PLEASE CLICK ON THE FOLLOWING LINK TO WATCH THE LECTURE ONLINE:-

- https://www.youtube.com/watch?v=MJcgacUO8vg&list=PLuBRb5B7fa_eyBVgz4xb_AqlGcXLIEyRA&index=16

EXTERNAL FIXATOR FOR SOFT TISSUE MANAGEMENT

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Orthopedic specialist, RMS

WHEN TO USE EX. FIX ????

1) Acute soft tissue loss.

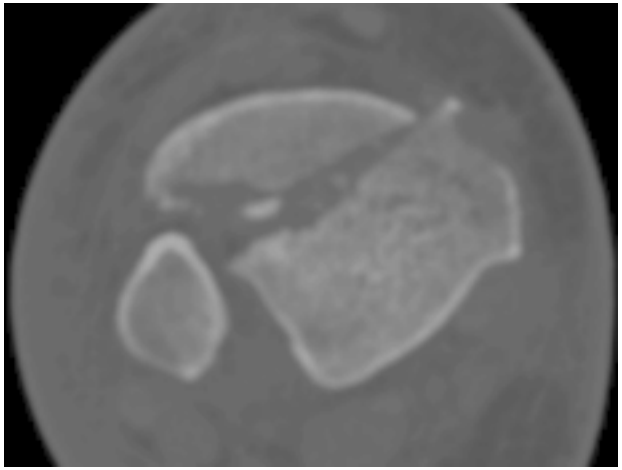
2) Contracted soft tissues,
   trauma, burn, congenital…..

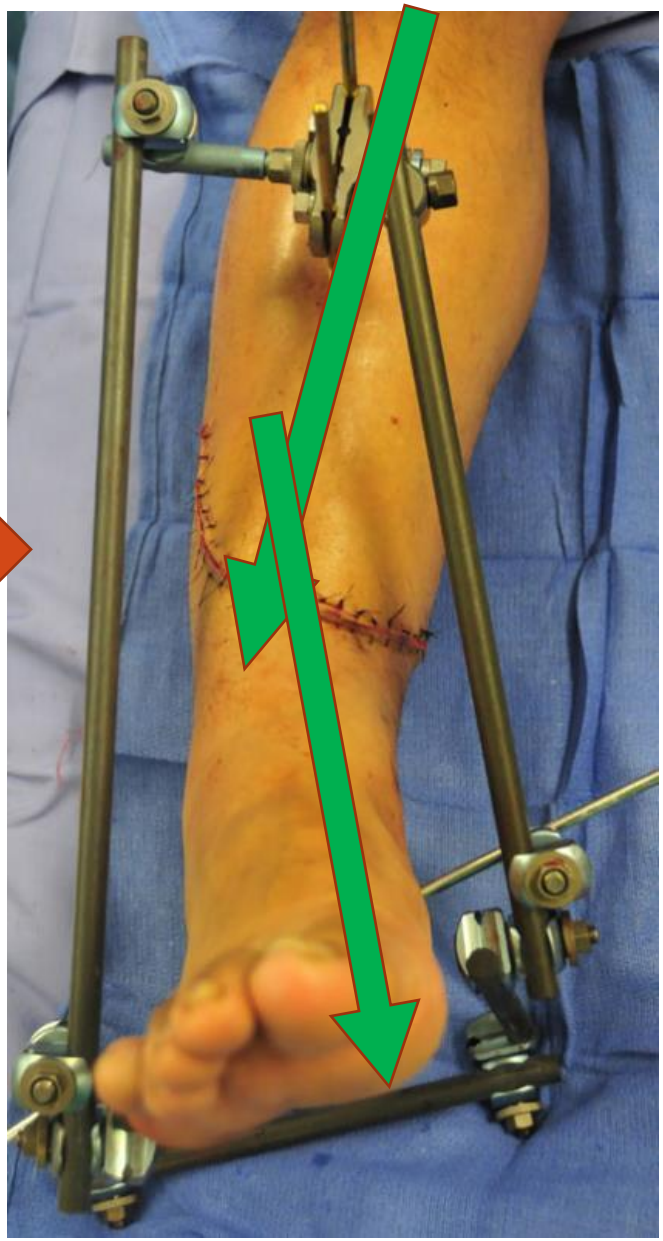
3) Joint injury leading to instability.

