



Università degli Studi di Verona
Scuola di Specializzazione in Ortopedia e Traumatologia
Direttore Prof. B. Magnan



**Trattamento delle fratture di articolari di tibia con fissatore esterno circolare:
la nostra esperienza**

P. Subotic
T. Maluta, L. Schirru



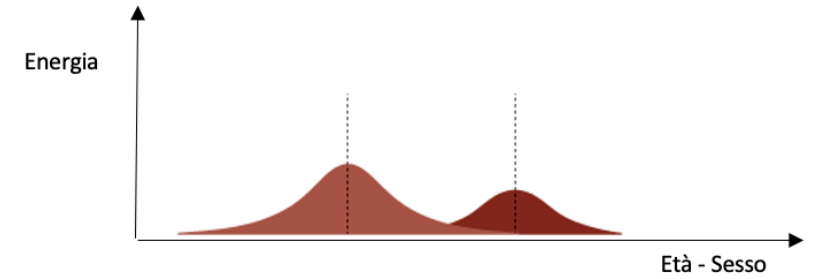


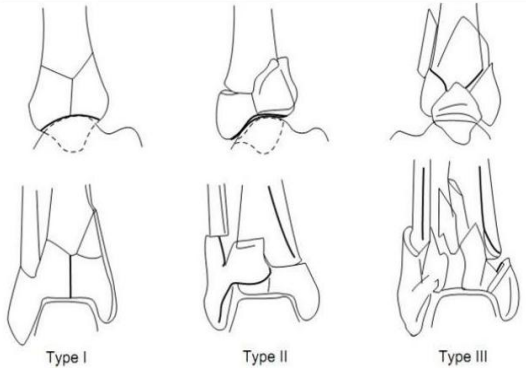
➤ Fratture poco frequenti: 1-10% delle fratture di tibia [1]

➤ $M > F$

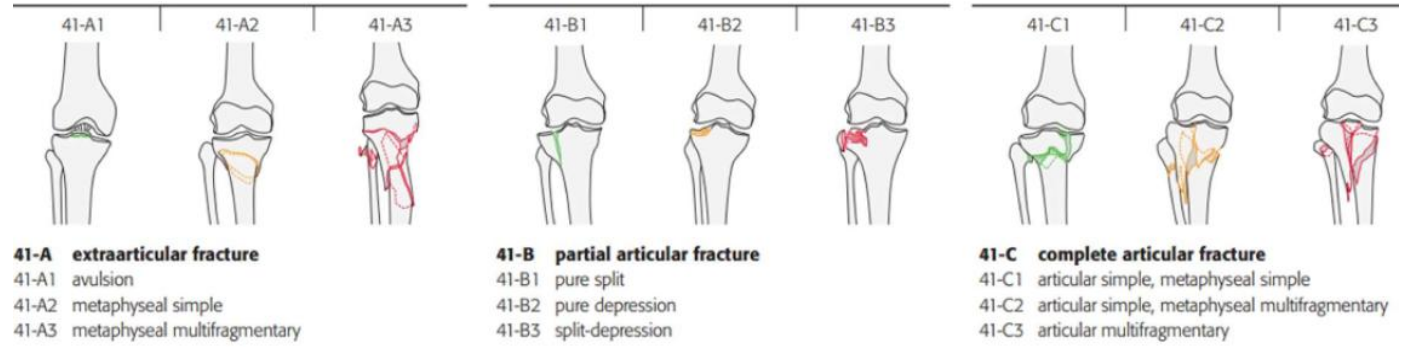
➤ Distribuzione bimodale

➤ Importante compromissione dei tessuti molli





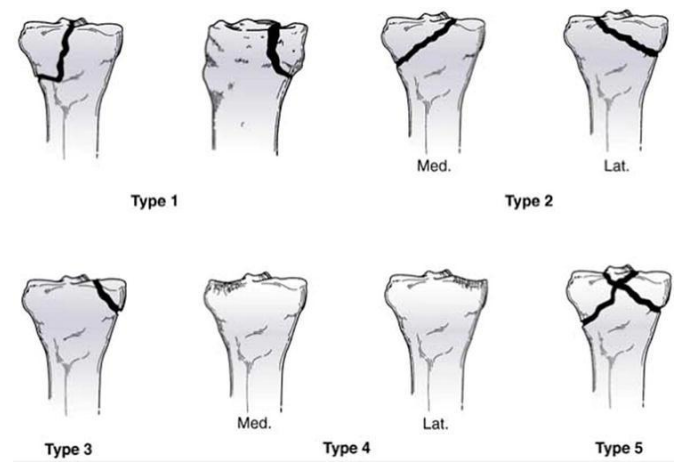
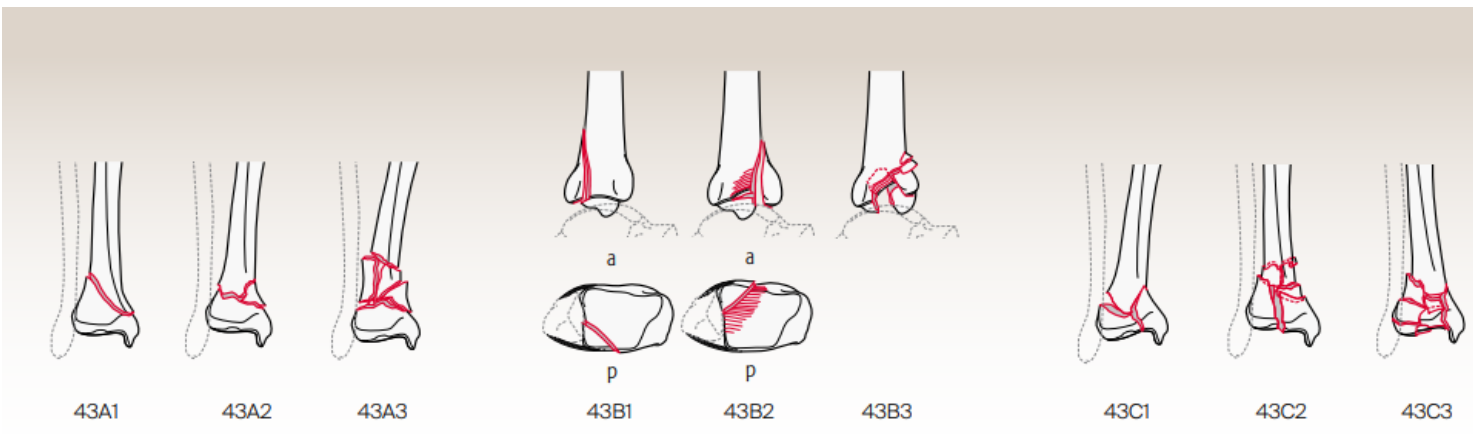
Ruedi & Allgower classification of pilon (tibial plafond) fractures.
(Reproduced with permission from Ruedi, T. P. & Allgower, M. The operative treatment of intra-articular fractures of the lower end of the tibia. *Clin. Orthop. Relat. Res.*, **138**, 105-110, 1979.)



41-A extraarticular fracture
41-A1 avulsion
41-A2 metaphyseal simple
41-A3 metaphyseal multifragmentary

41-B partial articular fracture
41-B1 pure split
41-B2 pure depression
41-B3 split-depression

41-C complete articular fracture
41-C1 articular simple, metaphyseal simple
41-C2 articular simple, metaphyseal multifragmentary
41-C3 articular multifragmentary



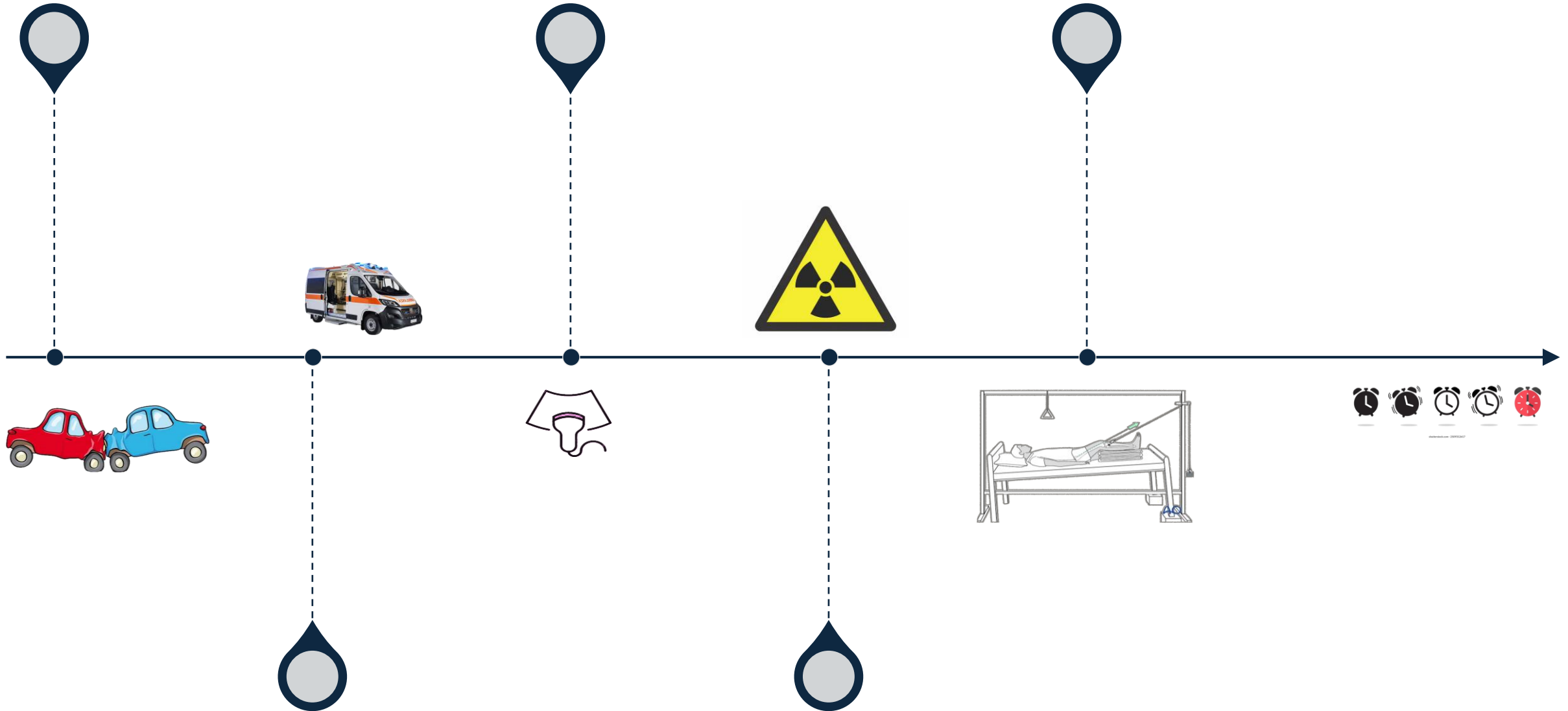
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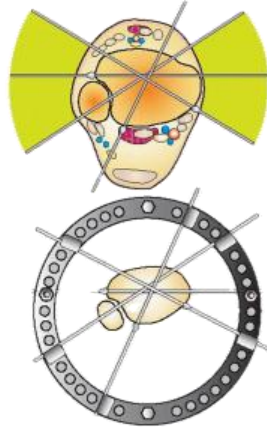
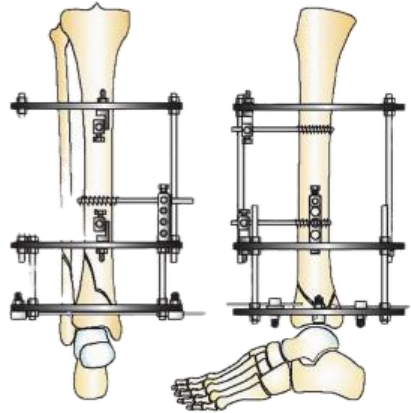
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CASO CLINICO

