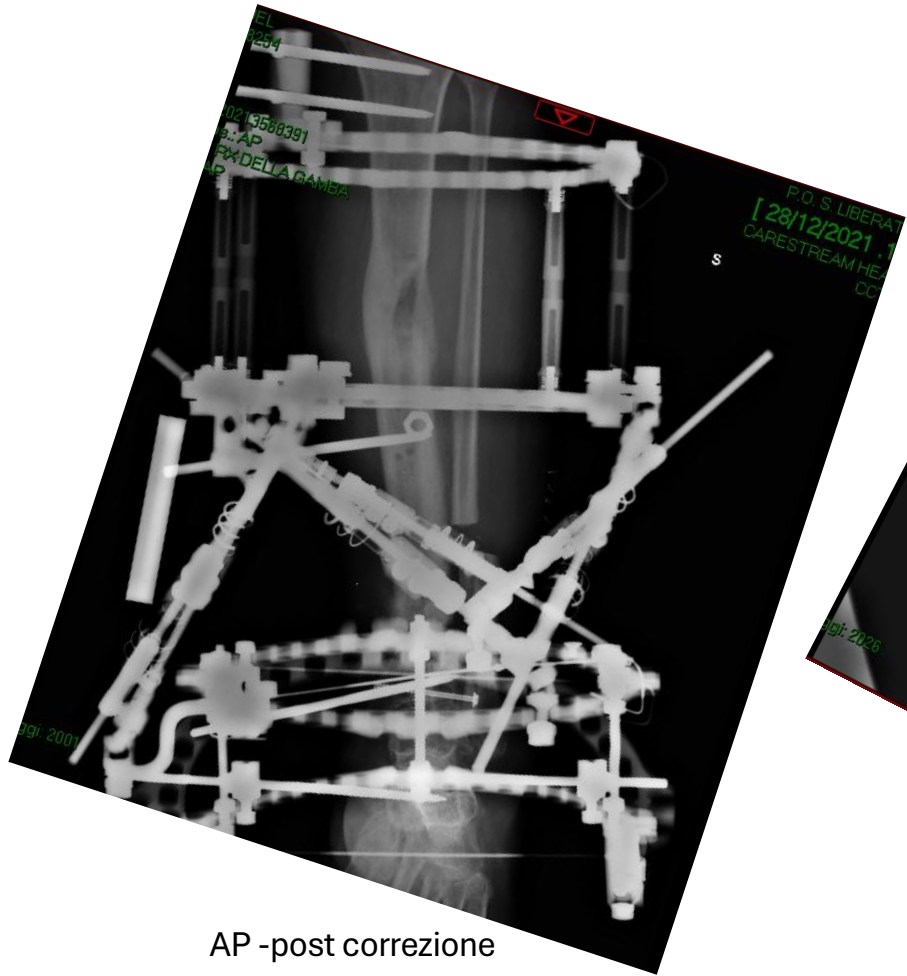
*RX Post intervento, con simulazione correzione*

Posizione di «partenza», prima della Correzione (Giallo)

