

Management of Acute Ankle fractures

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Learning outcomes

- Timing of fixation.
- Sequence of fixation
- Lateral, Medial, Posterior malleolus fixation.

Timing of Surgery.

- Dictated by soft tissue state.
- Pre op jt spanning fixator of help.
- Skin wrinkles should be seen.





Timing

- Reduction as early as possible.
- Span – Scan –Plan
- Within 24 hrs- less soft tissue complications

International Orthopaedics

March 2013, Volume 37, Issue 3, pp 489-494

The timing of ankle fracture surgery and the effect on infectious complications; A case series and systematic review of the literature

- A delay in surgery is associated with significant rise in infectious wound complications.
- These fractures should preferably be treated within the first day.



Blisters

- No conclusion data on management.
- If possible, early surgical intervention to prevent blister formation.
- If already present, blisters allowed to resolve prior to surgery.



Tourniquet

- Concern in PVD and DM
- Increase in pain and swelling after use of tourniquet.
- ROM achieved early in non tourniquet

gr. Konrad G et al - clinic orthop relat res. 2005 apr.



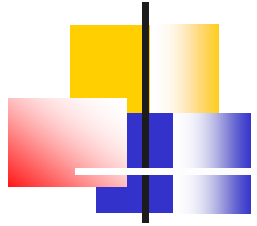
Sequence of steps

- Restoration of fibular length.
- Medial exploration /Fixation.
- Post malleolar fixation.
- Assessment of mortise stability.



Chronology

- May not be hard and fast rule.
- Achieving fibula length helpful.
- If # fibula -comminuted – reduce med side first.



Fibula fractures

Isolated fracture fibula



Person holding cassette is just
For demonstration in picture.

Antiglide Plate

- Peroneal tendon irritation
- Low profile





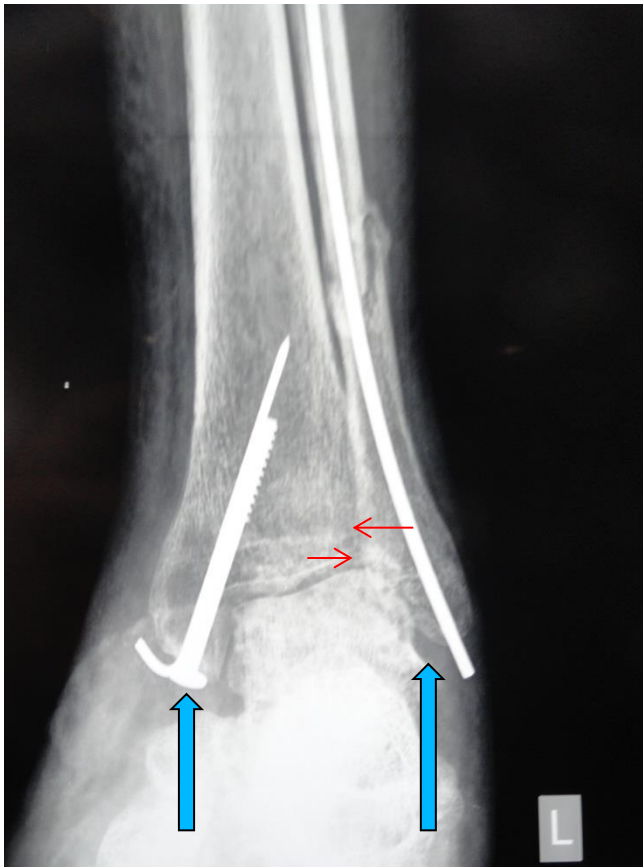
In osteoporotic bones

Biomechanical comparison betn an antiglide plate & distal fibula locking plate showed