OPEN FRACTURE WITH ST DEFECT

- 33 year female
- RTA
- Distal tibia fracture

OPEN FR





Temporary Intentional Leg Shortening and Deformation to Facilitate Wound Closure Using the Ilizarov/Taylor Spatial Frame

Shane J. Nho, MD, David L. Helfet, MD, and S. Robert Rozbruch, MD

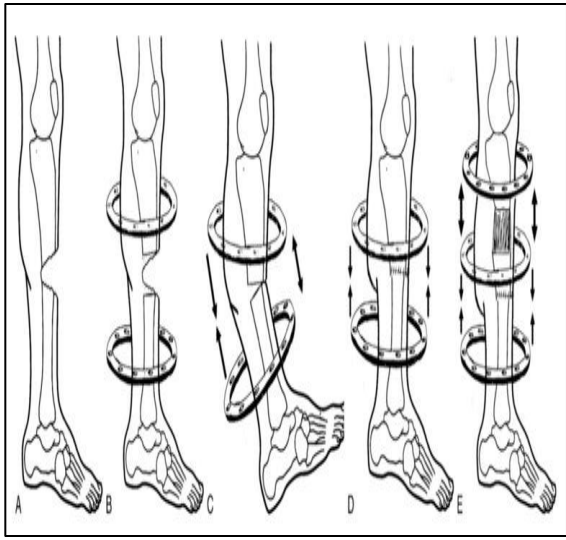
Summary: Infected tibial nonunions with bone loss pose an extremely challenging problem for the orthopaedic surgeon. A comprehensive approach that addresses the infection, bone quality, and overlying soft-tissue integrity must be considered for a successful outcome. Acute shortening with an Ilizarov frame has been shown to be helpful in the treatment of open tibia fractures with simultaneous bone and soft-tissue loss. Cases in which the soft-tissue defect considerably exceeds bone loss may require an Ilizarov frame along with a concomitant soft-tissue procedure; however, there are a number of potential difficulties with vascularized pedicle flaps and free tissue flaps, including anastomotic complications, partial flap necrosis, and flap failure. The technique described in this report involves acute shortening and temporary bony deformation with the Ilizarov apparatus to facilitate wound closure and does not require a concomitant soft-tissue reconstructive procedure. Once the wound is healed, osseous deformity and length are gradually corrected by distraction osteogenesis with the Ilizarov/Taylor Spatial frame.

Key Words: Ilizarov, Taylor Spatial frame, nonunion, acute shortening, deformity correction, wound closure

(*J Orthop Trauma* 2006;20:419–424)

undergoing compression/shortening, and 1 segment (the bony regenerate) is undergoing distraction/lengthening to maintain the length of the limb. Bone defects < 3 cm can usually be acutely shortened, and defects of > 3 cm should usually be gradually shortened.[1] Acute shortening is easier and safer to accomplish in the acute rather than chronic situation. Acute shortening of > 3 cm may be safe if the vascular physical examination does not change. Bifocal compression-distraction not only leads to solid osseous union but also corrects limb length discrepancy, deformity, joint contractures, and infection throughout the treatment period. The Ilizarov method does not eliminate or "correct" the infection solely because it is applied to the bone. Removal of the dead bone, sequestrum, debridement, irrigation, local, and systemic antibiotics, etc., all contribute to the elimination of the infection from the bone. It does supply stability as an adjunct to the whole process. Additionally, the absence of internal fixation may be safer in the setting of active or history of infection.

In the present article, the authors present the technique of acute shortening and intentional temporary bony deformation to facilitate wound closure, thereby avoiding a soft-tissue flap, along with an illustrative case example. With the leg stabilized in the Ilizarov/Taylor Spatial frame (TSF; Smith & Nephew, Inc., Memphis,