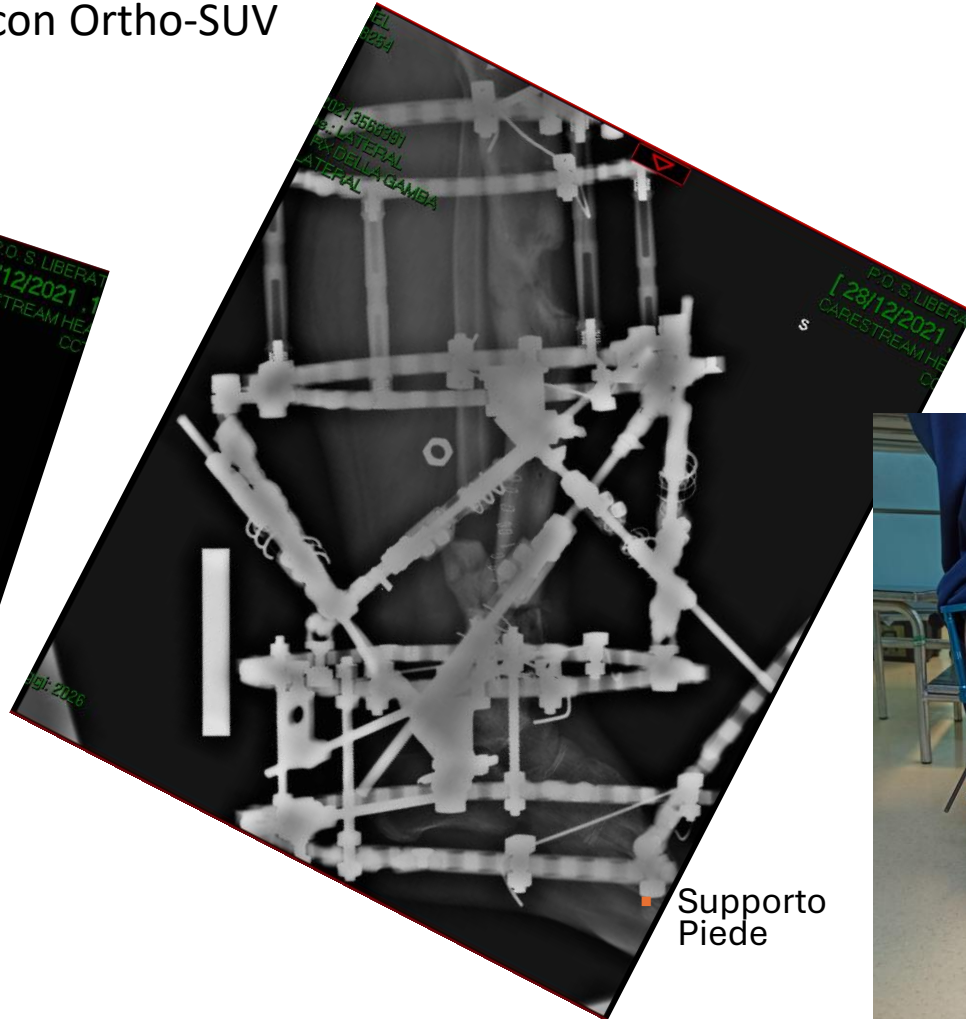
Posizione dopo la dopo la Correzione (Rosso)



10 giorni di correzione graduale con Ortho-SUV



AP -post correzione



LAT -post correzione



Supporto Piede



Dopo 4 mesi





Resezione tibiale

Tamponi

Artrodesi con chiodo

Innesto osseo



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SOCIETÀ ITALIANA  
FISSAZIONE ESTERNA



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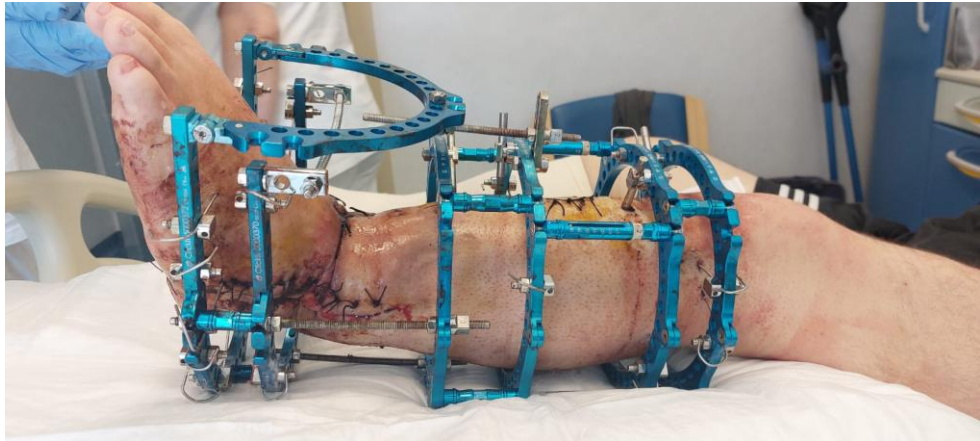
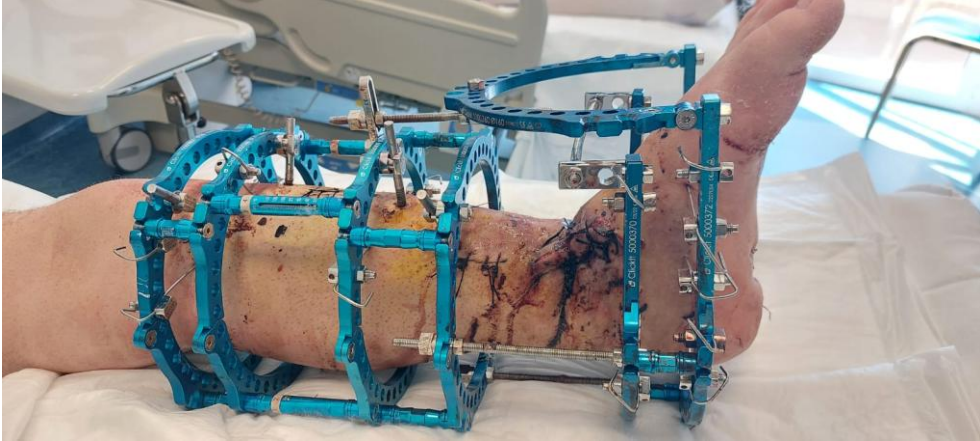
ROMA