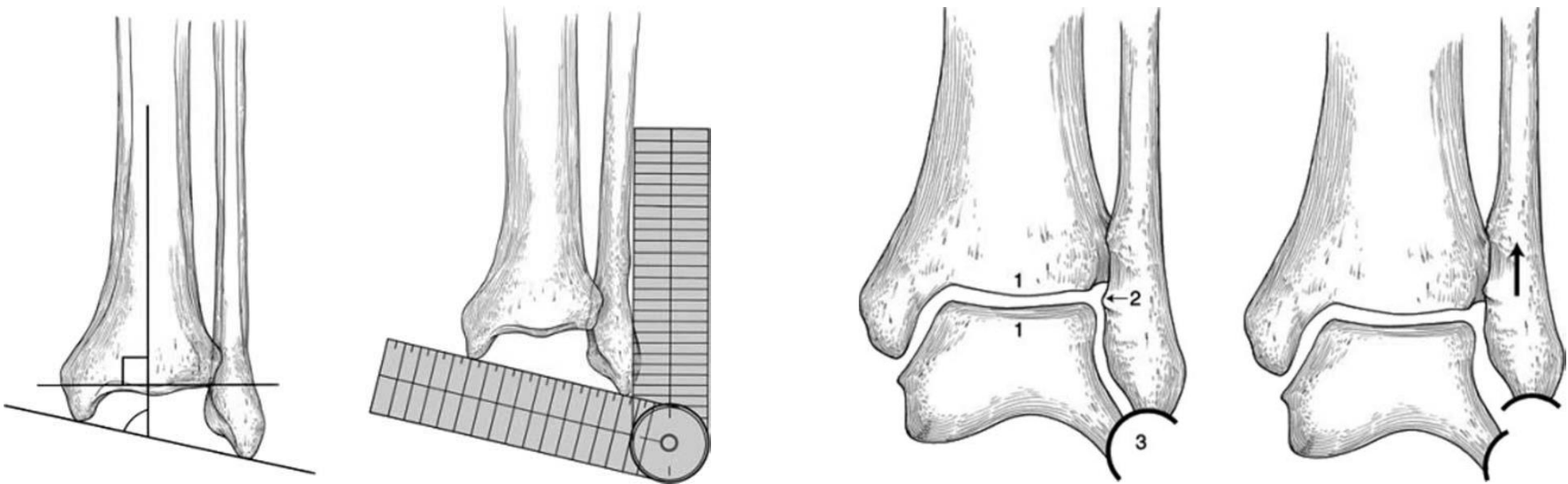
- Antiglide construct was superior
- MINIHANE, K.P., LEE, C., AHN, C., ZHANG, L.Q., MERK, B.R.: Comparison of lateral locking plate and antiglide plate for fixation of distal fibular fractures in osteoporotic bone: a biomechanical study. J. Orthop. Trauma, 20: 562–566, 2006.

