Distal Tibial Locking Plate
Features, Technique and Tips

Gavin Bowyer
Southampton University Hospitals, UK
AxSOS Locking Plate System

- Five peri-articular plates covering four anatomical regions:
  - distal tibia
  - distal femur
  - proximal humerus
  - proximal tibia
AxSOS Locking Plate System

- Proximal Lateral Humerus
- Proximal Lateral Tibia
- Distal Antero-lateral Tibia
- Distal Medial Tibia
- Distal Lateral Femur

- 4.0mm Locking Screw
- 5.0mm Locking Screw
AxSOS Implant Overview – Distal Tibia

Special Features

• Locking Screws
  • Better resistance to pull out

• Three unthreaded holes in Metaphysis
  ▶ Lagging through the plate for fixation of splits

• Anatomical Design
AxSOS Locking Insert

- Converts standard SPS hole into MonoAxial Locking hole
- Stainless Steel
When might we use a locking plate?

- Elderly/osteoporotic fractures
- Non-unions or re-do surgery
- Comminuted or bone loss zone
Antero-lateral distal tibia
Antero-medial distal tibia
Distal Tibial Fixation - Techniques
- Assess plate length
  - guide as “template”
- Assemble locking hole guide block on plate
- Consider contouring (then re-consider!)
- Place any distal compression screws (lag thru’ plate)
- Check siting of locking screws
  - K-wire through k-wire sleeve
Stabilise plate with k wire and compression screw

Prepare for first distal locking screw
- Guide
- Drill
- Screw
Measure screw length
Off wire
Off drill
Conventional depth gauge
Off calibrated drill
Final Distal Construct
- Do not add compression screws!!
Decide on proximal construct
Add locking inserts (if not pre-planned)

NOT using drill sleeve
Ensure positive click in
Lock insert removal

- Do not insert a compression screw after any locking screw in that fracture segment.
Advanced techniques

- Percutaneous/minimal access plate insertion
Percutaneous proximal screw insertion
Tips and Tricks

- Use drill guide for locking screws
- Tap thick cortical bone if locking
- Start and finish locking screws by hand (not with power)
What have we learnt?

- V good anatomical fit
  - Think twice before bending plate

- Think carefully about order of screws
  - Lag and reduce first

- Place locking inserts before plate insertion

- Cluster distal screws

- Use two cortices in proximal osteoporotic bone

- Know what to expect on X-rays!!
Distal Tibial Fractures
AxSOS locking plates

- Difficult fractures
  - Osteoporotic
  - Bone defects
- When all else fails!
  - But use carefully
  - (open until confident)