



Standard Treatment Workflow (STW)

ANKLE FRACTURES

ICD-10-S82



DEFINITION

Classically called the 'Malleolar fractures', these are fractures of distal tibia/fibula or both

MECHANISM OF INJURY

- High-energy trauma in young patients (RTA)
- Low-energy twisting injuries in elderly

Management of patient as per ATLS protocols **Presentation:**

· Pain, swelling, deformity at the ankle

PHYSICAL EXAM Inspect

• Look circumferentially to rule-out an open fracture **Palpate**

 Tenderness at the ankle Rule out compartment syndrome when pain + on

passive stretching of toes Assess

Any differences in pulse examination between

- extremities Suspected vascular injury Inability to move toes actively - Suspected
- Tendon injury/nerve injury
- Dislocated ankle

- A. Airway and cervical spine
- B. Breathing and ventilation
- C. Circulation and haemmorhage control
- D. Disability and neurological
- E. Exposure and environment control

Open fracture STW

Fasciotomy and external fixator application

Urgent reduction and immobilization

INVESTIGATIONS RADIOGRAPHS

· AP View (up to knee joint to look for high fibula fractures)

WEBERS CLASSIFICATION

- Lateral View
- Mortise view
- Stress views Weight-bearing and external rotation stress views in suspected syndesmotic injuries

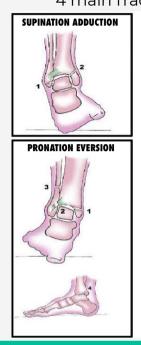
CT SCAN (DESIRABLE)

- Detailed assessment of fracture patho-anatomy
 - To look for suspected posterior malleolar fracture
 - To look for impaction
- Preoperative planning for operative approaches and fixation techniques

CLASSIFICATION

LAUGE HANSEN CLASSIFICATION

4 main fracture types based on mechanism of injury SUPINATION EXOROTATION











MANAGEMENT

GOALS OF TREATMENT

Restoration of joint stability

- · Anatomical reduction of the articular surface
- Maintenance of ankle joint and medial clear space
- · Assess and manage the

Choice of implant is related to

- Fracture pattern
- Degree of displacement
- Familiarity of surgeon Fibula (Lateral malleolus)
 - Anti-glide plating
 - Anatomical locking plates
 - Screw/K-wire/TENS

Medial Malleolus

 Screws – ensure proximity to strong bone tibia plafond

IMPLANT OPTIONS

- lension band wiring
- Anti-glide plating (SAD injury)

Posterior malleolus

- Cancellous cannulated screws
- Buttress plating

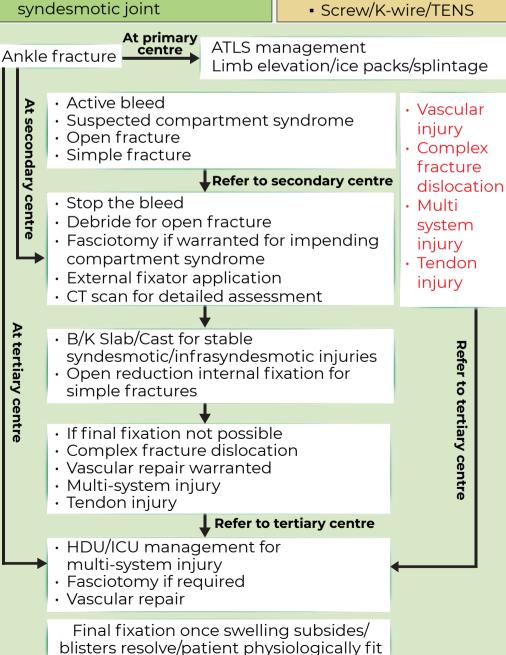
Syndesmosis

- Screws
- Tightrope

Ankle spanning Ex-fix – for temporary splintage

Open fractures

Waiting for soft tissues to settle until definitive surgery



Ankle fracture X-Ray Ankle dislocated No dislocation Stable fracture Closed Reduction, check X-ray | Unstable fracture (Syndesmosis intact Medial joint space Assess need for external fixator – Skin condition/ maintained in stress swelling/blisters/compartment syndrome views) Open reduction internal fixation should be performed only after appearance of "wrinkle sign" B/K Slab Open reduction & internal fixation after CT scan Review in out patient Isolated Bimalleolar Trimalleolar department at 5-7 Medial/Lateral fractures fracture days malleolar fractures Re-assess the Single approach Dual approach fracture reduction MM-Antero-Fix simple fracture first whether satisfactory medial with (Usually fibula) screws Fix the second fracture (MM) LM - Lateral Yes check syndesmotic stability approach with antiglide If unstable – Fix with screws Convert to cast and plate/anatomical (2 preferable)/tightrope keep for 6 weeks plate

Dual approach Try to fix -2 malleoli (LM + PM/MM + PM) from a single approach as

Plan approach after CT assessment

per surgeon comfort, third malleolus by another approach Non weight bearing mobilisation and exercises should be initiated

early. Hip, knee, toes ROM during cast application and ankle ROM after removal of plaster

ABBREVIATIONS

ATLS: Advanced Trauma Life Support **HDU:** High Dependency Unit

AP: Antero-posterior

ICU: Intensive Care Unit LM: Lateral malleolus MM: Medial Malleolar

PM: Posterior Malleolus **ROM:** Range of Motion RTA: Road Traffic Accident **SAD:** Supination Addiction TENS: Titanium Elastic Nail System

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TIMELY REFERRAL AS PER RESOURCE SETTING