Fibula fixation- nail / plate

Maintenance of length



Biomechanics ankle



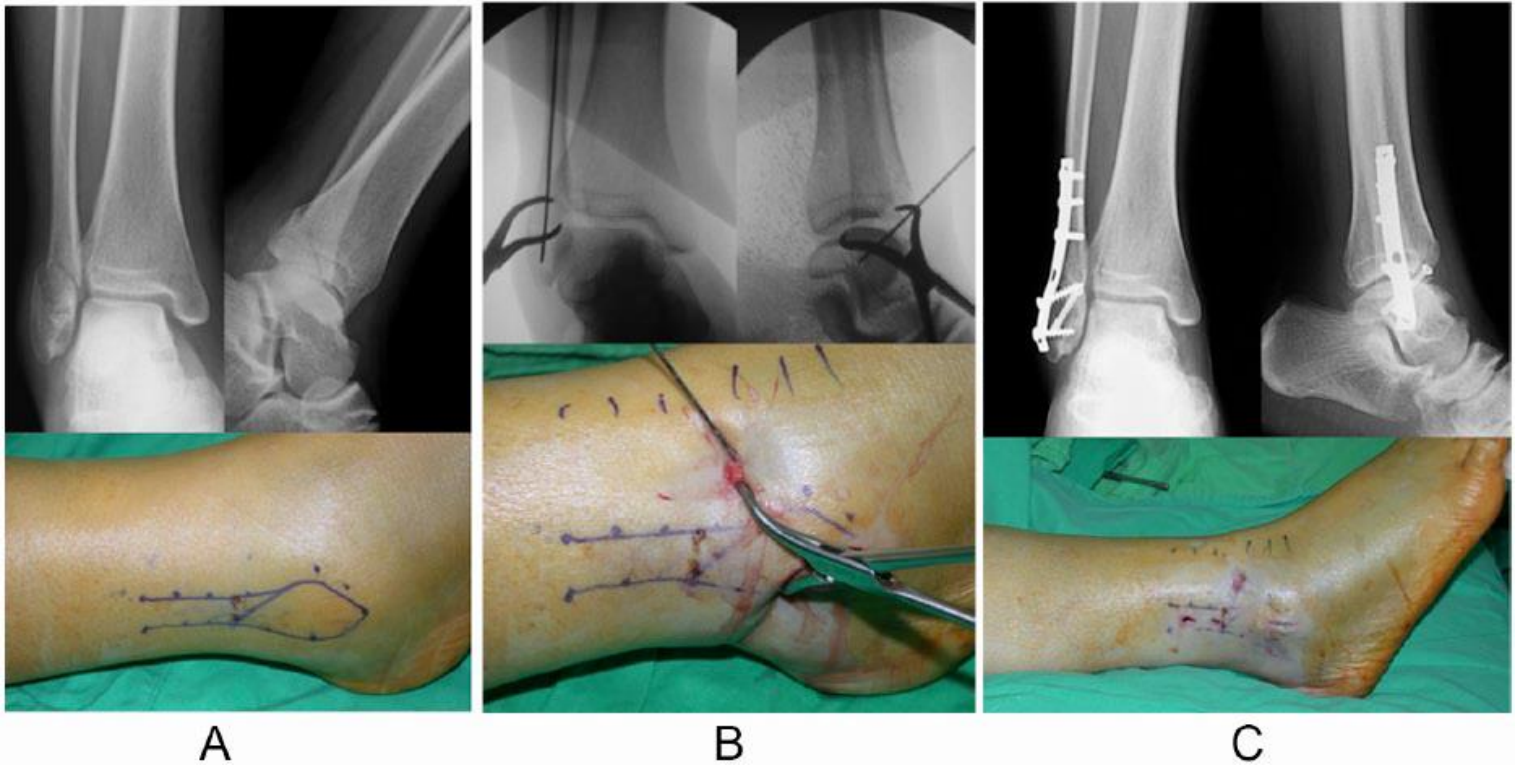
MIS fibula- 44B fractures

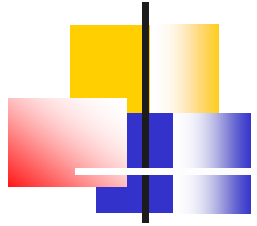


- Less pain
- Few wound complications

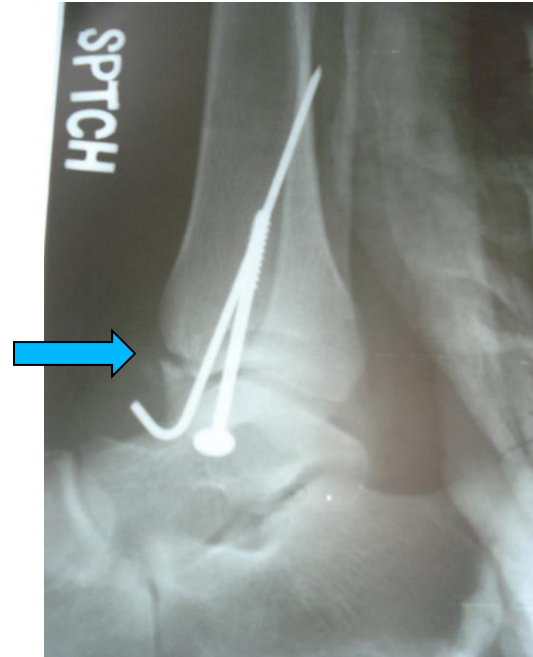
as compared to
conventional

MIS fibula 44B

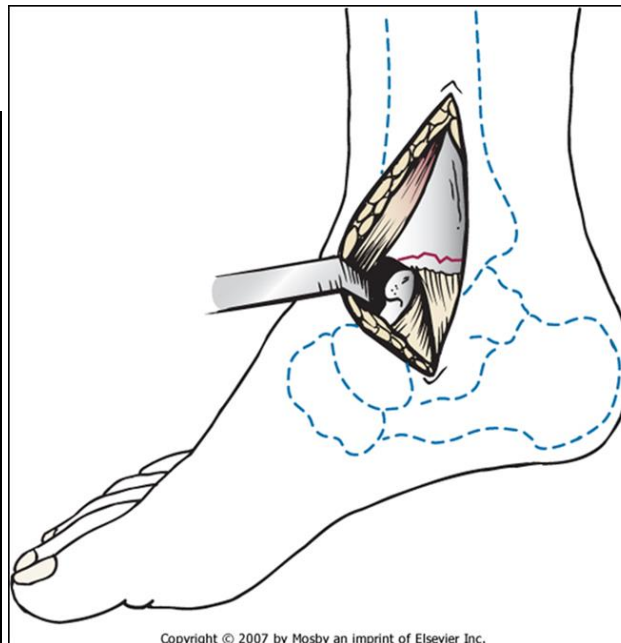