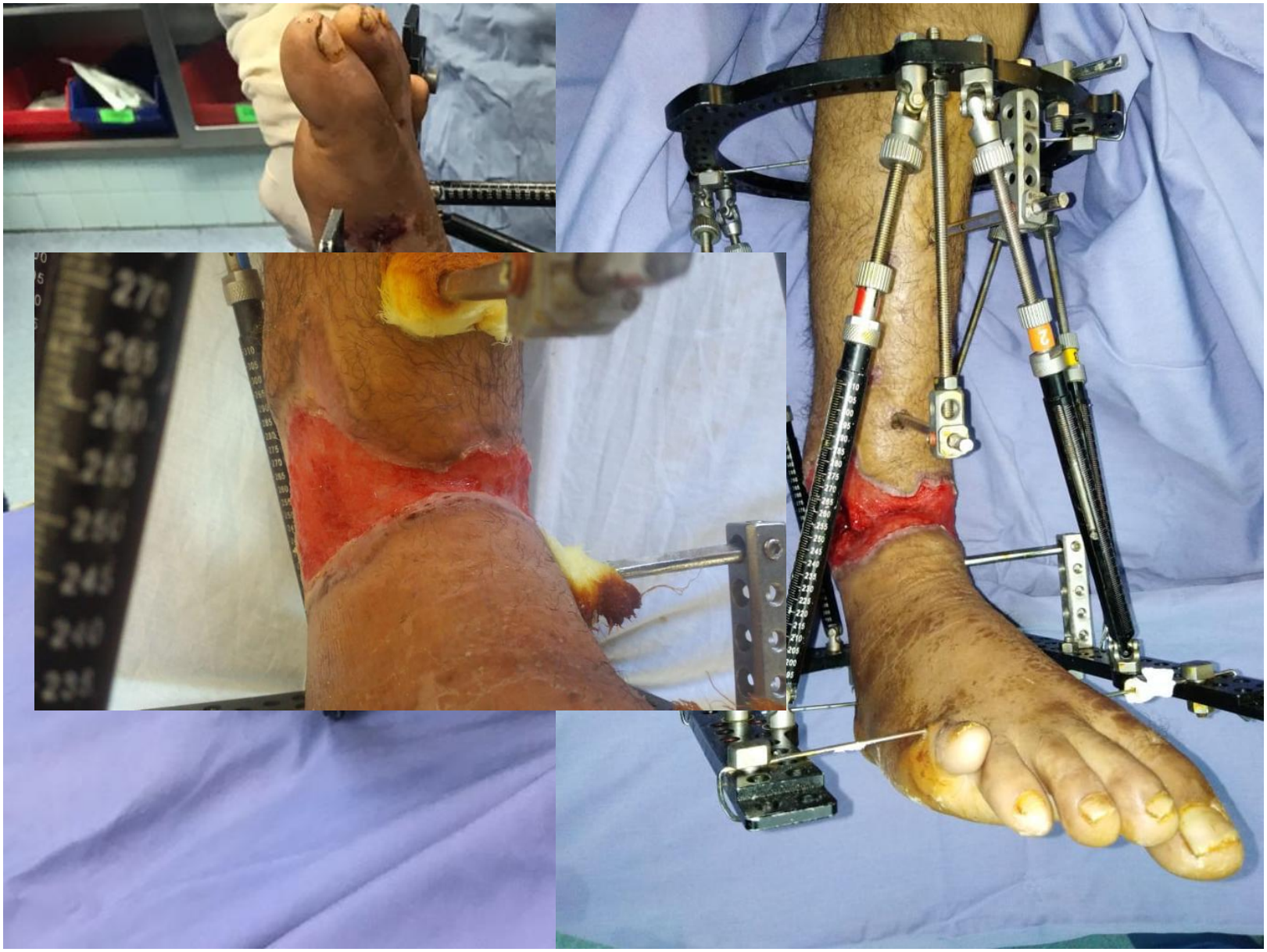
TEMPORARY MALPOSITION TO ACHIEVE SOFT TISSUE HEALING

- How much malposition ?
- How long ?
- Why ?

1. Lack of donor site morbidity
2. Decrease no. Of surgeries
3. Manage both ST and Bone
4. low complication rate

CASE

- 25 year
- Gaza.
- Open tibia fracture with vascular insult.
- Viable foot.



