Skin & Skeletal Traction

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Principles of # management

- Reduction
- Immobilization long enough to allow union
- Rehab of soft tissues & joints
Methods of reduction

- Traction
- External splintage/bracing
- External fixation
- Internal fixation
Traction – why does it work?

- Pulling on broken limb draws it into line
Requirements

- Strong enough to overcome muscle power
- Not so strong that it holds ends apart
Types of traction 1 - Skeletal

- Applied through pins passed through bone
- More comfortable than skin traction
Pin types

- **Steinmann.** Trocar point, smooth sides
- **Denham.** Central threads prevent lateral slippage
- Beware removing threaded pins!
How to do it

- Drill pins through bone with hand drill or T handle
- If pt awake infiltrate periosteum with LA
- NEVER try to hammer pin through bone
- Keep entry point clean to avoid pin track infection
Types of traction 2 - Skin

- Applied by adhesive strapping
- Weight applied INDIRECTLY to bone via soft tissues
- Upper limit 5 kg
- Used in children & temporary measure in adults
Traction mechanics

- Easy!
- Every force has an equal & opposite force
- The opposite force can be applied in 3 ways
Fixed traction with a splint

Thomas splint
- Lower end has V shape to hold skin traction cord.
- Counter pressure = padded leather ring under ischial tuberosity
- Limb stretched with tongue depressors in traction cord (Spanish windlass)

Displacement of a femur fracture
- Muscles causing the displacement
- How to align the Thomas Splint. Also raise foot-end to provide flexion
Fixed traction using gravity

- Gallows traction
- Child must weigh < 12 kg
- Skin intact
- Both femora placed in skin traction.
- Infant suspended from special frame.
- Vascular compromise is biggest danger.
- Buttocks should be just off the bed.
Sliding traction

- Hamilton-Russell
- Single cord applies horizontal force that is twice vertical force (velocity ratio 2 due to 3 pulleys on horizontal run)
- 1 kg wt will exert 1 kg upward and 2 kg longitudinal pull
Balanced traction

- Suspend broken limb in “gravity-free field”
- Prevents # fragments rubbing when pt rolls over
- e.g. Thomas splint with weight & pulley at each end
- Easy nursing, avoids pressure sores
- Can lift pt with 1 finger
- No weights act on #, this must be controlled with longitudinal traction
"I guess you two won't be reading the Kama Sutra again."

Thank you