- Maschio

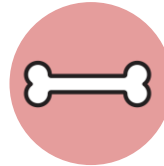
- 42 anni

- Trauma della strada: bici vs auto

- APR muta



1. ECO FAST negativo



2. EO: Deformità anatomica, non lesioni associate



3. TC Politrauma + Rx distrettuali



Frattura di piatto tibiale 41C 3





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Frattura di piatto tibiale 41C 3





ORIF 22 giorni post trauma





Follow up a 4 mesi



CASO CLINICO 2

Maschio

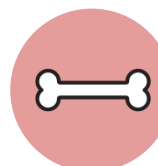
46 anni

Caduto da 2m di altezza

APR muta



1. ECO FAST negativo



2. EO: Deformità anatomica, non deficit vnp



3. Rx + Tc in PS



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Frattura di pilone tibiale: 43 C2





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ORIF 18 giorni post trauma





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Tscherne Classification

Grade 0	No soft tissue injury	0	
Grade 1	Superficial abrasion or contusion	1	
Grade 2	Localized deep contusion, abrasion or crushed skin associated with localized muscle damage	5	
Grade 3	Extensive soft tissue contusion or crushing, compartment syndrome, vascular injury and multifragmentary fracture pattern	3	



Gustilo - Anderson Classification

<i>Gustilo Type</i>	I	II	IIIA	IIIB	IIIC
<i>Images</i>					
<i>Energy</i>	Low energy	Moderate	High	High	High
<i>Wound Size</i>	< 1 cm	> 1cm	Often large zone of injury	Often large zone of injury	Often large zone of injury
<i>Soft Tissue</i>	None	No extensive soft tissue damage	Extensive	Extensive	Extensive
<i>Contamination</i>	Clean	Moderate contamination	Extensive	Extensive	Extensive
<i>Fracture Pattern</i>	Simple fx pattern with minimal comminution	Moderate comminution	Severe comminution or segmental fractures	Severe comminution or segmental fractures	Severe comminution or segmental fractures
<i>Periosteal Stripping</i>	No	No	Yes	Yes	Yes
<i>Skin Coverage</i>	Local coverage	Local coverage	Local coverage	Requires replacement of exposed bone with a free flap for coverage	Local coverage
<i>Neurovascular Injury</i>	Normal	Normal	Normal	Normal	Exposed fracture with arterial damage that requires repair



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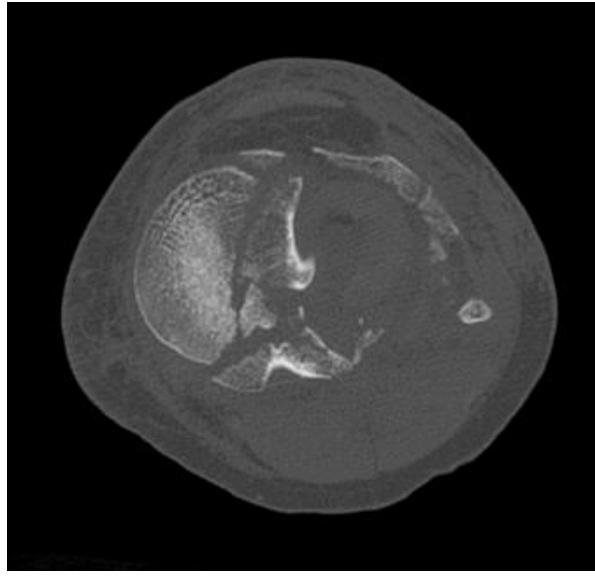
Caratteristiche del Paziente

- Età
- APR
- Autonomia pregressa
- Abitudine tabagica





Caratteristiche della frattura



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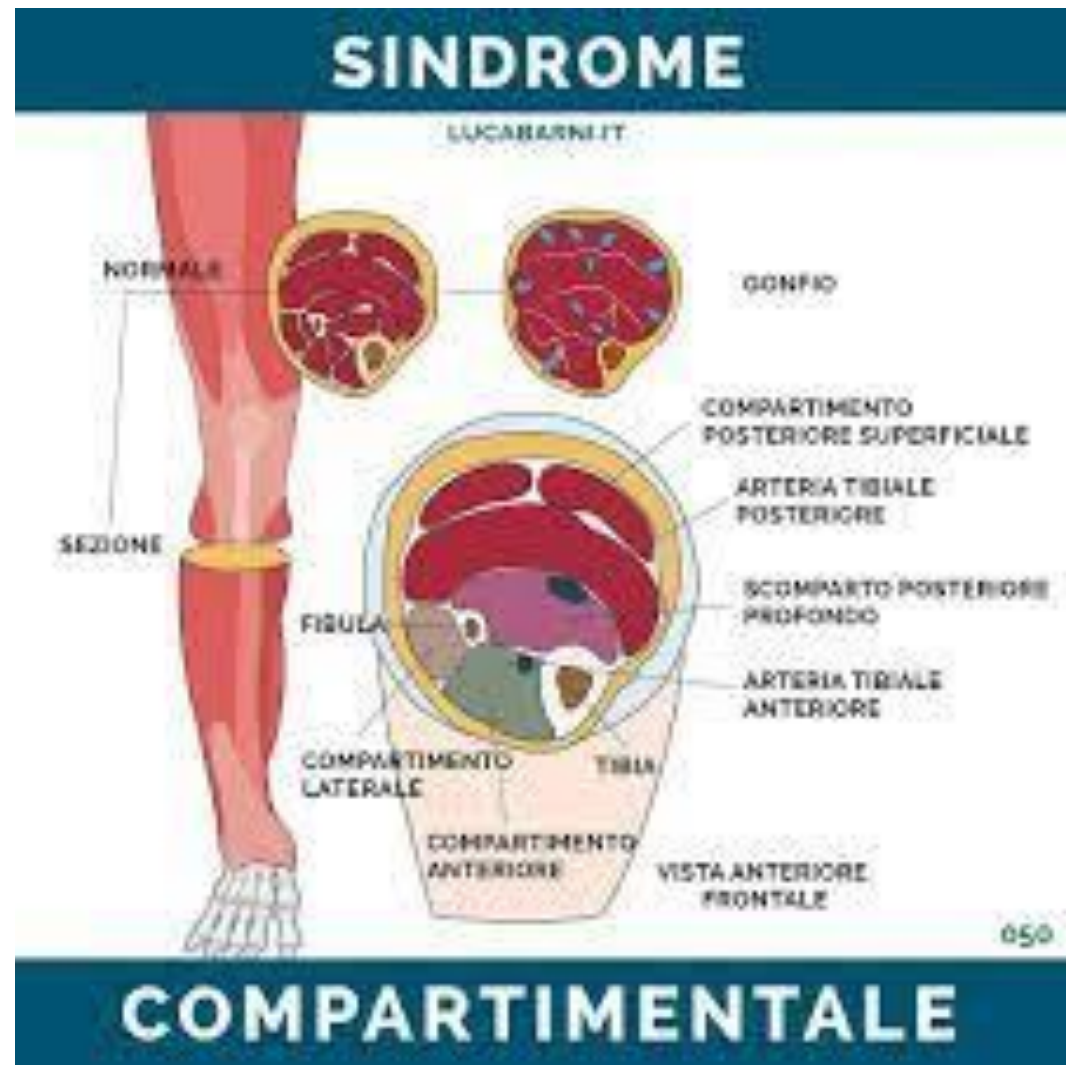


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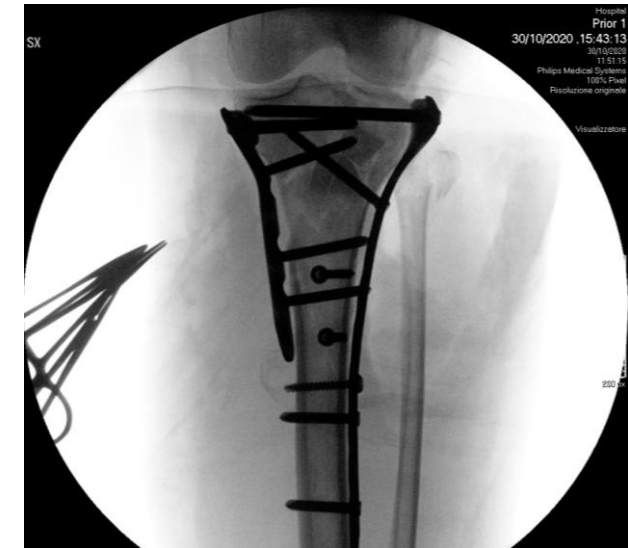




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ORIF 24 GIORNI POST TRAUMA





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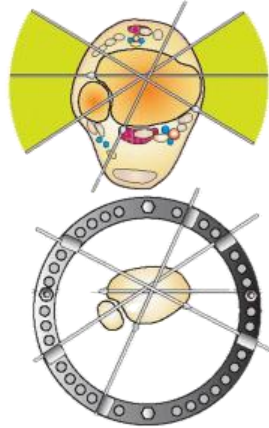
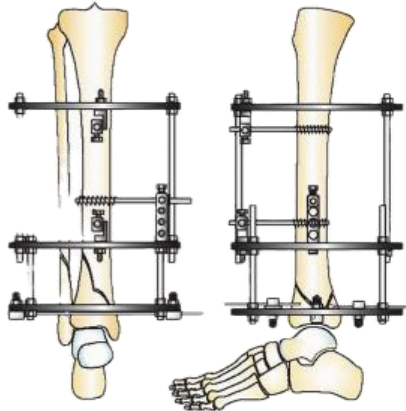


Quanto siamo disposti ad aspettare?