- 60 year male
- Known case of chronic OM.
- Pathological fracture tibia.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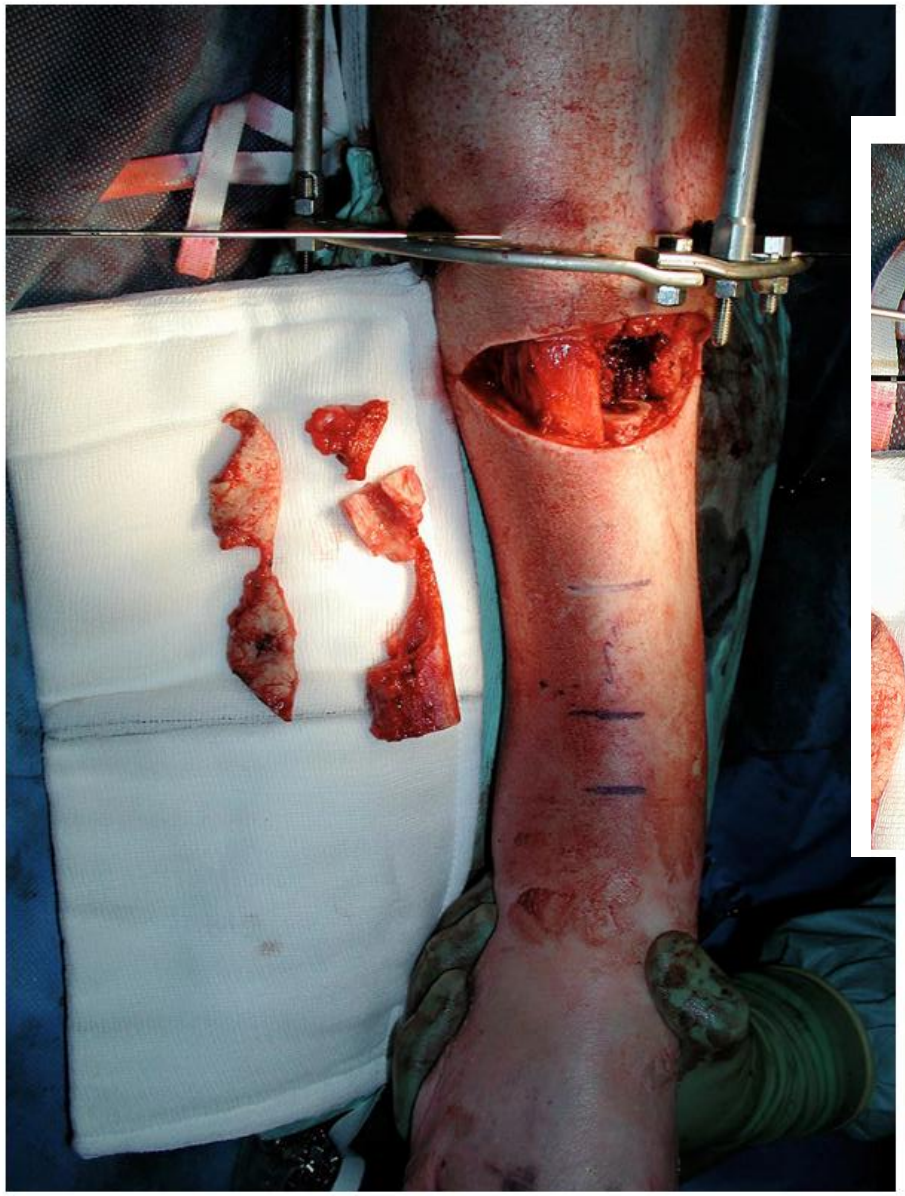
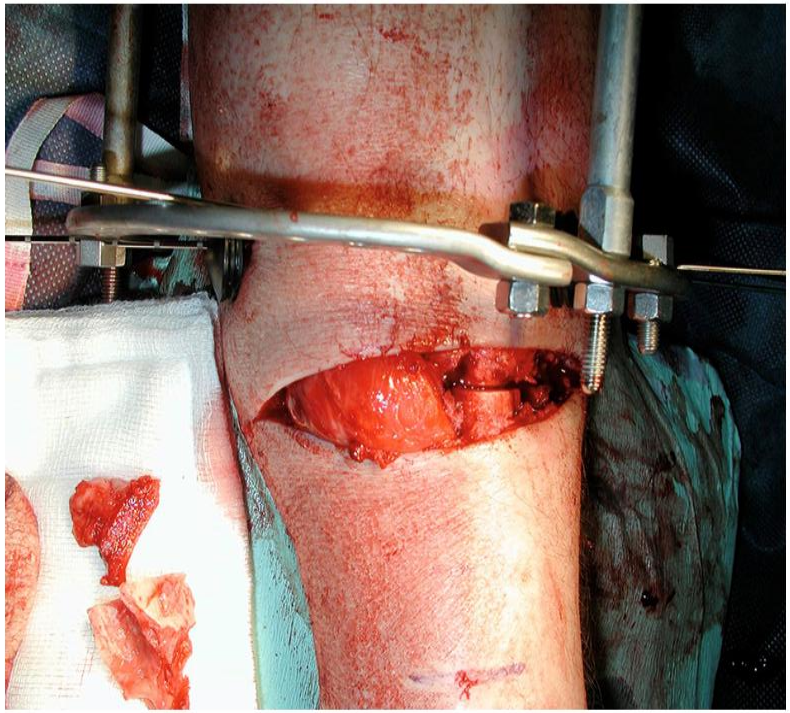
AP Right





ved by Ilizarov frame for definitive fracture
on histogenesis. Union was evaluated radio-
one defect was 3.2 cm (1–8 cm). Mean time
ays/cm. Median lengthening index (time in
p was 79 weeks (23–174). Six patients had
one of whom required a second frame. Two
patient developed a stiff non-union which
ortening followed by distraction histogenesis
oft tissue loss. This method also avoids the
cost, logistical issues and morbidity associated with the use of local or free-tissue transfer flaps and has a low rate of serious

TECHNICAL TIPS

- In some open fractures, creation of a temporary deformity (angulation, rotation, shortening) can minimize or prevent the need for flap coverage.

- External fixator can allow easy correction of this deformity after wound healing but before bone healing.

- Make sure that the acute deformity does not create neurovascular compromise or excessive lymphatic swelling.

TECHNICAL TIPS

- Consider a slow additional deformity if wound unable to be closed with acute deformity

- Sometimes, this technique may not allow a primary wound closure but allows closure via a local flap rather than a free tissue transfer

- If bone is missing, consider transport/lengthening at another location

- **Patient selection is the key**.