Medial malleolus fixation



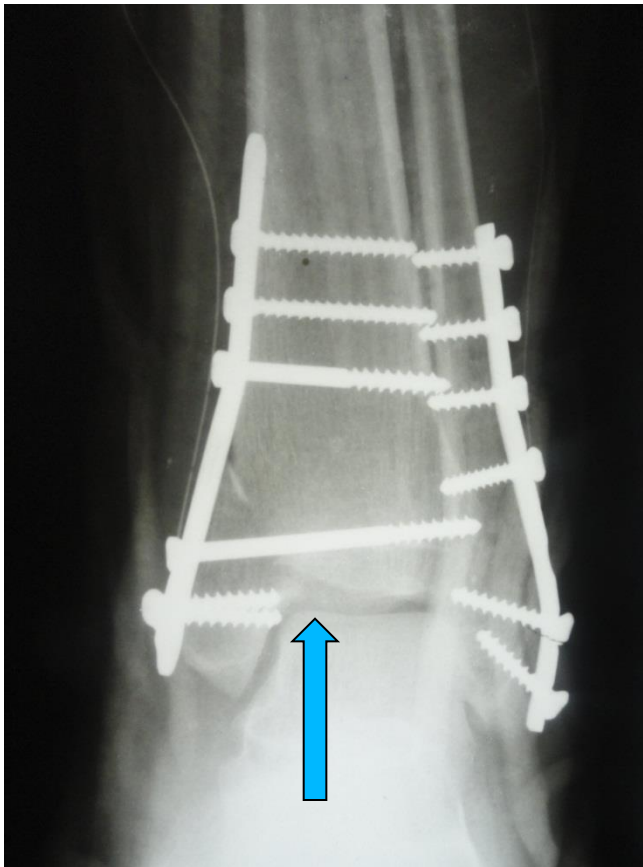
Med mall fixation- TBW

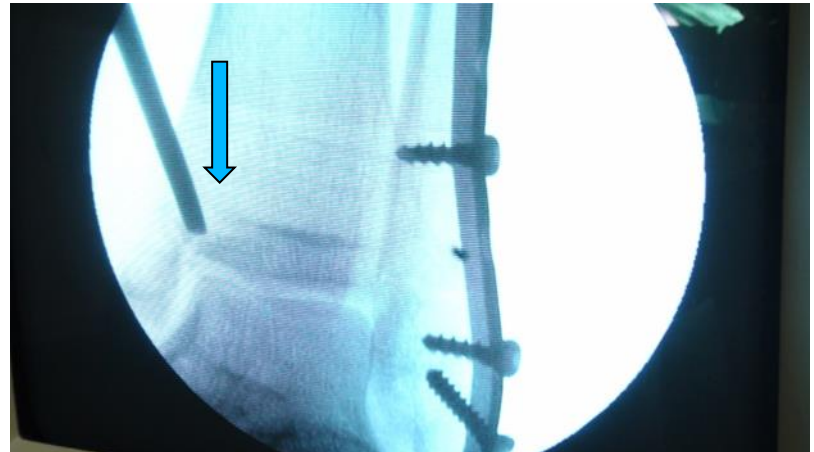


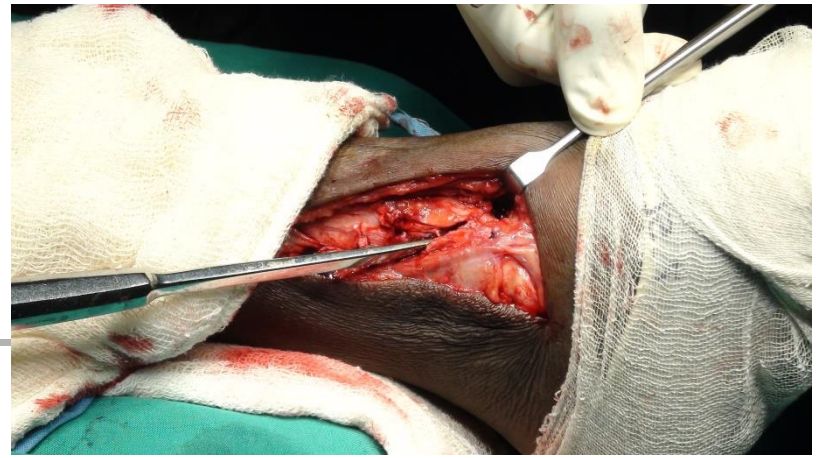
Medial malleolus

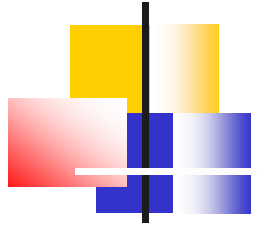


Impacted fragment









Posterior malleolar fixation



Indications for fixation

- Post fragment $>25\%$,
- Persistent subluxation of jt.