Quali sono le opzioni terapeutiche?



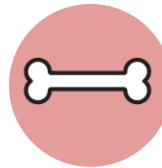
CASO CLINICO 3

Donna

68 anni

Caduta dalla bicicletta

Sovrappeso, fumatrice

**EO: Cute integra, importante algia e tumefazione****In PS esegue Rx + Tc**



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Frattura di pilone tibiale 43 C2-3





Frattura di pilone tibiale 43 C3





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Trattamento definitivo in 2° giornata





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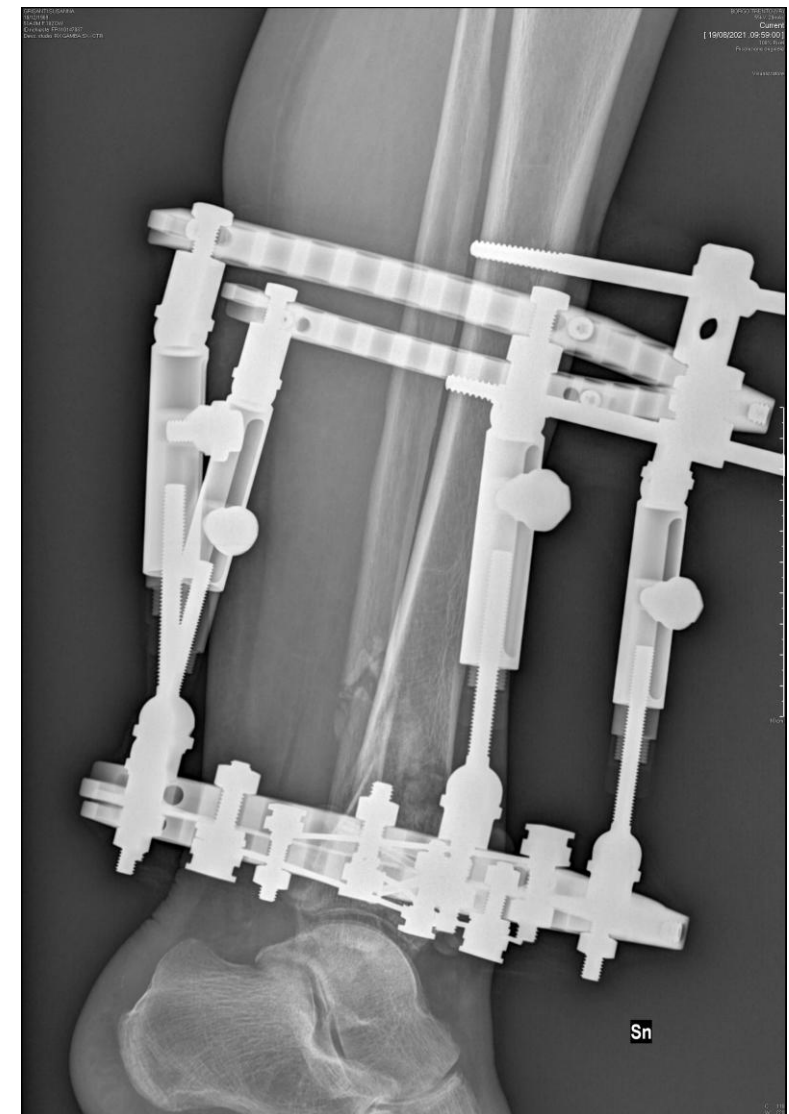
Trattamento definitivo in 2° giornata





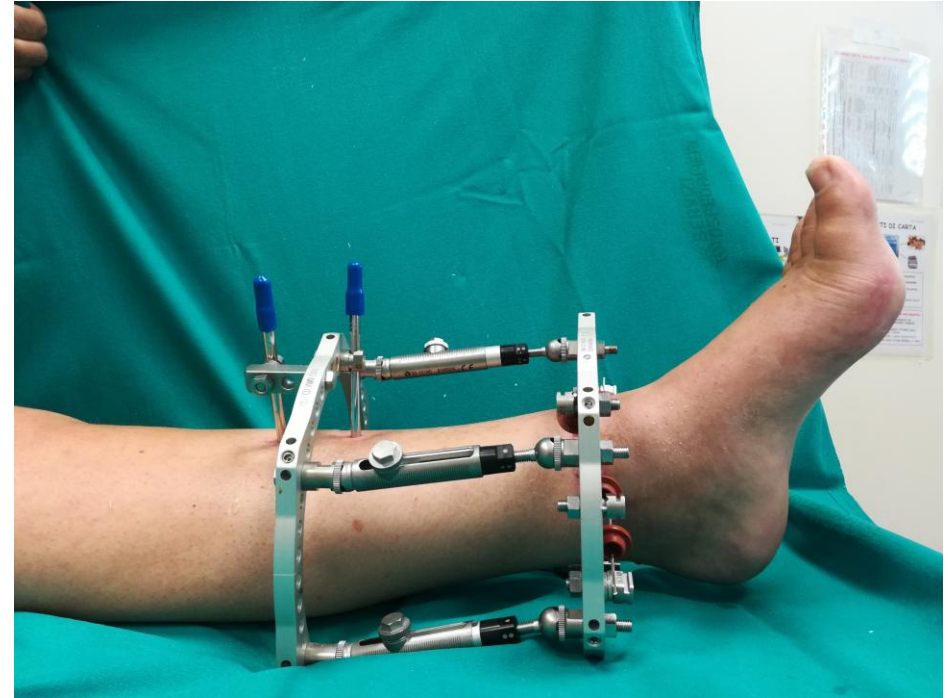
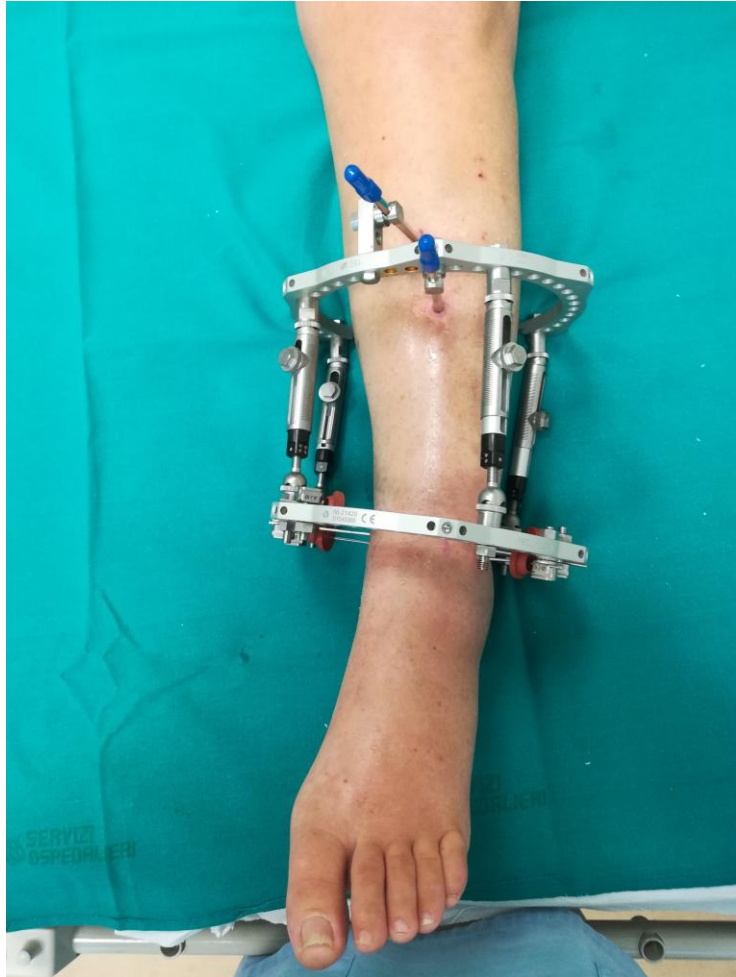
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Follow up al mese





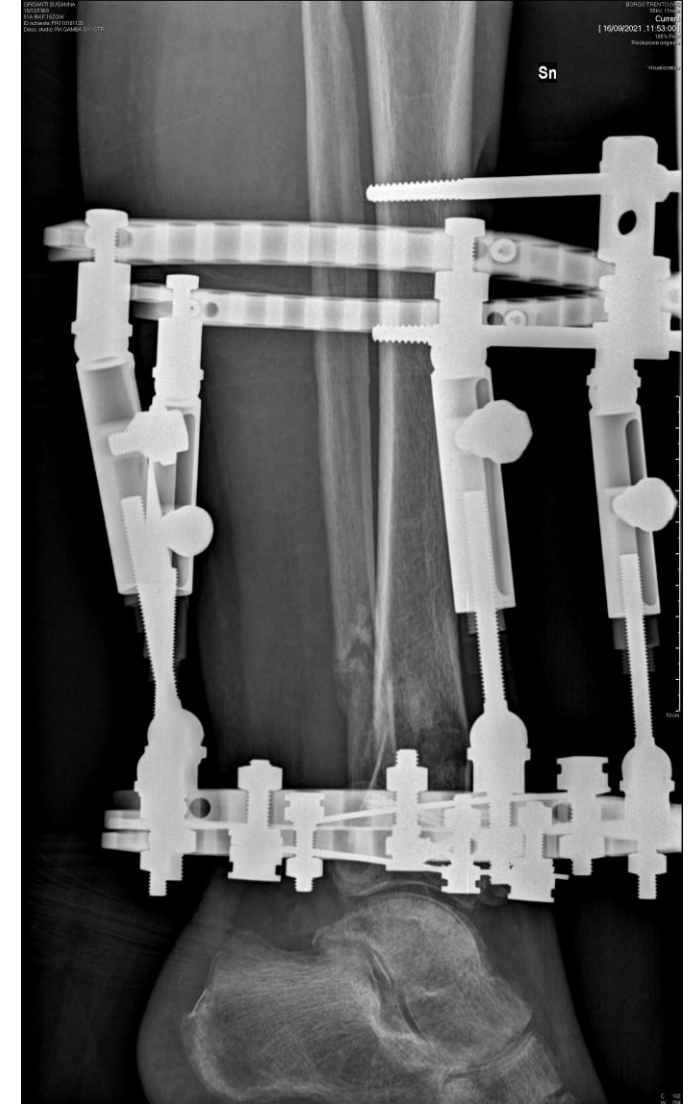
Follow up al mese





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Follow up a 4 mesi





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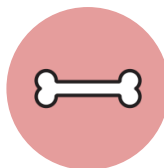
CASO CLINICO 4