Soft tissue contracture

TREATMENT OPTIONS

1) Acute correction.
   - Osteotomy
   - STR

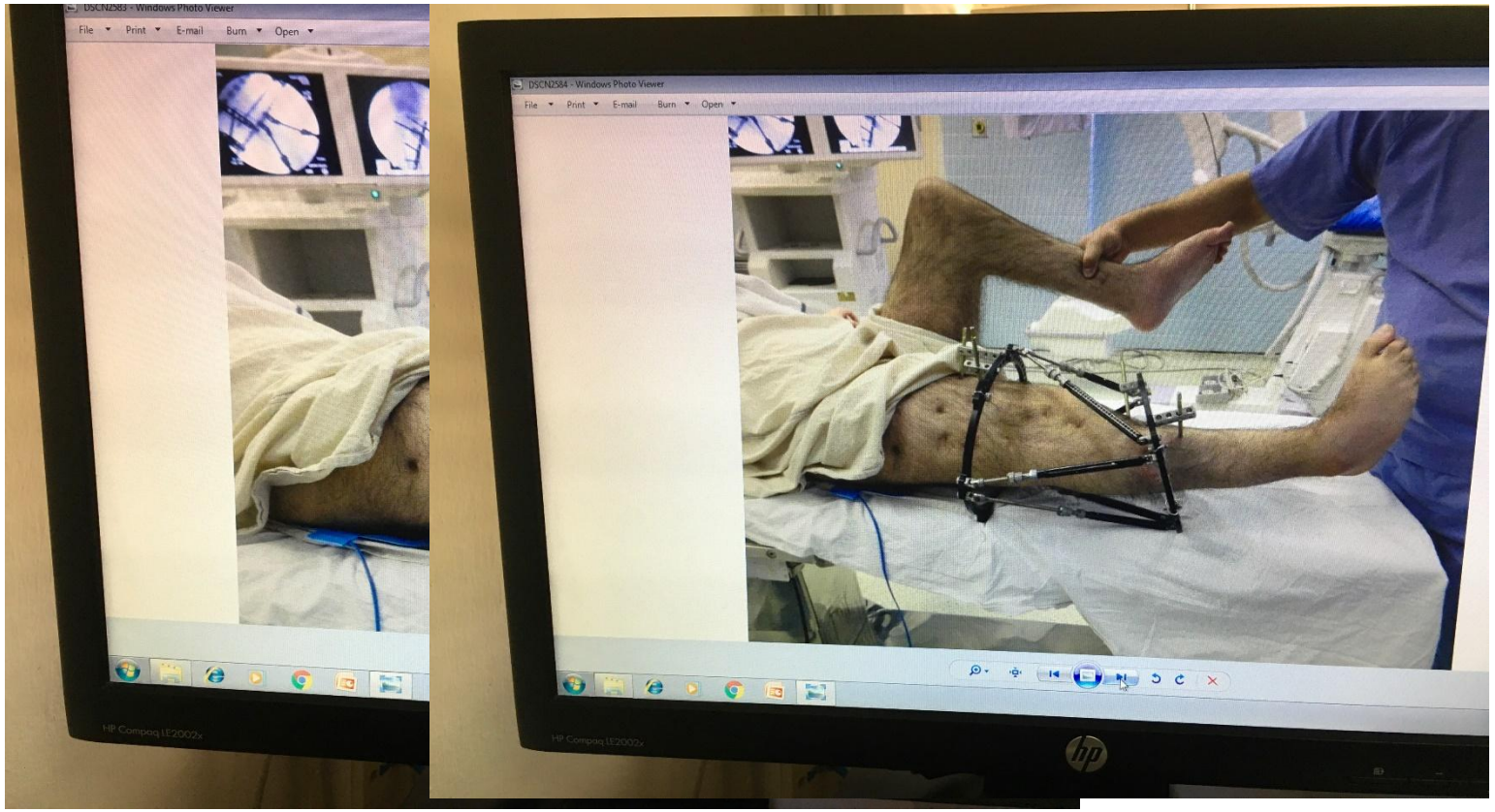
2) Gradual correction.

GRADUAL CORRECTION

- Avoid complication of acute correction.
  - NVB injury
  - skin problem
  - growth plate injury
  - fractures

CASE

- 20 year
- Bilateral knee FFD
- Recurrence
- Gradual correction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DSCN2584 - Windows Photo Viewer
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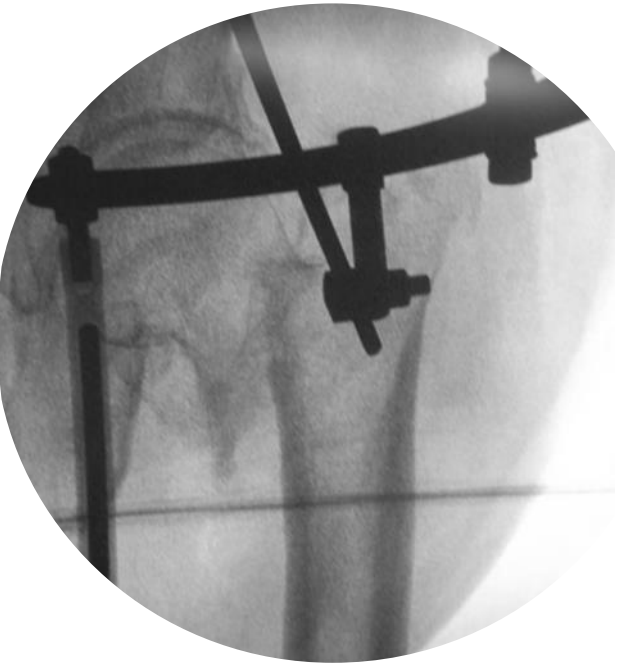
TIPS

- Adequate proximal and distal stability.
- Frequent neurovascular exam.
- Hinge must be at joint centre of rotation.
- Keep the external fixator for adequate time to allow soft tissue healing, and splint them on removal.
- Follow up them , recurrence Is possible.

