Update in open lower limb fracture
Treatment Guidelines

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Specialist centers

- Why specialist centers?
- The characteristics of open injuries
Primary management in the emergency department

- Initial assessment
- Hemorrhage control
- What to do with the wounds
- Limb splintage
- Antibiotic and D2T5
- Radiology test
Antibiotic prophylaxis

- As soon as possible, at least within 3 hours.
- The antibiotic of choice:
  - Cephalosporin 1st generation
  - D2T5
  - Aminoglycoside
  - Penicillin if any dirt contamination.
Timing of wound DEBRIDEMENT in open fractures

- Immediate surgical management:
  - Gross contamination of the wound
  - Grade II and III
Classification of open fractures

- Accurate, simple and reproducible systems for classification of lower limb injuries facilitate communication between health care professionals, assist transfer of appropriate cases to specialist centers and should lead to a treatment plan.

- Gustilo-Anderson Classifications
  - Type I
  - Type II
  - Type III
Timing of soft tissue reconstruction

- Local flaps are safely performed at the same time as skeletal fixation. Internal fixation is only undertaken if soft tissue coverage can be performed at the same time.
- Free flap reconstruction is best performed on scheduled trauma lists by experienced surgeons.
- Recommendation that definitive soft tissue reconstruction be undertaken within the first seven days after injury.
Vascular injuries

- Devascularized limbs are a surgical emergency. The aim is to restore circulation within 4 to 6 hours of the injury, after which muscle death begins. The maximum acceptable delay is six hours of warm ischemia time.
Compartment syndrome

- Compartment syndrome is a surgical emergency and must be diagnosed promptly and treated.
- The early signs are paresthesia in the distribution of the sensory nerves passing through the affected compartment and disproportionate pain, especially on passive stretch of the affected muscles.
- These important signs may be affected by the previous administration of peripheral nerve blocks and regional anesthesia, as well as by the presence of nerve injury.
When things go wrong with soft tissues

- Necrosis of a local flap over the fracture site is managed by early return to theatre and revision surgery to achieve healthy soft tissue coverage.

- Deep infection requires a return to fracture site exploration, debridement, dead space management and antibiotic therapy. Fracture fixation may need revision.
When things go wrong with bone

- Early complications with bone occur as a consequence of the original injury or from surgery.

- Problems that present are
  - Sepsis
  - Wound infection
  - Osteomyelitis
  - Nonunion, malunion
Four things to remember…

• Complex fractures get transferred to a specialized centre.

• Initial management: clean gross contamination, splint it and ship it.

• Antibiotics/D2T5 ASAP for any open fractures.

• Low grade fractures can wait to go to OR in the morning.
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