Donna

57 anni

Incidente domestico

Sovrappeso

**EO: Importante algia, condizioni locali sofferenti****Rx + Tc**



Frattura di piatto tibiale, Schatzker VI





Frattura di piatto tibiale, Schatzker VI





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FEC in 2° giornata





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FEC in 2° giornata





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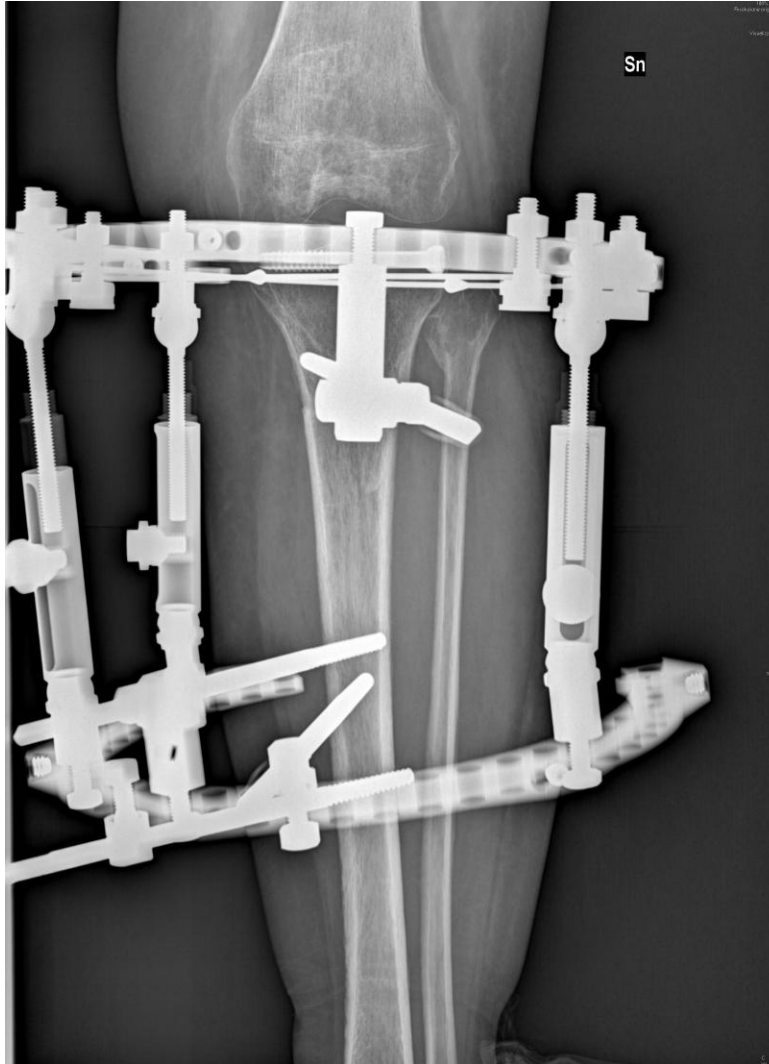


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Follow up a 3 mesi



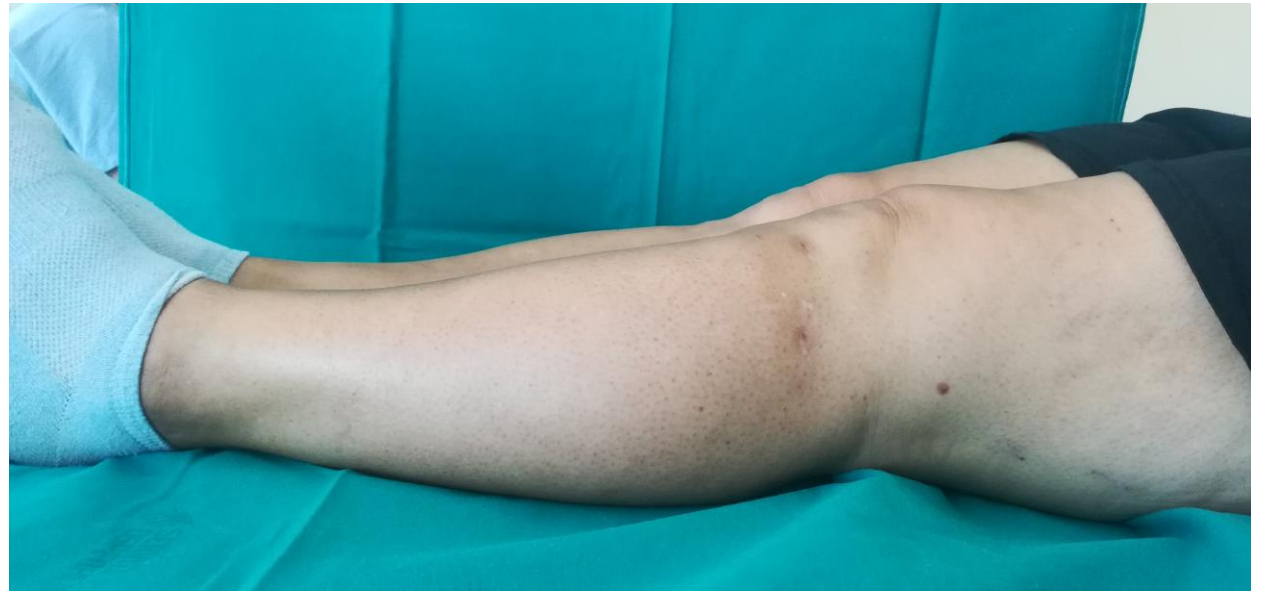


Follow up a 5 mesi





Follow up a 5 mesi





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Follow up a 5 mesi



CASO CLINICO 5

Femmina

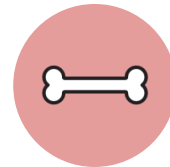
34 anni

Trauma della strada (auto vs auto)