73 years old male : Neglected fracture for 4 months
How to mobilize the fracture and fix without surgical release ?



3 weeks

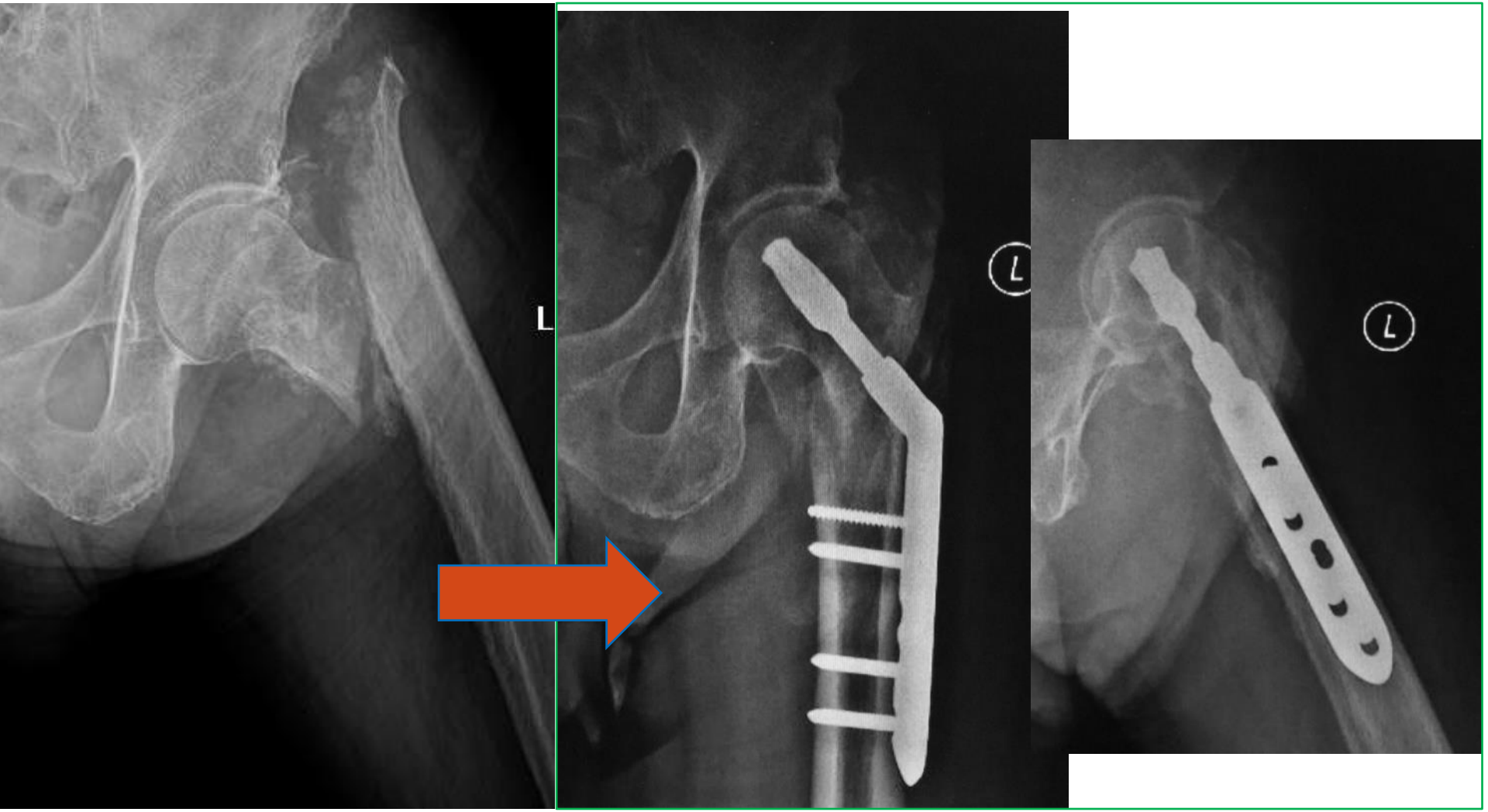
Gradual Distraction

Before

After

Intraop definitive fixation DH Blade

5 months



Severe knee valgus deformity

-48 years old Soldier
-15 years after Bilat THR
-Rheumatoid arthritis

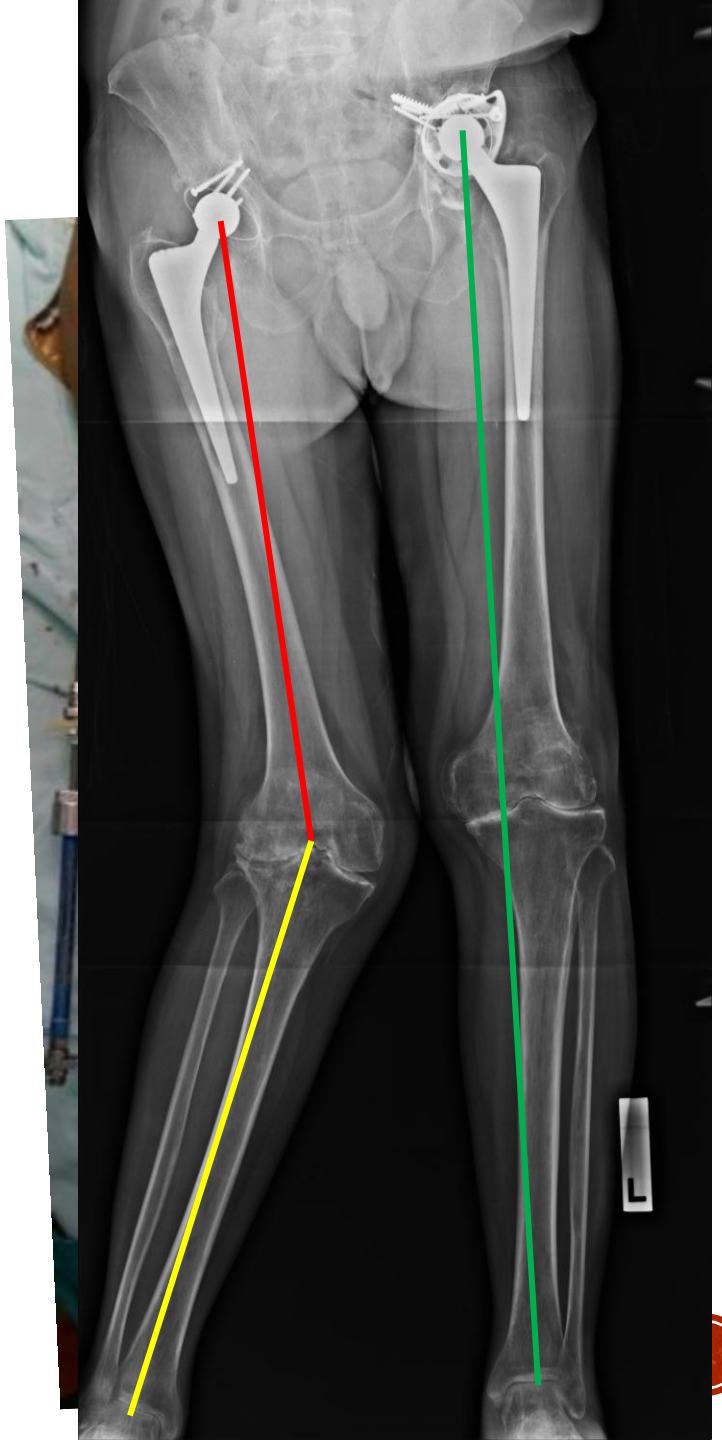
-2 years right knee pain