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To be continued ...



## Mia esperienza

Rischio di osteopenia legato al carico non concesso

Possibile residua deformità in varo

Difficoltà a visualizzare la frattura per la presenza di anelli e morsetti

Controllo periodico per valutare infezione superficiale

***Necessità di essere seguito al follow-up***

## TAKE HOME MESSAGE

Valida soluzione chirurgica che richiede una lunga curva di apprendimento

Possibile gestione delle fratture in acuto senza dover aspettare un miglioramento delle condizioni dei tessuti molli

Sistema versatile che permette una possibile correzione in itinere

MAGGIORE RISPETTO DELLA BIOLOGIA DELLA FRATTURA -  
Scarsa compromissione dei tessuti molli (cicatrici) e dell'osso (con MDS)  
con più facile gestione di interventi successivi

Currently it is still unclear how much articular anatomy and perfection in reduction is needed as the ***radiographic results do not always correlate with the clinical results*** – Krettek 2015

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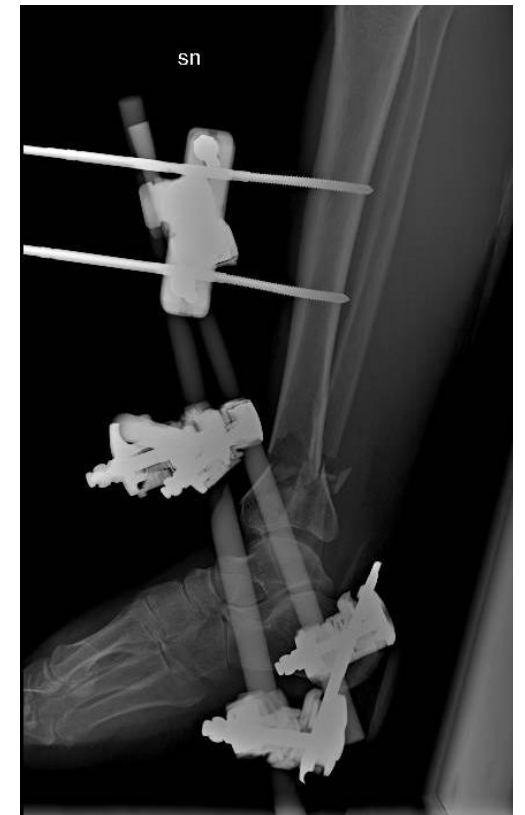
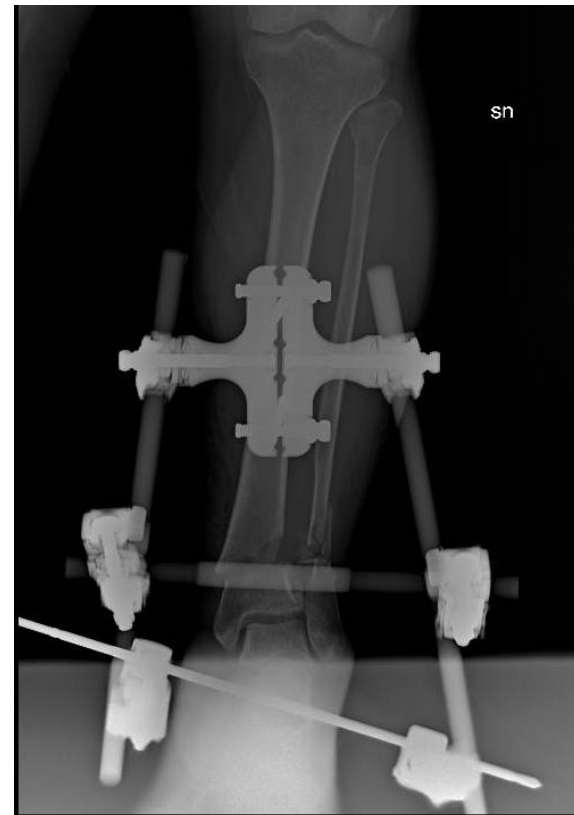
GRAZIE