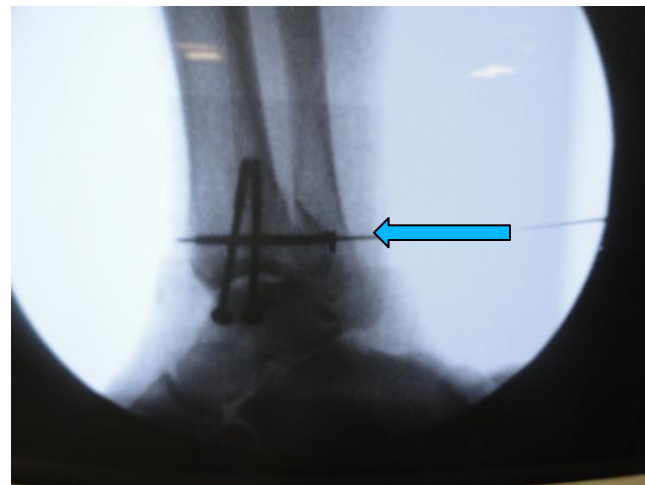
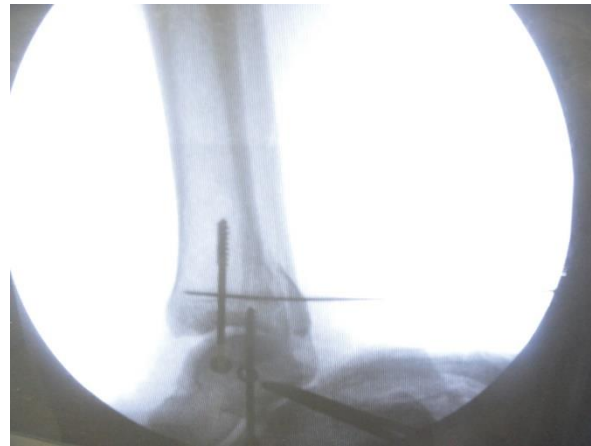
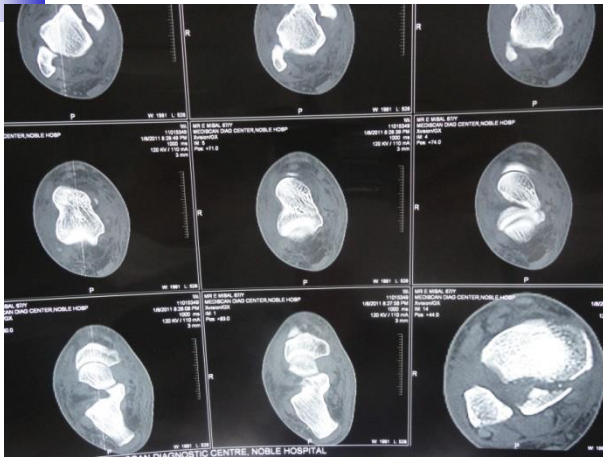
Posterior malleolus fixation

- When a post mall. present, reconstruction, regardless of the size of fragment,
 - to recreate the incisura;
 - this obviates need for syndesmotic screws.
- Clin Orthop Relat Res. 2010 April; 468(4): 1129–1135.

Post malleolar fixation- Screw Ant to Post

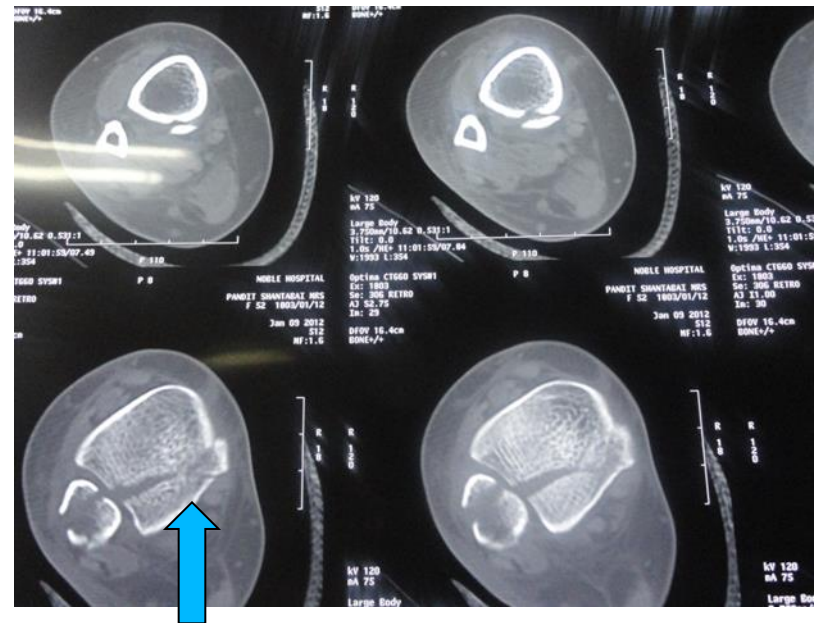
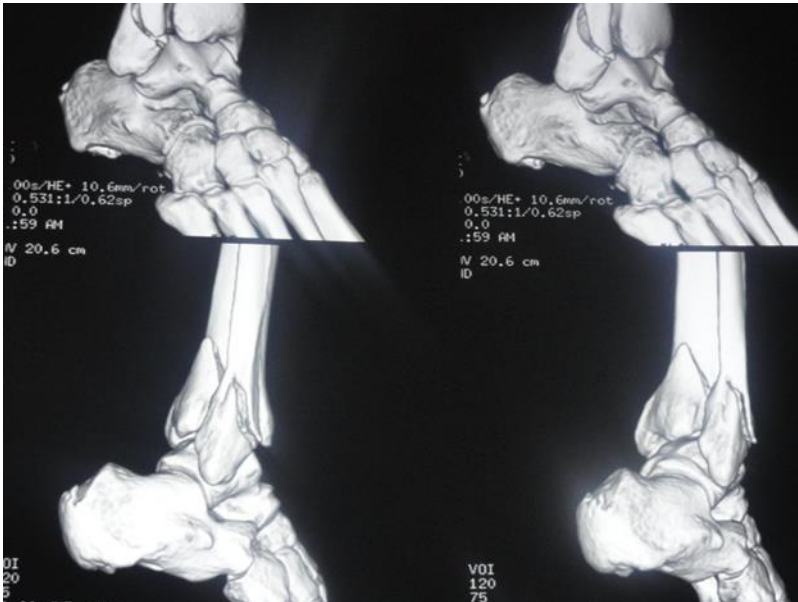


