FOOT COMPARTMENT SYNDROME

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DISCLOSURES

- AO North America

QUICK POLL

- If you smashed your foot between your Harley and your garage door on your way home from work and developed compartment syndrome, would you want your foot compartments released?
- If you had a calcaneus fracture?
- If you had metatarsal fractures?
OBJECTIVES

- Anatomy of foot
- Pathogenesis
- Advantages of Release
- Disadvantages of Release
- Complications
- Results

ANATOMY

- 9 compartments =
  - 2 medial/lateral
  - 2 superficial/deep
  - 4 interosseous
  - 1 adductor
  - ? dorsal compartment?

PATHOPHYSIOLOGY

- Muscle injury that leads to edema
- Fascial compartments restrict the space available
- Circulatory compromise
- Cell death
- Osmolality mismatch causes increased pressure
- Eventual full compartment death
- Banana
**PATHOPHYSIOLOGY**

- Muscle studies:
  - 4 hours reversible damage
  - 6 hours variable
  - 8 hours irreversible damage

**EVALUATION**

- Remove restrictive dressings
- Keep foot at level of heart
- Avoid hypotension
- Serial Exams

**DIAGNOSIS**

- Clinical
- Increasing Pain
- Swelling
- Pain with passive dorsiflexion
- Decreased sensation
- Pulses
- Pressure Monitoring
DIAGNOSIS

- > 30 mm/Hg
- within 10-30 mm/Hg of diastolic BP
- calcaneal compartment pressures are highest
- serial measurements

ACUTE TREATMENT

- 3 incision fasciotomies:
  - medial, 2 dorsal
  - address fractures/dislocations
  - release asap

DELAYED TREATMENT

- pain control
- immobilization, supports
- sleepless nights/cocktails
**DELAYED TREATMENT COMPlications**

- muscle contractures (claw toe)
- painful or insensate neuropathy
- deformities
- possible surgical correction
- chronic pain
- hard to predict

**ACUTE TREATMENT COMPlications**

- muscle contractures (claw toe)
- painful or insensate neuropathy
- deformities
- possible surgical correction
- chronic pain
- infection
- multiple surgeries
- skin grafts or soft tissue coverage

**RESULTS**

- no studies comparing acute release vs. delayed treatment
- most foot compartment syndrome studies are very small and include the lower leg as well
- mostly case reports
- no predictive signs of which complications patients are likely to develop, but worse complications seem to result from higher energy injuries
PERSONAL OPINION

- Suspect it in everyone
- Discuss it with your patient
- Severe high-energy traumas with complex injuries tend to get fasciotomies

SUMMARY

- Uncommon condition
- 9/10 compartments
- High level of suspicion
- Pressure monitoring
- Discuss it with your patients
- Release compartments early
- Prepare yourself for complications
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THANK YOU