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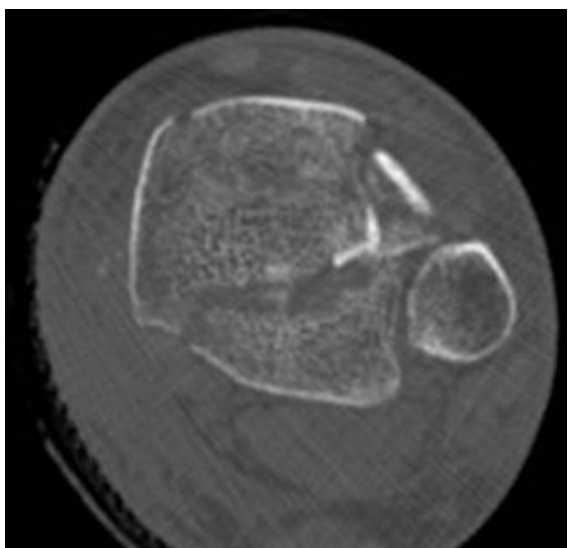
D.F.M.. 78 aa ♀  
AO 43C3  
Esposizione GA II





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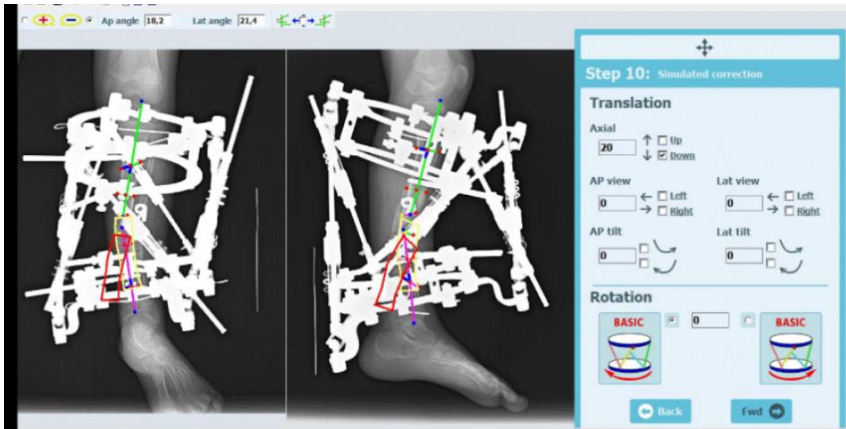
D.F.M.. 78 aa ♀  
AO 43C3  
Esposizione GA II





