



Compartment Syndrome Guidelines

1. Evaluation:

Tissue Edema due to injury peaks within 24 – 48 hours, up to a week post-trauma especially cases requiring sequential surgical procedures, on going resuscitation, or in the presence of ischemia –reperfusion.

Signs and Symptoms:

Pain – out of proportion to the injury or with a passive stretch of muscle group is the most important clinical finding

Paralysis and Paresthesias – less useful acutely

Pulselessness – late symptom and ominous sign

Anterior leg – the most common compartment syndrome.

2. **Pressure measurement** - has significant limitation not recommended for routine use in the OR. Serial clinical exam are repeated hourly when risk is high and less frequently when low. Documentation is important for later provider and performance improvement.

3. Treatment

- Operative intervention once intra-compartmental pressure reaches a critical threshold. This should be accomplished as soon as possible, as irreversible tissue necrosis occurs within a few hours.
- Delayed or incomplete compartment release has been associated with increased mortality and need for amputation in military casualties.⁶ Therapeutic fasciotomy is performed for established compartment syndrome while prophylactic fasciotomy is performed for limbs at risk of developing CS

4. **Fasciotomy** – complete fasciotomy must be performed. This involves releasing all compartments in the affected anatomic region over their full length. In the calf/leg, the anterior, lateral, superficial posterior and deep compartments must be released through full length incisions

The most commonly missed compartment syndromes are the anterior and deep posterior compartments of the calf/leg.

The most common incompletely released compartments are also in the calf/leg.⁷ Incomplete fasciotomy is associated with worse outcomes.

Common reason for incomplete fasciotomy

1. Improper identification of the septum dividing the anterior and lateral compartments. This can be avoided by making an initial transverse incision in the fascia overlying the septum, then deliberately opening the anterior and lateral compartments separately, creating a so called “H” incision.
2. Incomplete development of the deep posterior compartment release by not deliberately taking the soleus muscle fibers off the posterior tibia. If performed correctly, the neurovascular bundle should be exposed in a fully decompressed deep posterior compartment.
3. Fascial incisions are too short and do not cover the entire extent of the fascial compartment, either at the knee or ankle levels.

INTENT (EXPECTED OUTCOMES)

1. Compartment syndrome is diagnosed and treated prior to tissue necrosis.
2. When fasciotomy is indicated, a complete fasciotomy is performed.
3. Tourniquet times are documented.
4. The use of prophylactic fasciotomy is minimized.

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