If the next operation is TKR of right knee

What is your treatment option ?

1. One stage TKR , massive release + try to balance ligatment?
2. Multi stages : open release contracture and follow with second stage TKR
3. Ring fixator to gradually correct contracture for ligament balance then second stage TKR

INITIAL CORRECTION




KNEE JOINT AP

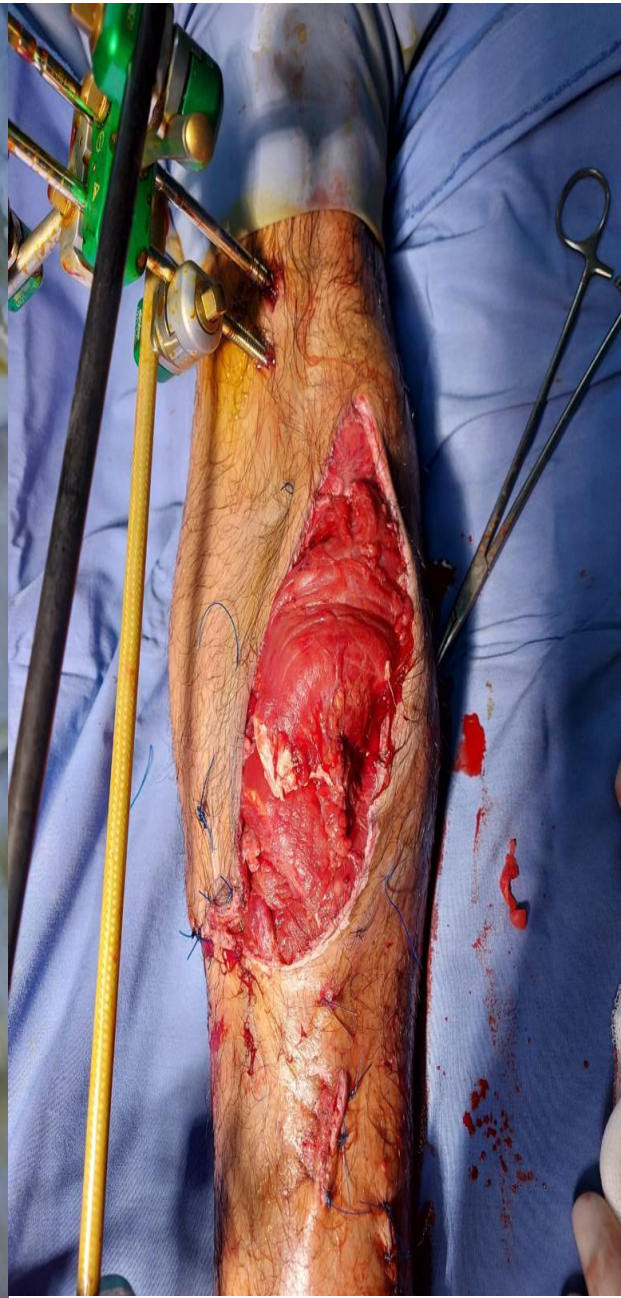
TKR was done after castin
Good ligament balance