16-17 MAGGIO 2025

D.F.M.. 78 aa ♀  
AO 43C3  
Esposizione GA II

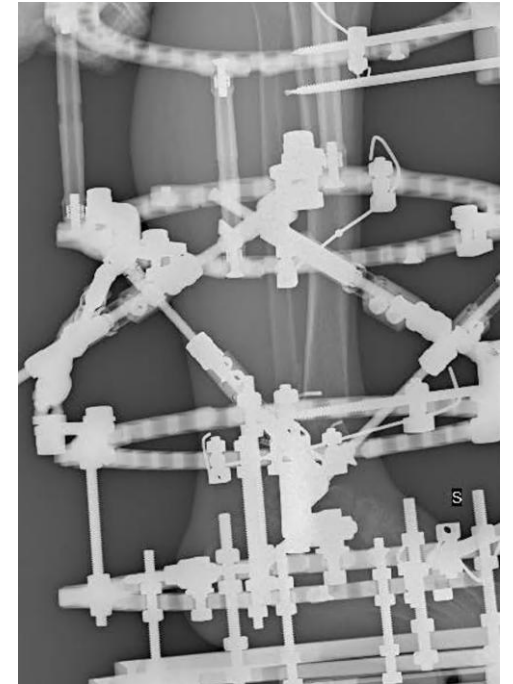
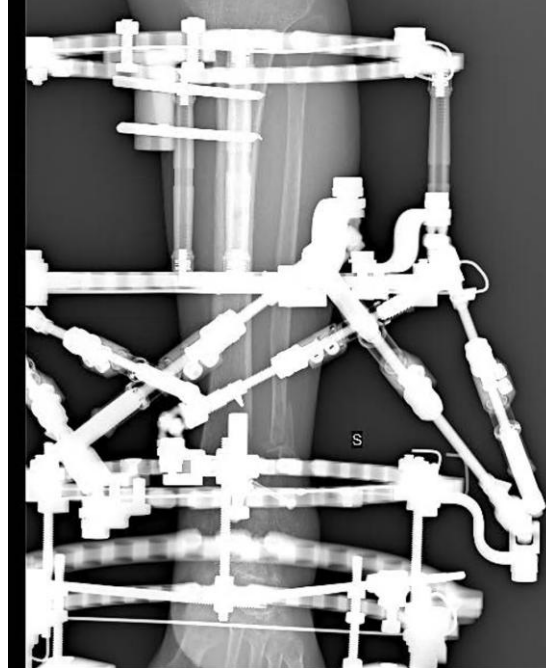
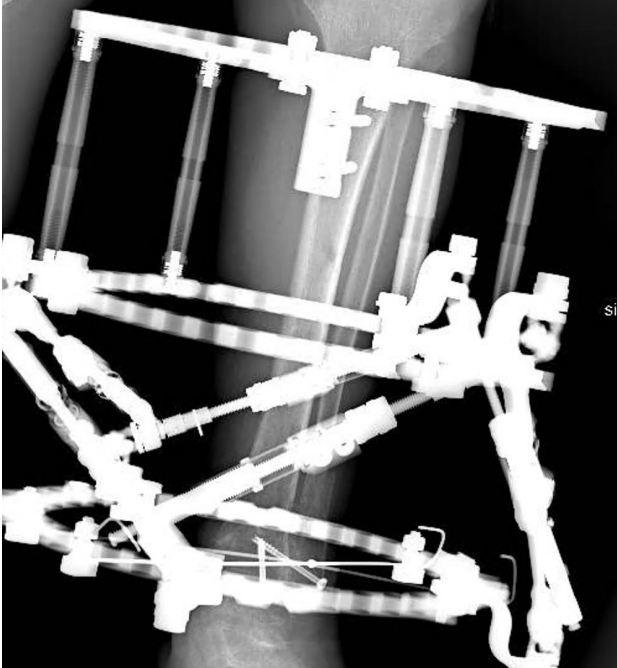




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D.F.M.. 78 aa F  
AO 43C3  
Esposizione GA II