APR muta, atleta agonista



ECO FAST negativo;
non lesioni associate



EO: Importante tumefazione,
esposizione puntiforme



Tc Politrauma + Rx



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FRATTURA DI PILONE TIBIALE

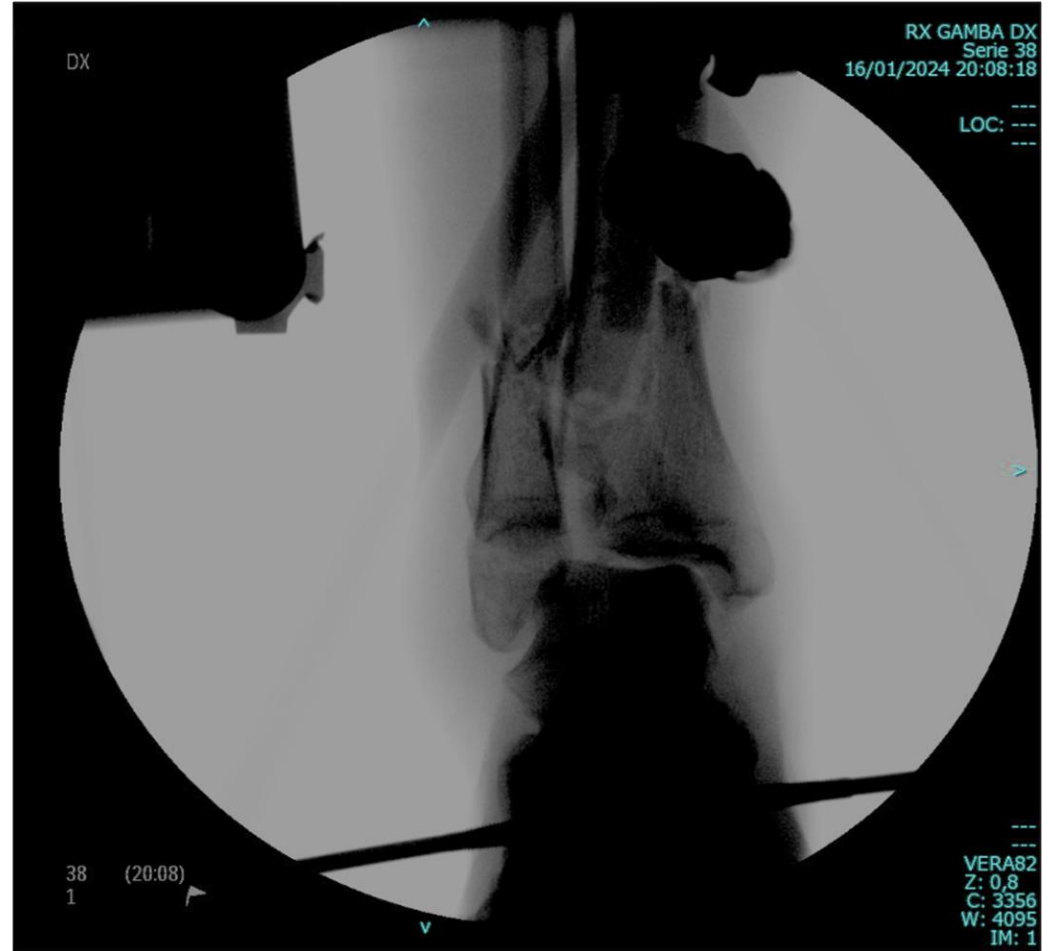
43 C3





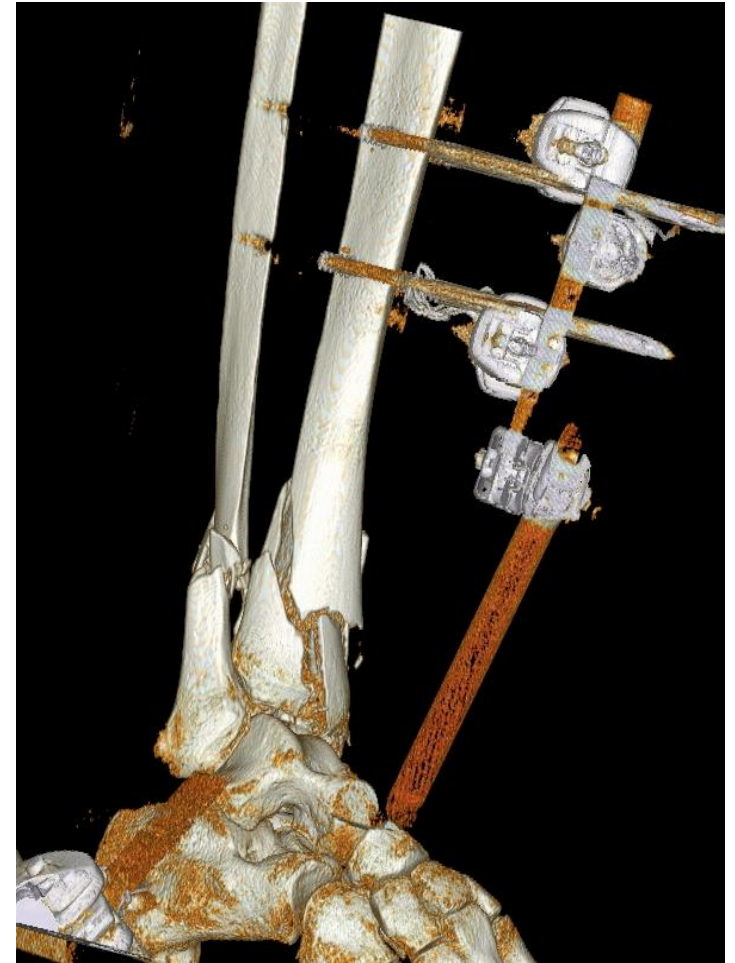
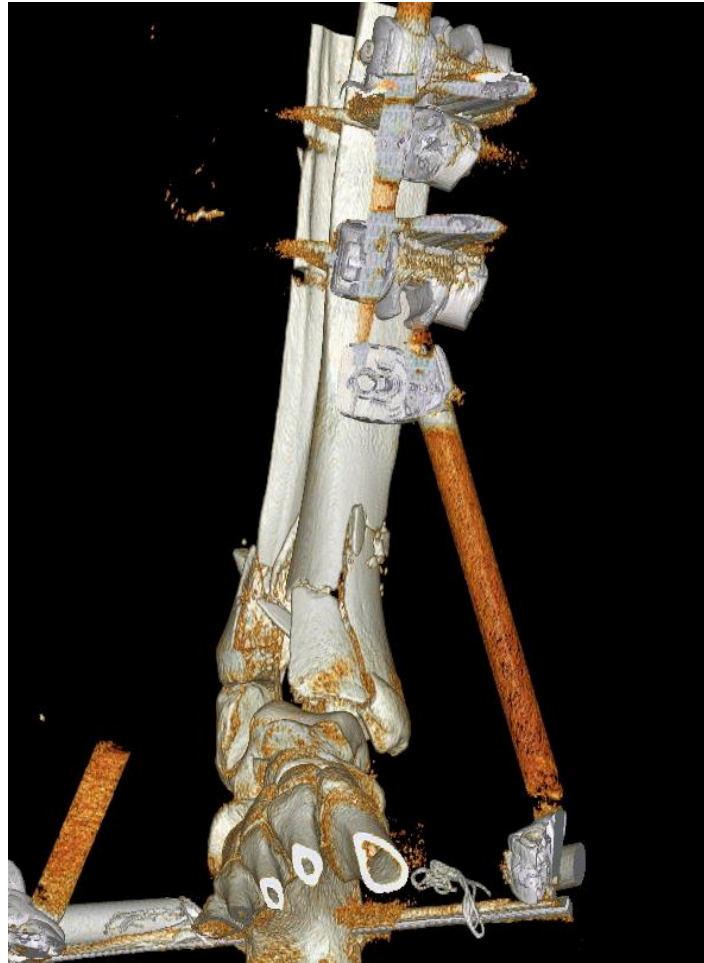
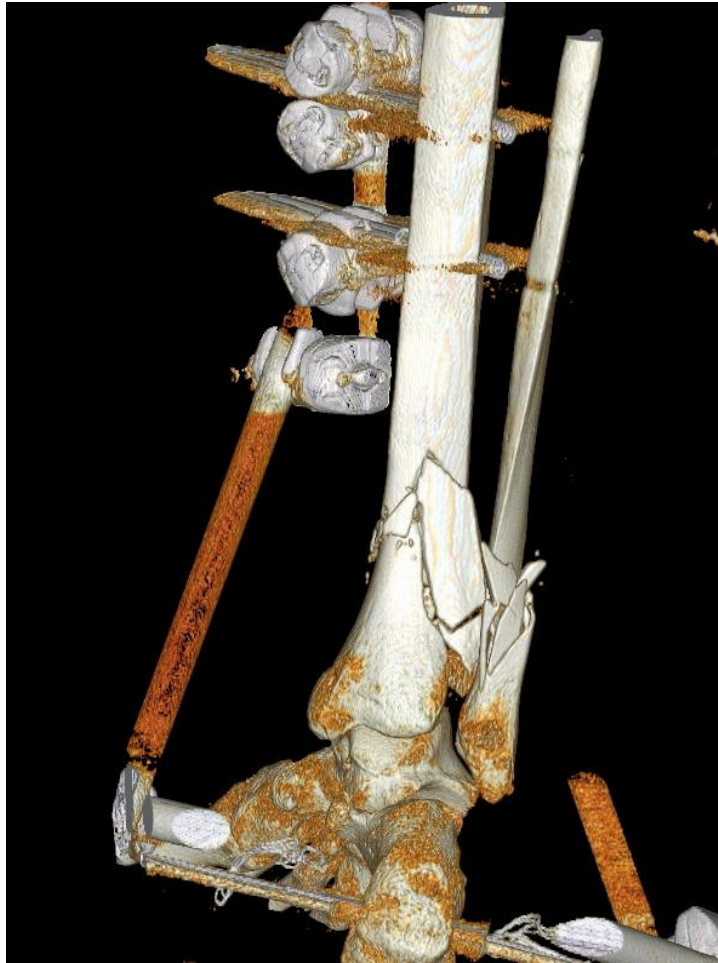
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SPAN



