10th EFORT Congress, Vienna-Austria

Intramedullary nailing for extra-articular and selected intra-articular distal tibial metaphyseal fractures:

Fixation enhancement with blocking screws

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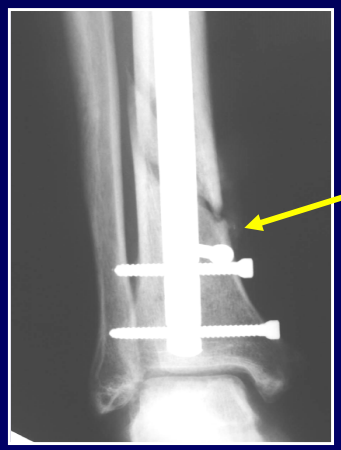
Distal Tibial Fractures

- Technically difficult to be nailed
- Precise entry point needed
- Nails with specific characteristics needed, allowing efficient distal locking

Our suggestion:

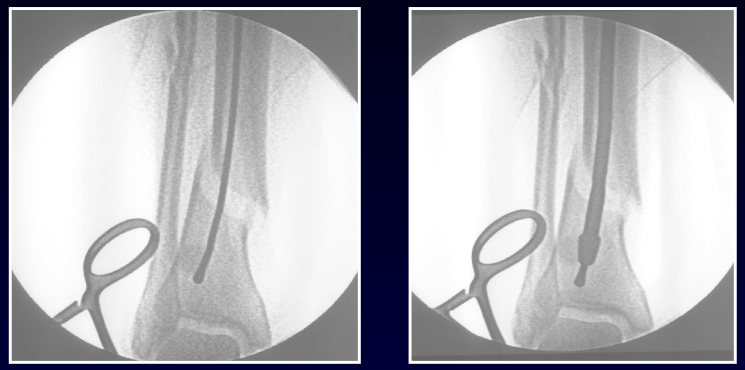
- Use of nails giving the possibility of extreme distal locking to be applied
- Use of poller (or blocking) screws for appropriate reduction of the fracture
- Use of poller screws for additional stability of the nailing

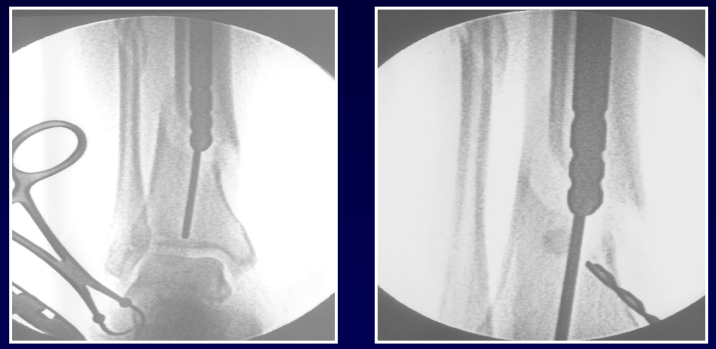


Poller / Blocking screws

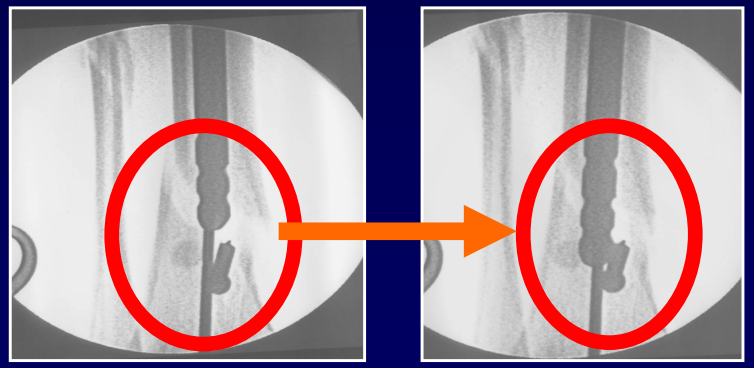
Surgical Technique

Insertion of the guide wire and reaming
(no attempt for fracture reduction at this point)