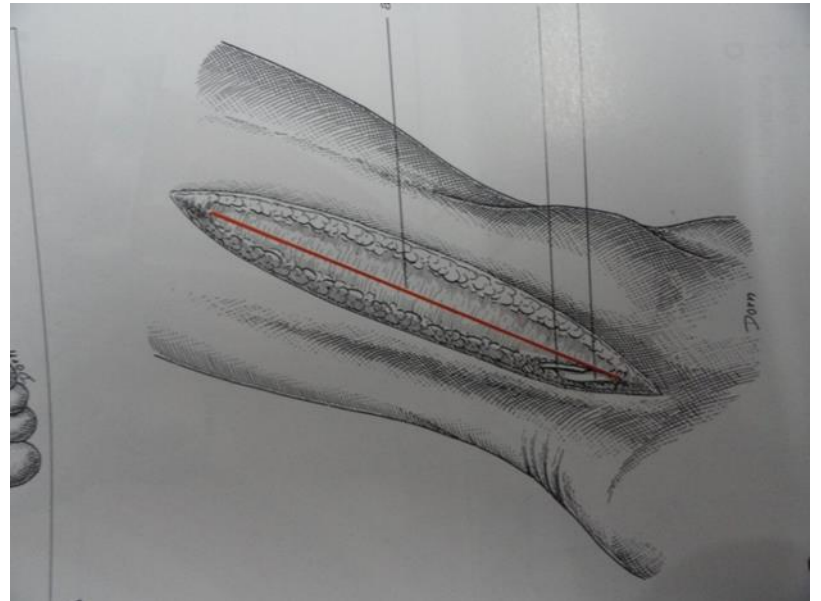
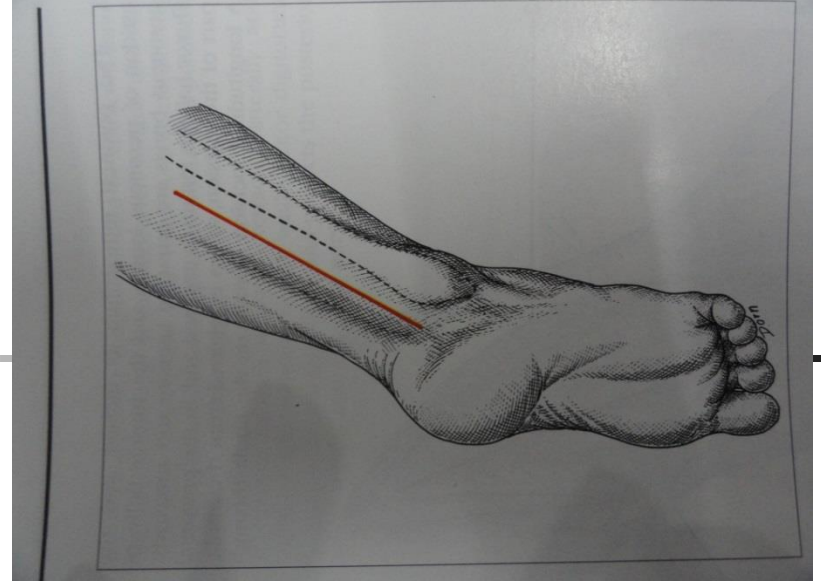
Post to Ant screw