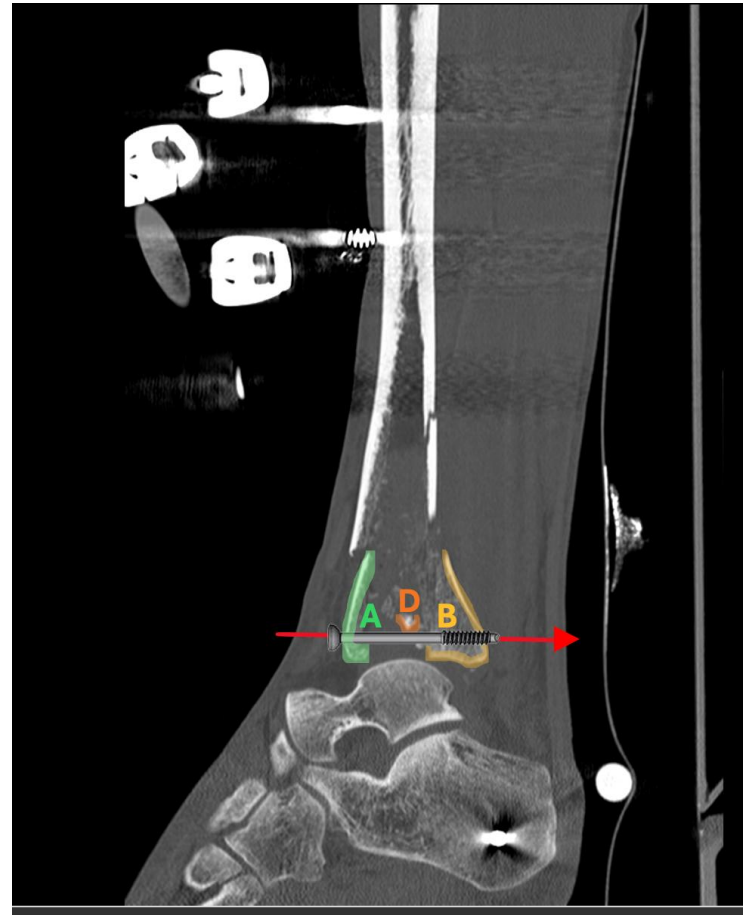
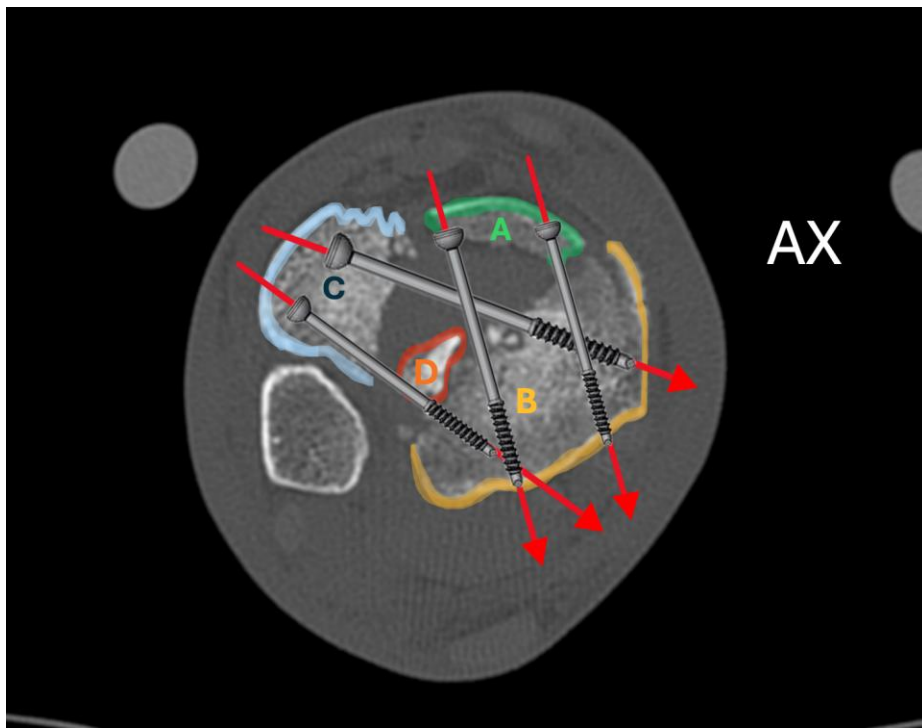
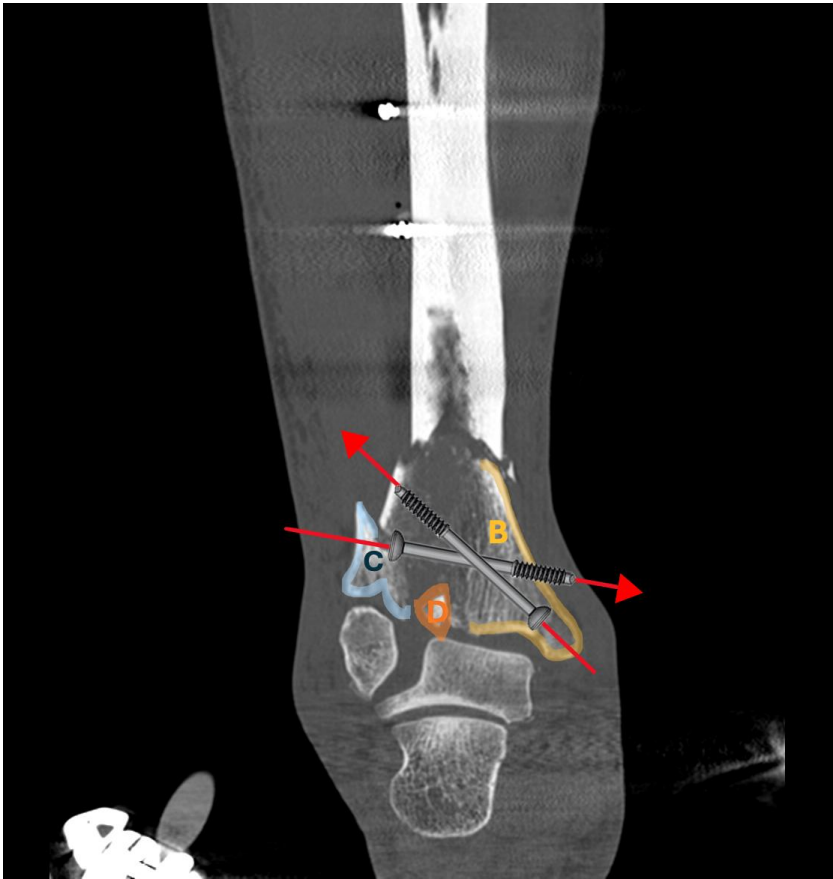