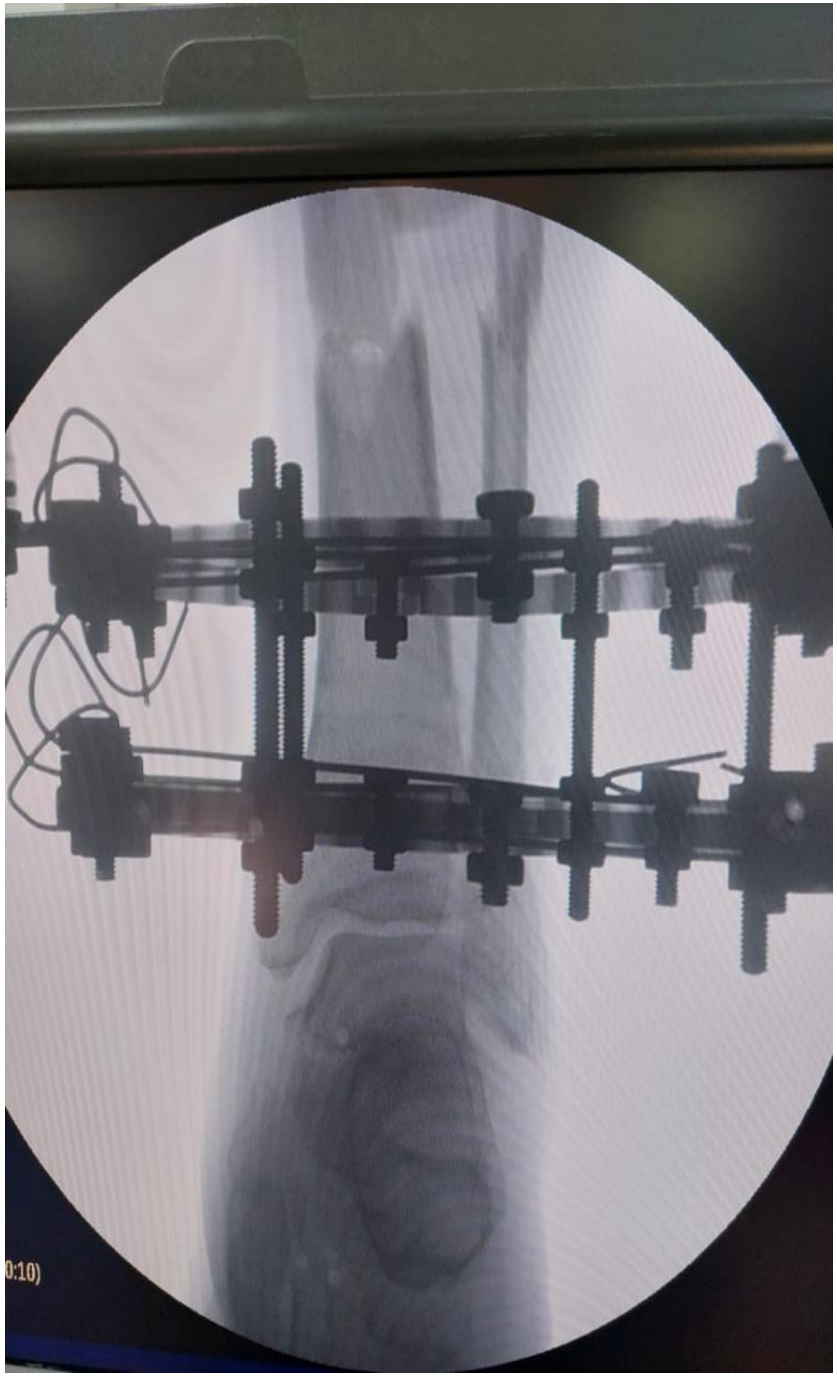
38 years, male
RTA, roll-over
Open tibia with vascular insult


Reject Image
Save as New


MAHMOUD HASAN (28-09-1980)
Reject Image
Save as New
Print Sheet
Worklist
Examination
Editing








Pulsera
5
1
(10:10)


180mm
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180mm
180mm

TAKE HOME MESSEGES

- Wide spectrum of soft tissue condition related to fractured bone.
- Ex fix stabilize the bone and manipulated in a way to manage existing soft tissue disease.
- Good knowledge and experience guarantee good outcome.

THANK YOU