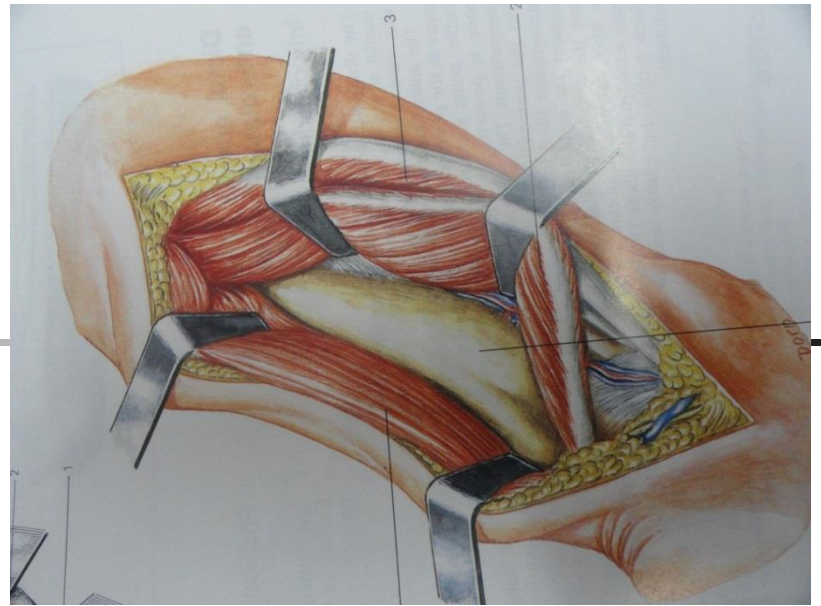
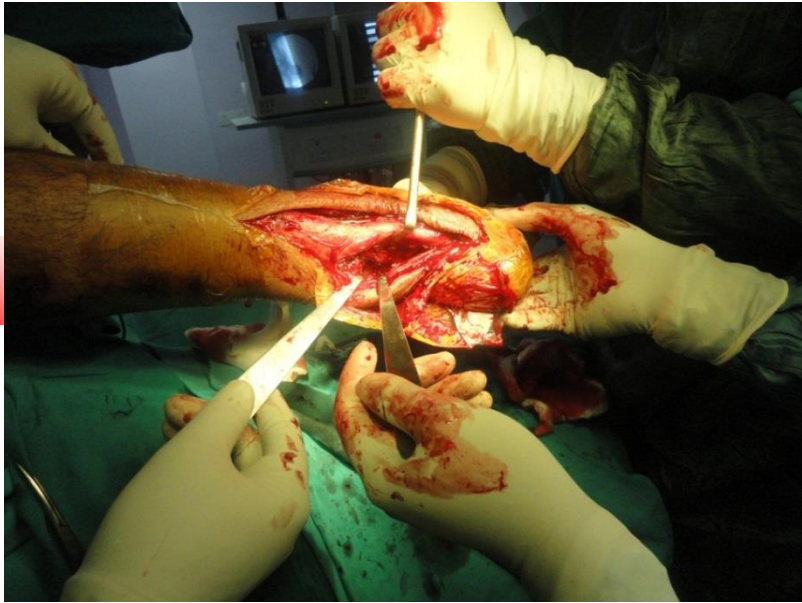