SCAN



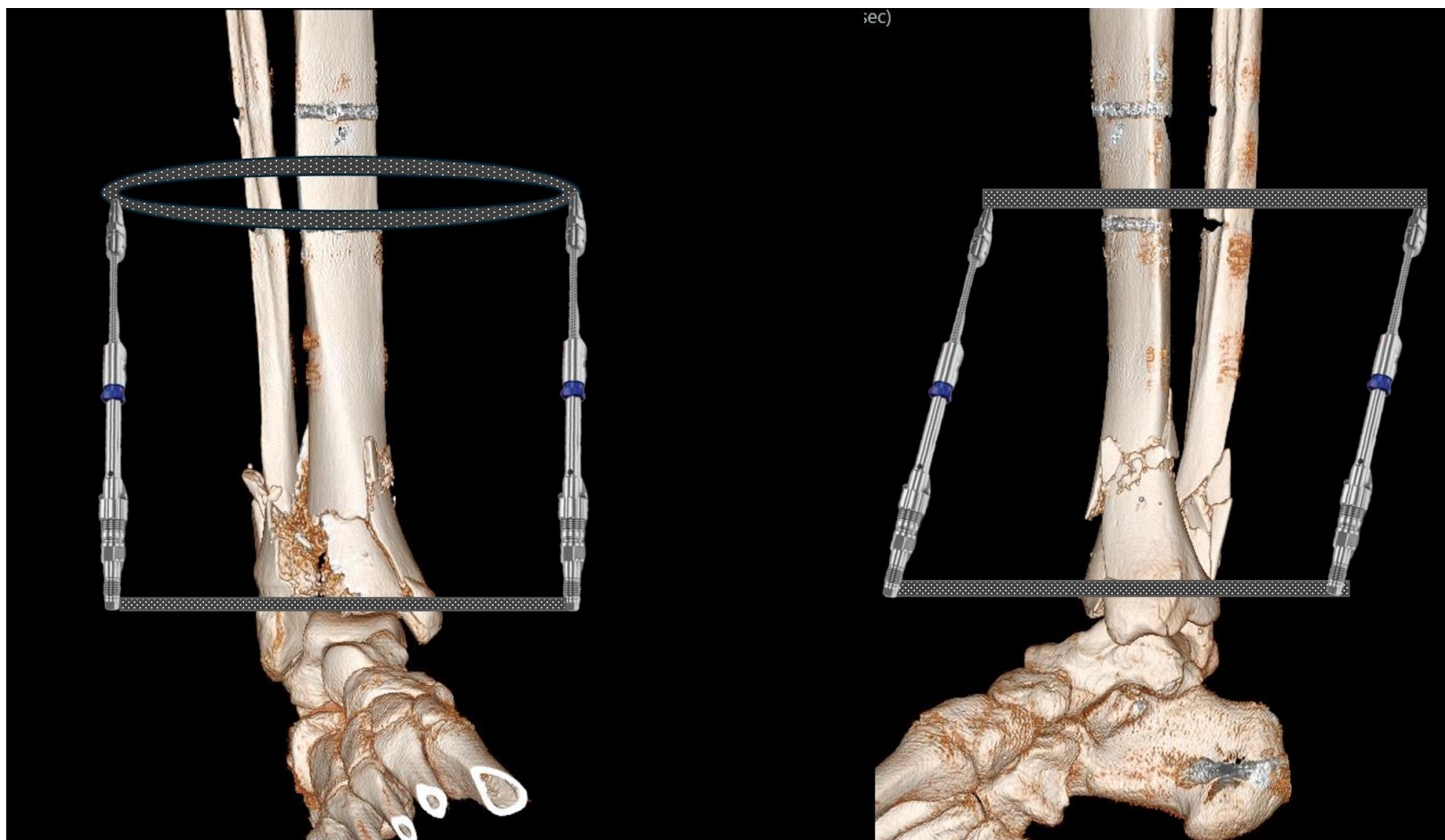


PLAN





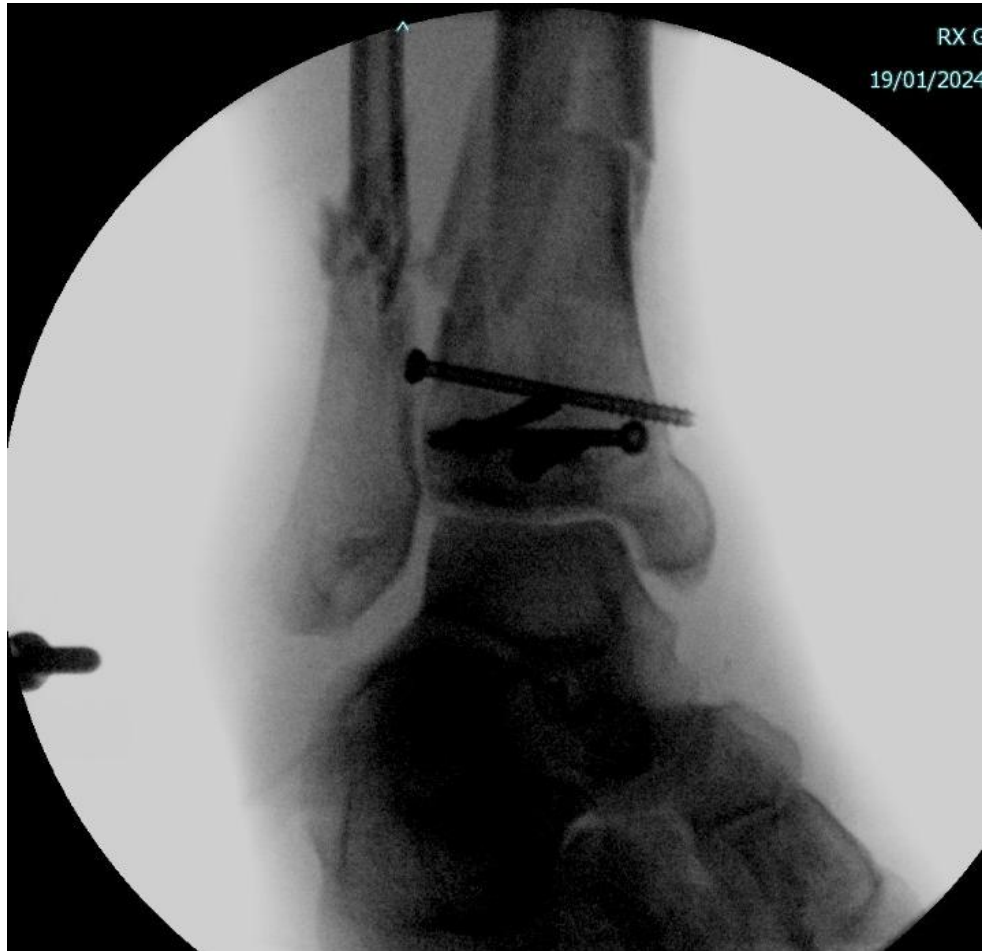
PLAN





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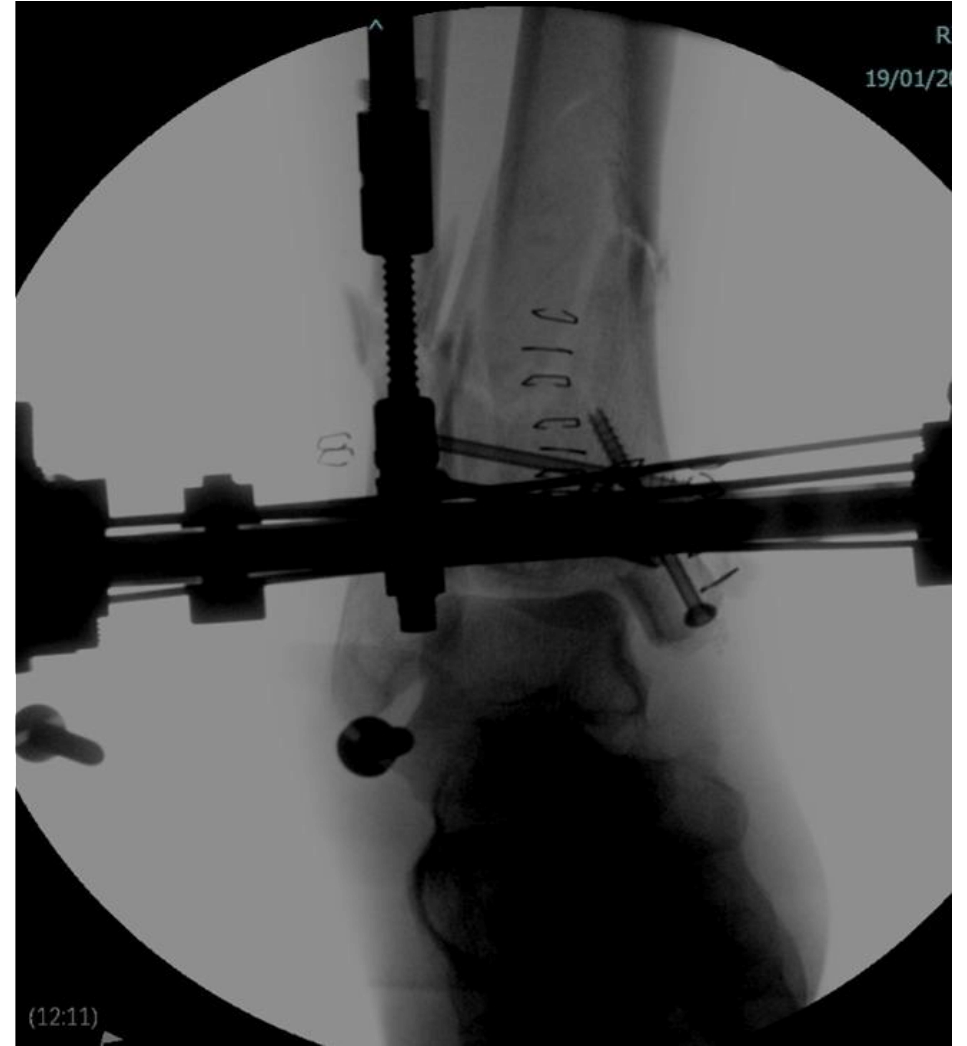
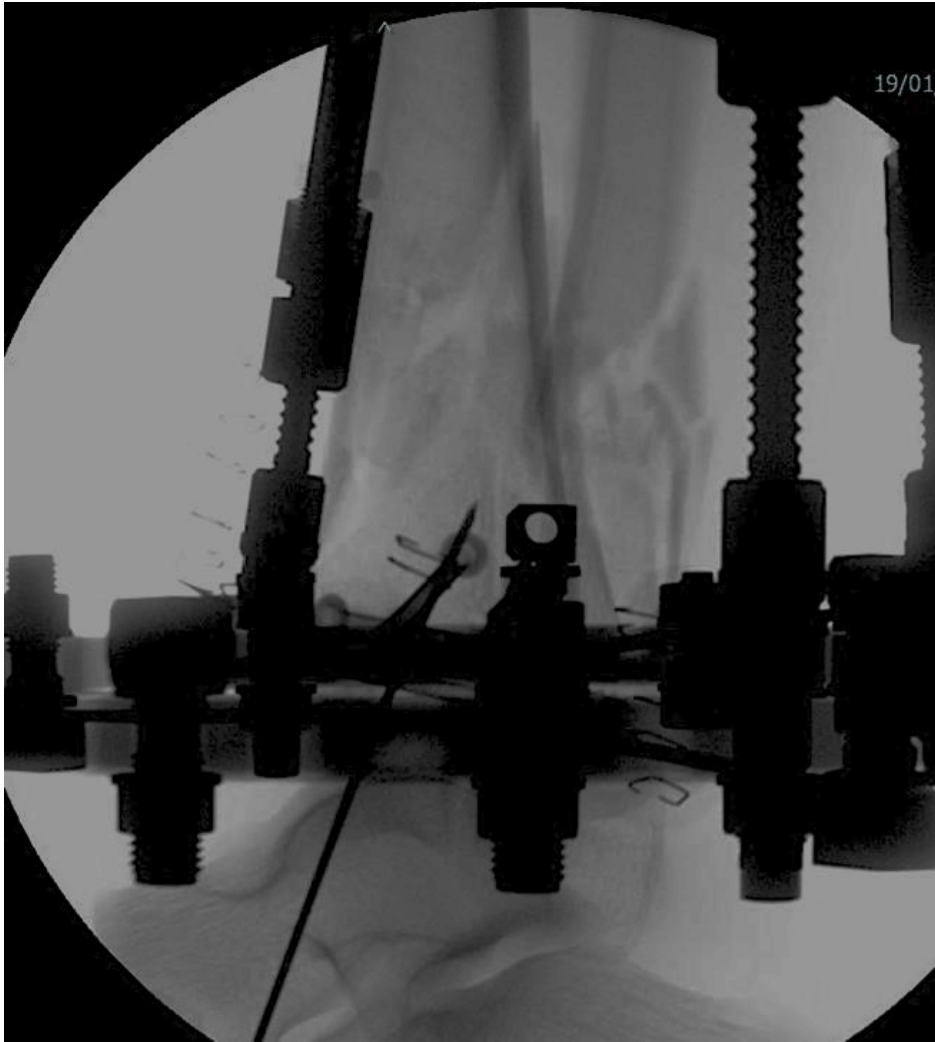
Trattamento definitivo in 3° giornata





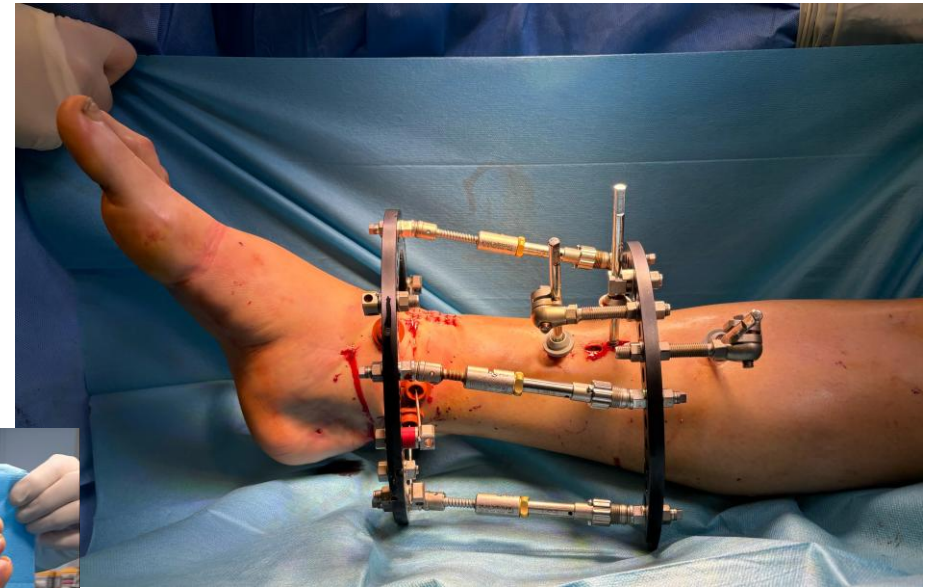
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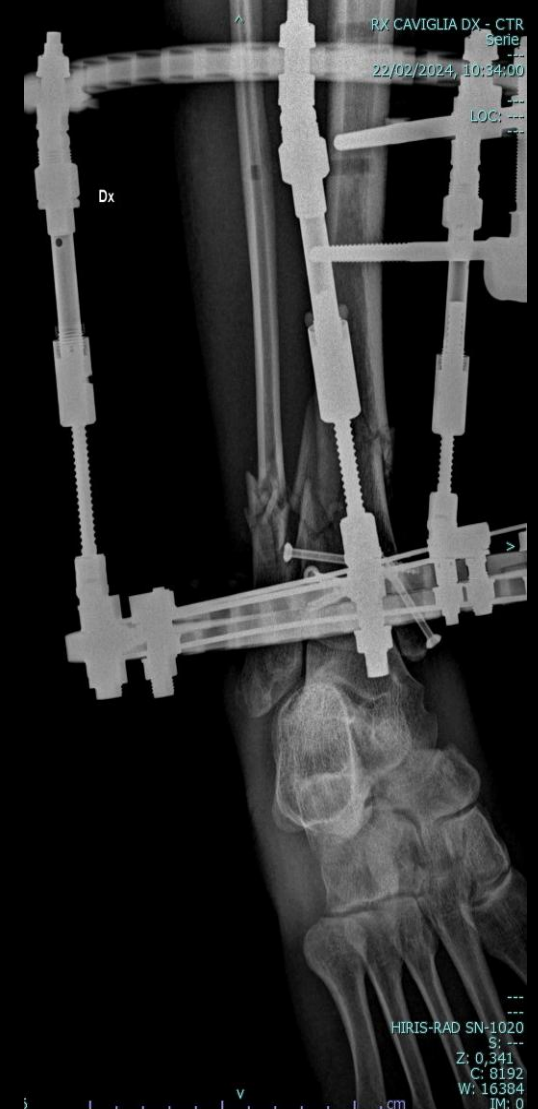
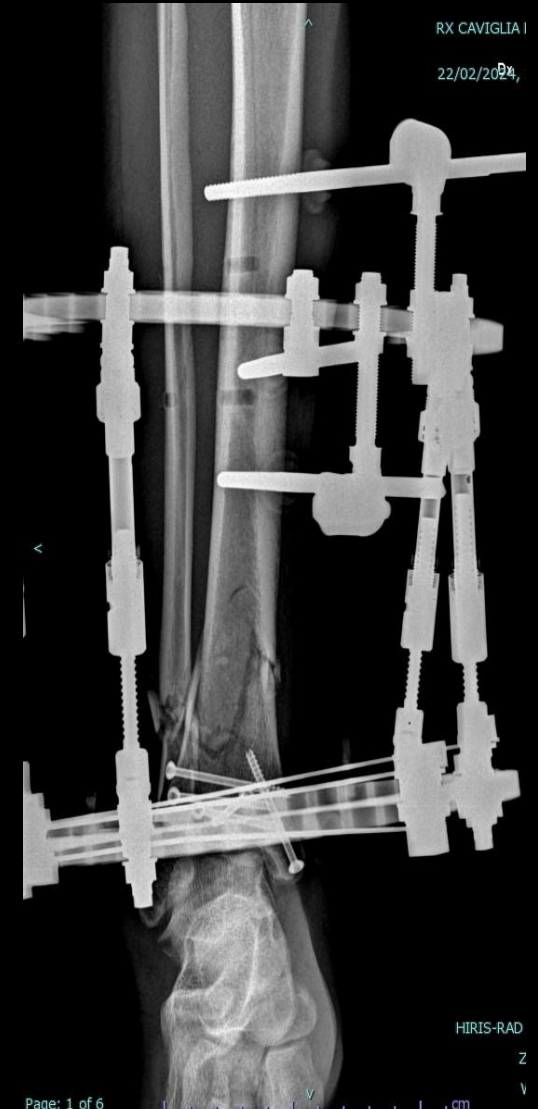
Trattamento definitivo in 3° giornata