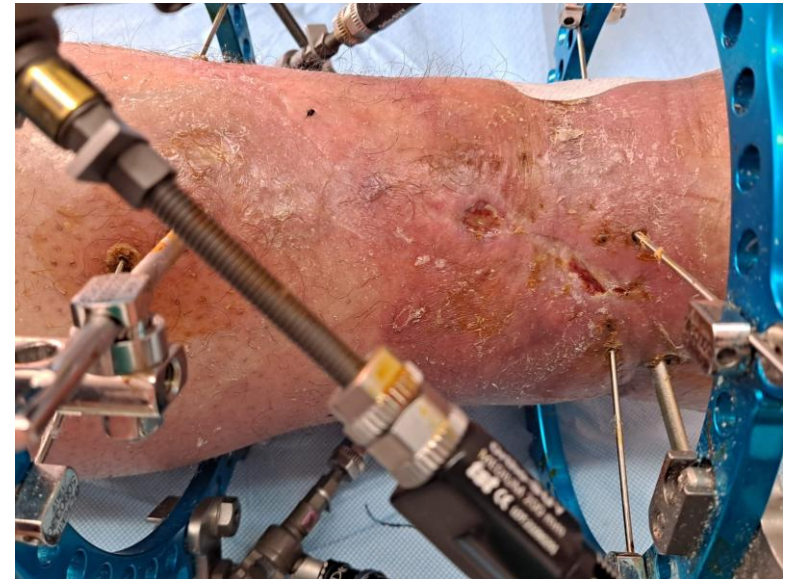
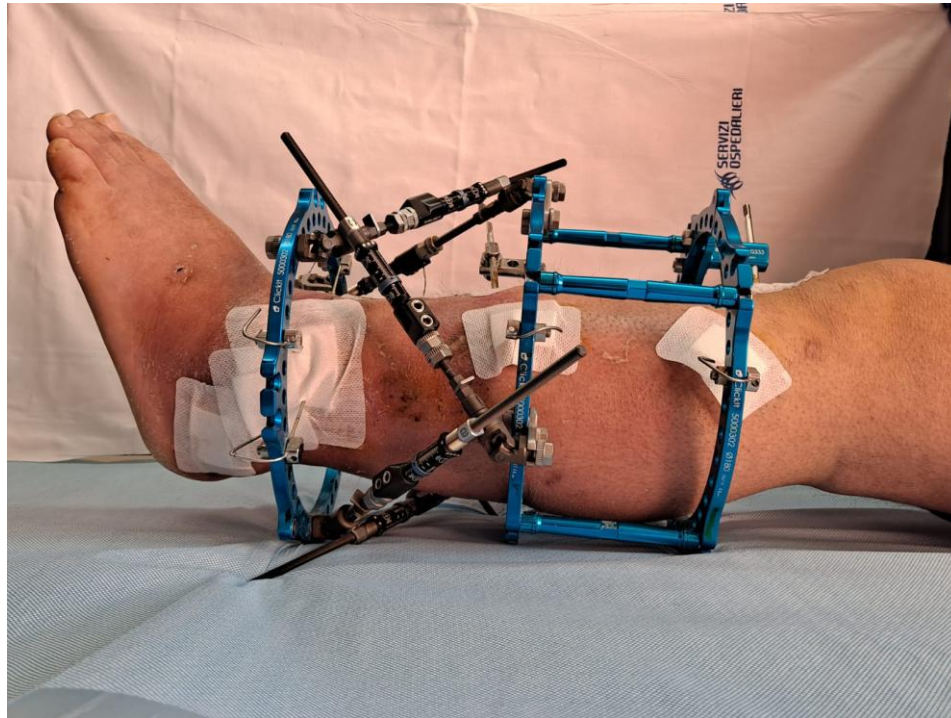
Controllo a 2 mesi