Posterolateral fragment



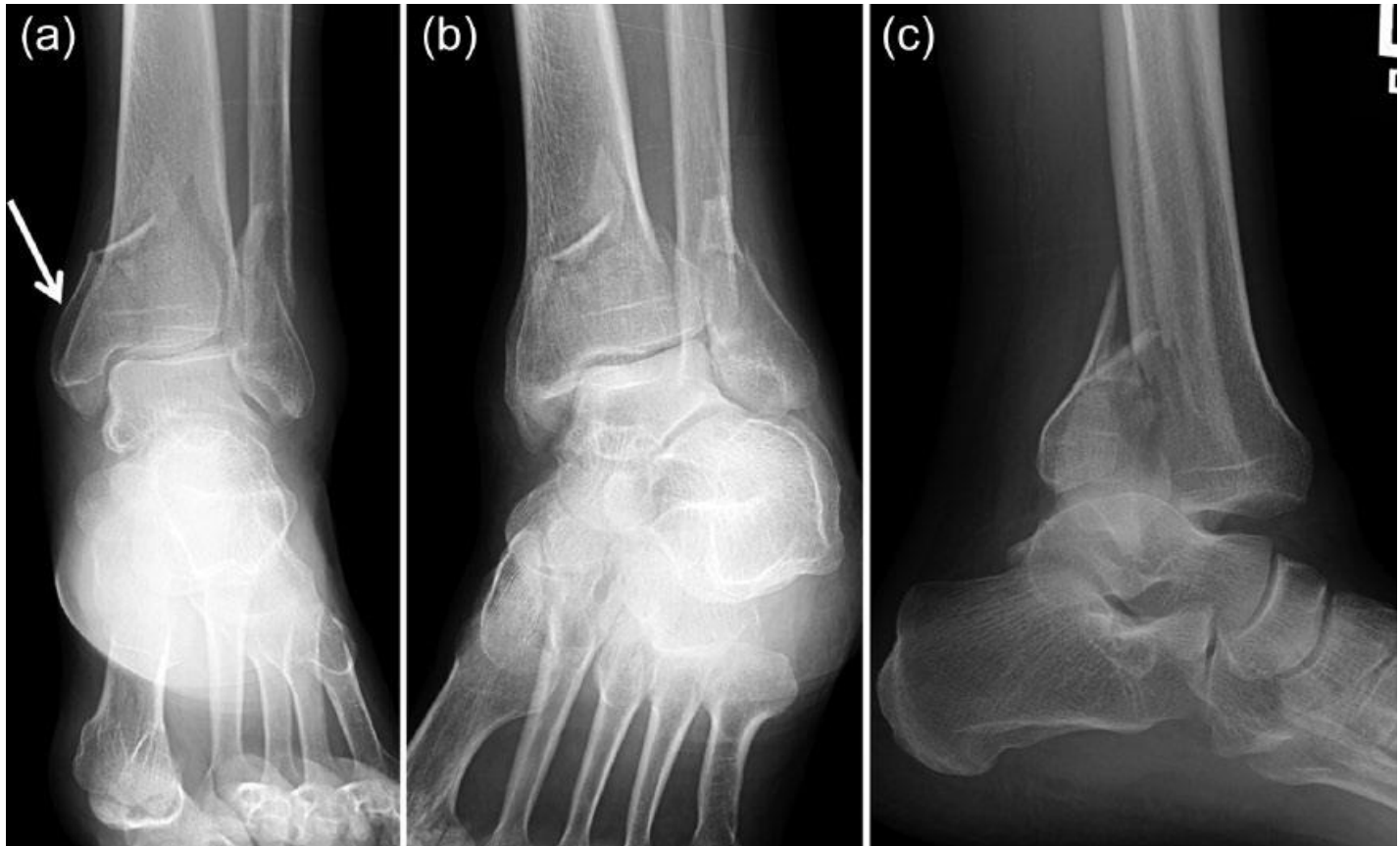






Spur sign

Pathognomonic of Postmed fragment



Spur sign Variant ankle fracture



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 AMERICAN ORTHOPAEDIC
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**Ankle Fracture Spur Sign Is
Pathognomonic for a Variant
Ankle Fracture**

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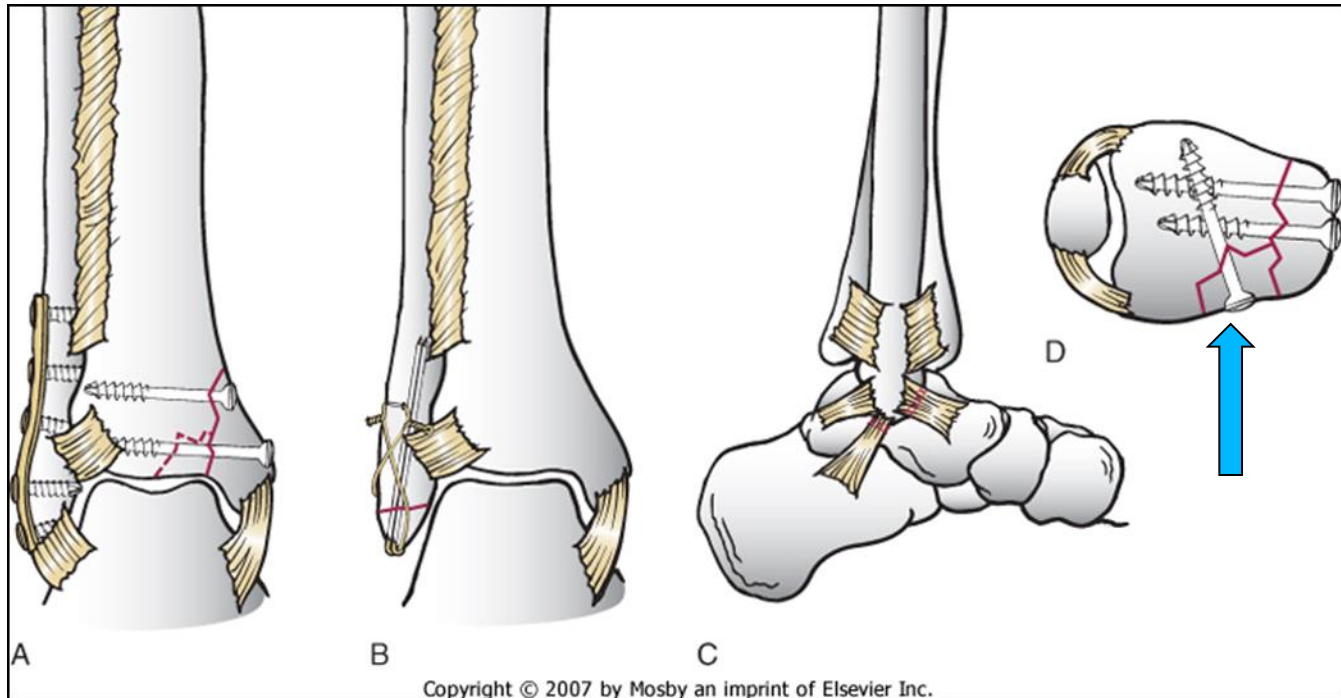
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and Dean G. Lorich, MD^{1,6}**

Abstract
Background: The hyperplantarflexion variant ankle fracture is composed of a posterior tibial lip fracture with posterolateral and posteromedial fracture fragments separated by a vertical fracture line. This infrequently reported injury

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Post med fragment



Post Med Fragment







Hyperplantarflexion variant ankle fracture

- # post tibial lip
- Unique characteristics of rotational ankle and pilon fractures
- Low energy injury in elderly people

Separate screw for Post Med Fragment.





Conclusion

- Timing –soft tissues dictated.
- Posterior malleolus- anatomic reconstruction essential.
- Sequence of fracture fixation can be modified depending on the fracture anatomy.