

Compartment Syndrome



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- Compartment syndrome is raised pressure in an osseofascial compartment to a level that compromises tissue perfusion.
- There are several causes of compartment syndrome, fractures being the most common (70%), followed by soft tissue contusions (23%).
- Rarer causes include: bleeding disorders including anticoagulation, burns (particularly circumferential 3rd degree burns); post-ischaemic swelling (reperfusion injury); tight casts/dressings; and extravasation of intravenous infusions (contrast under pressure).



Pathophysiology

- The pathophysiology involves increased tissue pressure, which leads to reduced microperfusion resulting in tissue ischaemia and irreversible muscle damage from cellular anoxia.



Clinical features

- Disproportionate pain
- Pain on passive stretching of involved compartment
- Peripheral pulses are present in most cases
- Altered sensation- late sign



Diagnosis

- Compartment syndrome is a clinical diagnosis characterized by pain out of proportion, increasing pain and pain on passive stretch.
- Paralysis, paraesthesia and pallor are late signs and pulselessness is an extremely late sign.
- Compartment pressure monitoring may be useful in cases of diagnostic uncertainty and in patients with altered levels of consciousness (intubated, head injury).



- Measure multiple sites near but not in the fracture site, in all the compartments of the affected limb.
- Generally accepted pressure thresholds include an absolute pressure greater than or equal to 30 mmHg or pressure difference (diastolic pressure compartment pressure) less than or equal to 30 mmHg.



Management

- Emergency treatment involves splitting casts and or dressings to the skin and elevating the extremity.
- Senior input should be sought and arrangements put in place to perform definitive treatment with fasciotomies.



Common pitfalls to remember

- The incidence of compartment syndrome associated with high and low energy injuries is nearly equal.
- Compartment syndrome can occur in open fractures.
- Have a high index of suspicion and be particularly vigilant in patients with an altered level of consciousness.