D.F.M.. 78 aa F  
AO 43C3  
Esposizione GA II

Controllo a 3 mesi







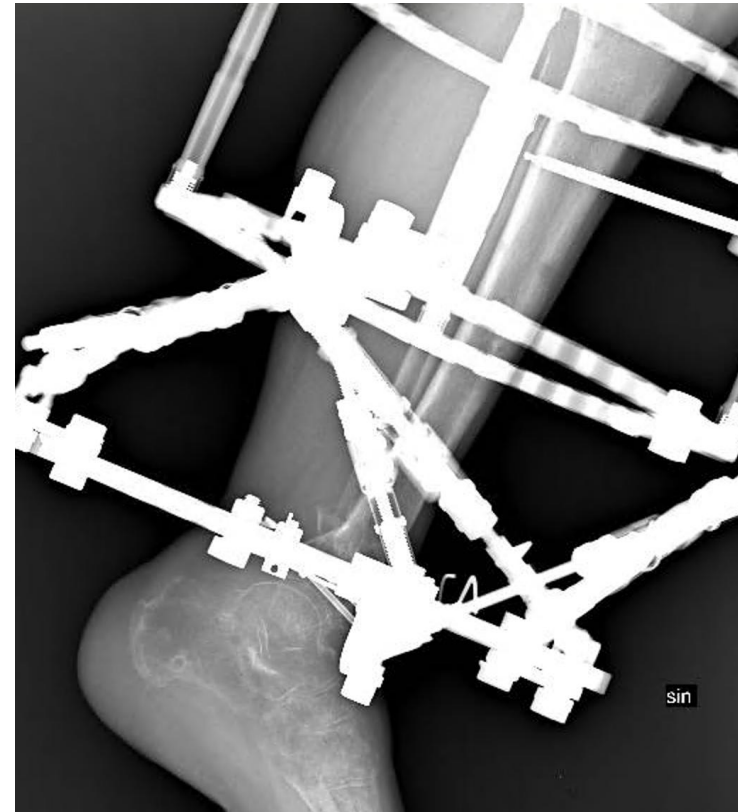
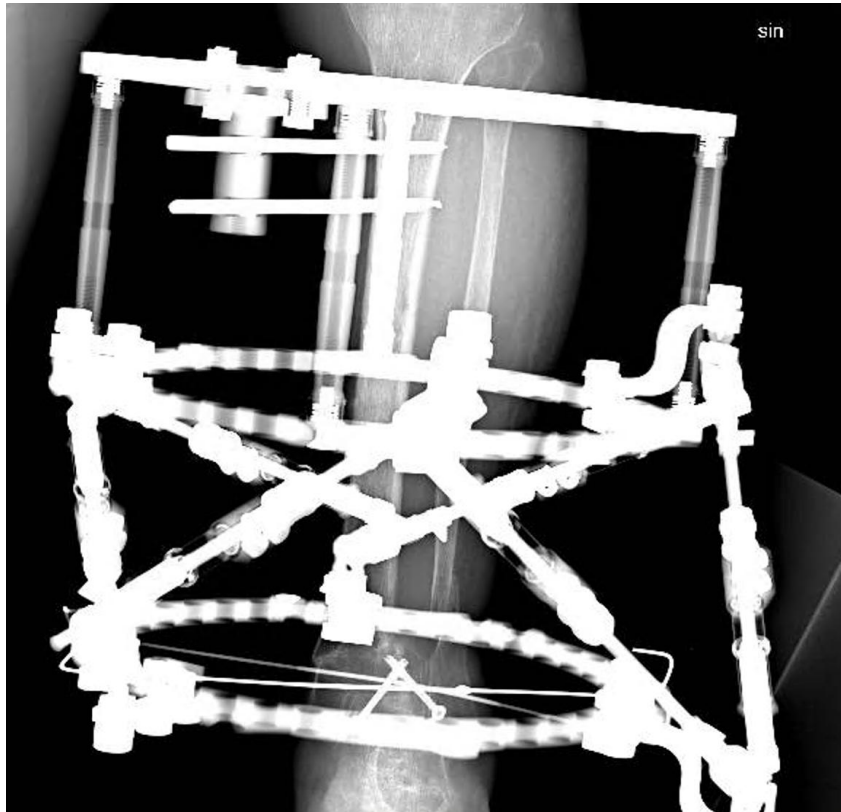
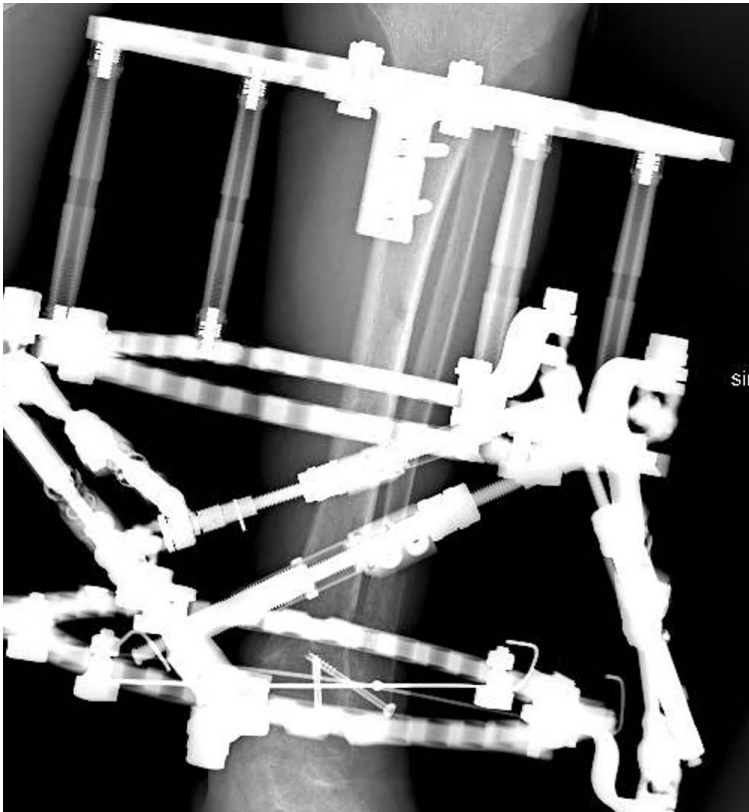
16-17 MAGGIO 2025

D.F.M.. 78 aa F

AO 43C3

Esposizione GA II

Controllo a 3 mesi





D.F.M.. 78 aa F  
AO 43C3  
Esposizione GA II

Controllo a 6 mesi

