



Leg Compartment Syndrome Podcast Notes w/ Dr. Earhart

Causes:

- Crush injury
- Fracture
- Trauma
- Tight casts
- Thermal injury, burn eschar
- Extravasation of IV fluids
- Reperfusion injury following prolonged ischemia
- traction

Pathophysiology

- Increased tissue pressure > ischemia > irreversible muscle damage
- Increase in venous pressure lead to decrease in AV gradient > not sufficient blood flow to meet metabolic demands of tissue
- Muscle ischemia > release of myoglobin from damaged muscle cells > released during reperfusion (hyperkalemia, metabolic acidosis, myoglobunuria > kidney failure)

Physical Exam:

- 6 P's- pain, pressure, pulselessness, paralysis, paraesthesia, pallor
- Pain out of proportion
- Pressure / firmness in compartment- earlies sign
- Pain w/ passive stretch of compartment muscles - most sensitive
- Paresis- late
- Around a mean of 7 hours after manipulation
- If equivocal PE or pt intubated - compartment pressures can be obtained
 - Within 30mm diastolic BP is positive

Compartment pressure checks

- If compartment >30mmHg from diastolic- normal muscle function to be expected
- Ischemic threshold of muscle- perfusion pressure of at least 20mmHg between compartment + diastolic BP
- Slit catheter- can check continuous compartment pressures over period of hours
- Side port needles-
- Pressures should be measured within all compartments within 5cm of level of injury

Lab tests

- Serum creatine phosphokinase 0 reflects muscle necrosis

Treatment

- Release dressings

- Limb should NOT be elevated from pts heart in order to maximize perfusion while minimizing swelling
- Fasciotomy

Gluteal

- Posterior incision- access to gluteus maximus + abductor muscles
- Thigh- long single lateral incision, occasionally medial incision
- Lower leg
 - 1 or 2 incision
- 1 incision

Emergent compartment check in OR

- Arterial line setup, tubing passed to anesthesia
- Compartments checked
- Pressures should be measured within 5cm of fx, measure all compartments
 - Lateral compartment- pierce fascia over fibula
 - Anterior- 2cm lateral to anterior tibial crest
 - Medial- deep posterior compartment- pierce fascia 1cm posterior to medial posterior border of tibia
 - Posterior- superficial posterior- midline about posterior calf