Trattamento definitivo in 3° giornata





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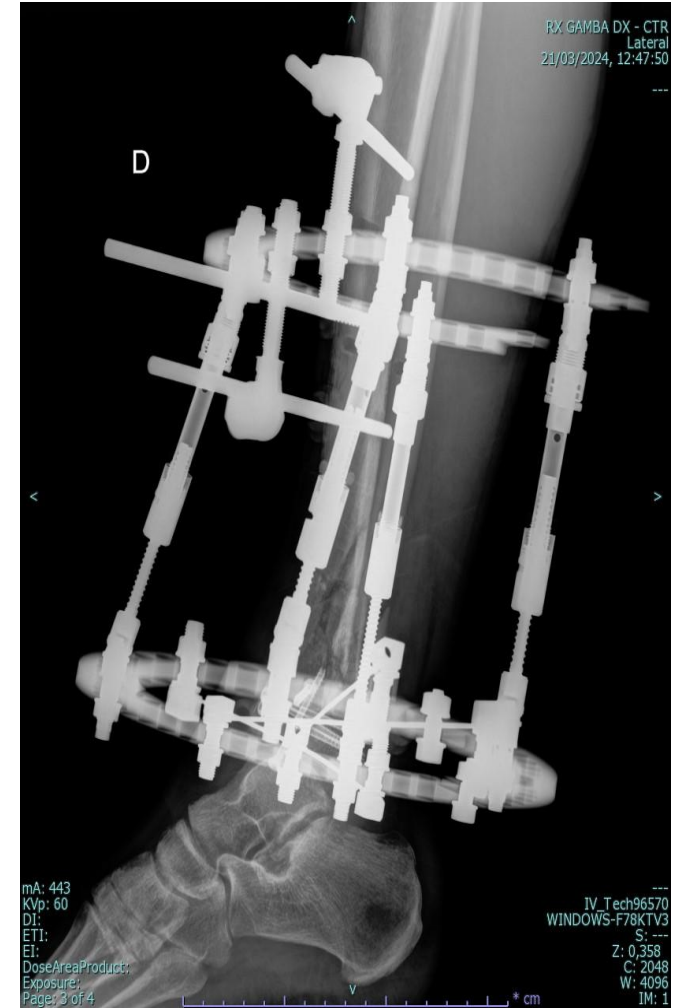
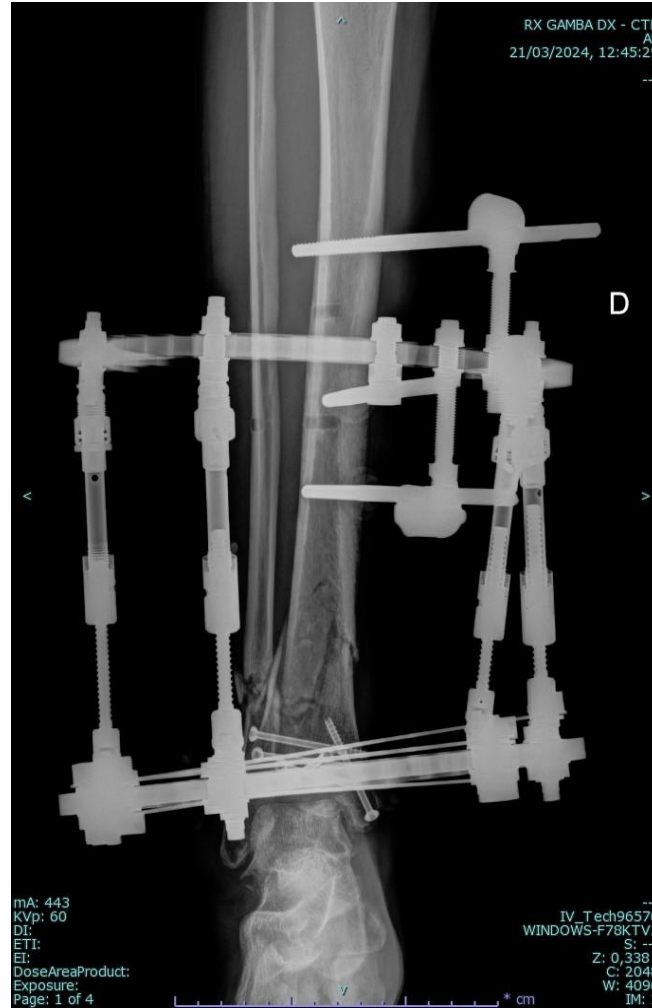
Follow up al mese





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Follow up a 5 mesi



12 mesi dopo l'intervento



Felice di poter rivivere le emozioni da gara, di poterle condividere con tante persone meravigliose e di trovare con sorpresa i miei all'arrivo. Felice in generale di poter di nuovo correre.

Mi auguro solo di poter tornare a fare le discese a vena chiusa come piace a me. Per ora mi impegno a tutelare l'opera d'arte che ha fatto @tommasomaluta con le mie ossa e che sempre ringrazierò.

Risultati



- < aggressività chirurgica
- < attesa per l'intervento
- < durata della degenza
- > versatilità ->
 - + comminuzione metafisaria
 - + difetti di allineamento

- > follow up
- > SSI + pin site infection

- > durata di degenza
- > tempi operatori
- > perdite ematiche

= Recupero funzionale
= Tempi di guarigione





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Cosa dice la letteratura?

> Clin Orthop Relat Res. 1979 Jan-Feb;(138):105-10.

The operative treatment of intra-articular fractures of the lower end of the tibia

T P Rüedi, M Allgöwer

> Clin Orthop Relat Res. 1996 Aug;(329):223-32. doi: 10.

Hybrid external fixation in tibia

R F Gaudinez¹, A R Mallik, M Szporn

Affiliations + expand

PMID: 8769456 DOI: 10.1097/00003086-199608000-0

Systematic Review

External fixation versus open reduction and internal fixation in the treatment of Compound tibial fractures: The choice of treatment should be dictated by the soft tissues and fracture configuration [2]

Sujit Kumar Tripathy¹, Bijnya Birajita Panda², Anand Srinivasan³, Ramesh Kumar Sen⁴

¹Department of Orthopedics, All India Institute of Medical Sciences, Bhubaneswar, India
²Sriram Chandra Bhanj Medical College & Hospital, Cuttack, India
³Department of Pharmacology, All India Institute of Medical Sciences, Bhubaneswar, India
⁴Max Super Speciality Hospital, Mohali, India

Contents lists available at ScienceDirect

Chinese Journal of Traumatology

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

Original article

External fixation versus open reduction and internal fixation for tibial pilon fractures: A meta-analysis based on observational studies

Yi-Chen Meng, Xu-Hui Zhou

Department of Orthopedics, Changzheng Hospital, Second Affiliated Hospital of Second Military Medical University, Shanghai, China

Review Article

Bicondylar tibial fractures: Internal or external fixation?

Gunasekaran Kumar, Nicholas Peterson, Badri Narayan

Injury, Int. J. Care Injured 4953 (2018) 512-518

Contents lists available at ScienceDirect

Injury

journal homepage: www.elsevier.com/locate/injury



Management of fractures of the tibial plateau (Schatzker VI) with external fixation and intramedullary nail

Francesco Sala^a, Paolo Capitani^{a,*}, Ahmed M. Thabet^b, Valentina Scita^a, Paolo Nolo^c

^aDepartment of Surgery and Traumatology, Niguarda Hospital, Milan, Italy
^bDepartment of Surgery & Rehabilitation, Texas Tech University Health Sciences Center El Paso, Paul L. Foster School of Medicine, El Paso, Texas
^cDepartment of Surgery and Traumatology, San Giovanni Bianco Hospital, Bergamo, Italy

Contents lists available at ScienceDirect

Foot and Ankle Surgery

journal homepage: www.elsevier.com/locate/fas

Review

Does external fixation result in superior ankle function than open reduction internal fixation in the management of adult distal tibial plafond fractures?

Christopher E. Hill MSc, BMBS, BMed Sci (Hons), MRCS*

Trauma and Orthopaedics Department, University Hospital of Coventry and Warwickshire NHS Trust, Coventry, United Kingdom CV2 2DX

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