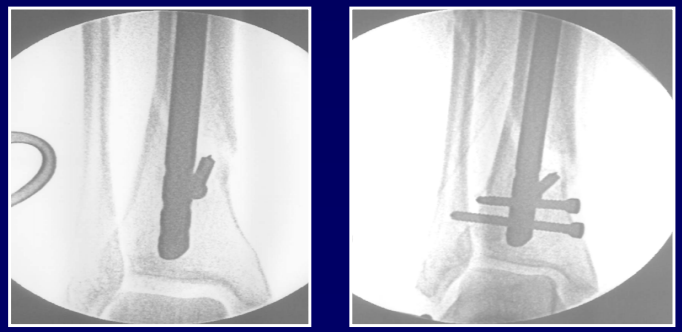




Insertion of the nail to the fracture level.
Drilling for the placement of a poller screw



Sliding of the nail on the poller screw and
propper reduction/alignment of the fracture



Distal locking. The poller screw
remains in situ for additional stability

Patients-Methods

Jan.'03 – Dec.'08

- 17 patients – Mean age: 64y
- 11 male – 6 female
- IMN & blocking screws
- Nails with very distal holes available for distal locking
- Closed fracture with sufficient skin condition

Results

- No complications recorded relevant to the use of poller screws
- No neurovascular complications recorded
- Mean healing time of the fracture: 4,5 m.
- No loss of reduction post-op
- No mechanical failure of the implants
- The physiotherapy post-op protocol included:

  i) Partial Weight Bearing to start 1month from surgery
  ii) Full Weight Bearing after the clinical and radiographic evidence of callus formation

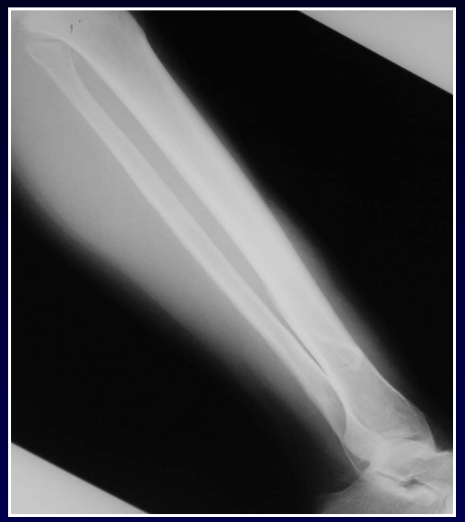
Cases

Male 36 years old. Distal Tibia fracture – Road Traffic accident

Pre-op AP & Lateral X-rays

Post-op AP & Lateral X-rays

Male 43 years old. Distal Tibia fracture – Fall from ladder



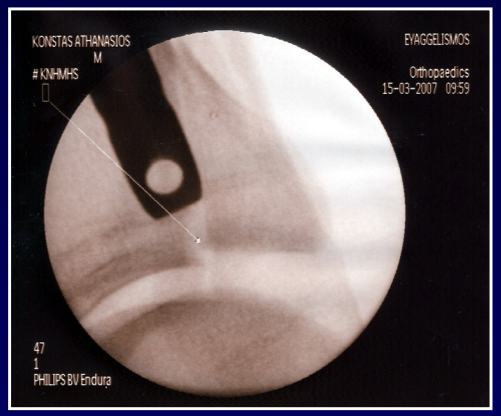
Pre-op AP & Lateral X-rays

Post-op AP & Lateral X-rays
(poller screw placed between the distal screws)

Male 33 years old. Distal Tibial Spiral fracture – Road Traffic Accident

Pre-op AP & Lateral X-rays
showing an extra-articular distal Tibial fracture

Observation of a displaced posterior malleolar fracture intra-operatively



Post-op AP & Lateral X-rays
The posterior malleolar fracture was adressed with a bolt prior to the poller screw enhanced IM nailing

Conclusions

- Proper reduction and alignment of the fracture. Blocking screws enhance stability at the fracture site
- The technique can be used in selected intra-articular fractures that can be fixed percutaneously
- Avoidance of big incisions for plate fixation at a soft tissue site already compromised from the injury
- Passive physiotherapy can start immediately postoperatively
- Easier hardware removal than in plate fixation technique
- Excellent functional outcomes

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Literature

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