EMERGENCY ESCHAROTOMY

PATHOPHYSIOLOGY.

- Eschar is inelastic & may become restrictive.
- During fluid resuscitation transcapillary extravasation from thermal injury, intracellular and interstitial oedema progresses.
- Soft tissues become progressive oedematous & pressure rises underneath the unyielding eschar.
- Venous, then lymphatic, capillary & ultimately arterial blood flow is compromised.

Be suspicious of...

- Full thickness & extensive partial thickness circumferential burns are most likely to impede peripheral blood flow.
- Circumferential chest burns may restrict chest wall movement, impairing ventilation.
- Circumferential neck burns may result in tracheal obstruction.

IMMEDIATE ESCHAROTOMY MAY BE REQUIRED...

INDICATIONS.

High index of suspicion & low threshold for intervention are essential for successful outcome.

- Based on clinical examination & compartment pressures (or both).
    - Skin temperature & pulses are unreliable & imprecise.
    - Pain, loss of sensation & paraesthesias may be present.
    - *Compartments w/ pressures >30 mmHg should be decompressed.*
    - Absent arterial flow (on Doppler) is an immediate indication.

TECHNIQUE.

Recall: full-thickness burns are insensate & involve coagulated superficial vessels.

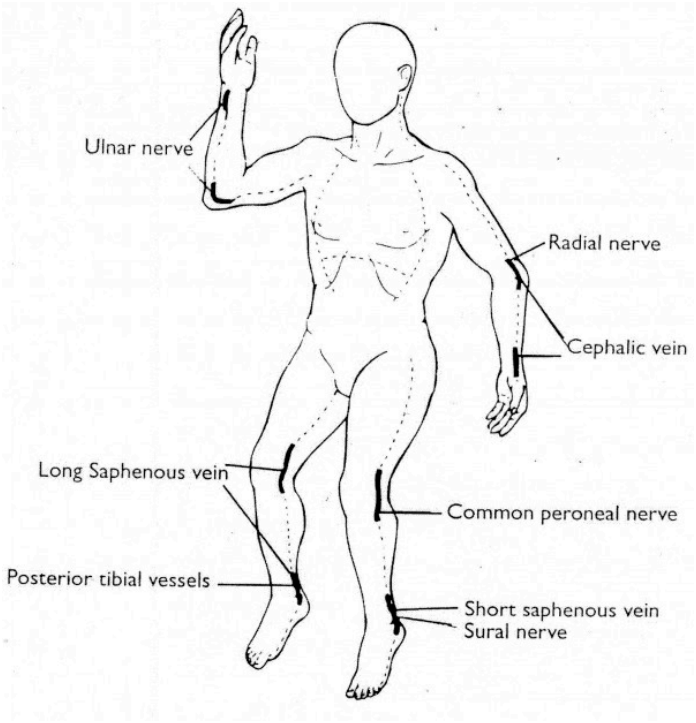
NO ANAESTHETIC IS REQUIRED...

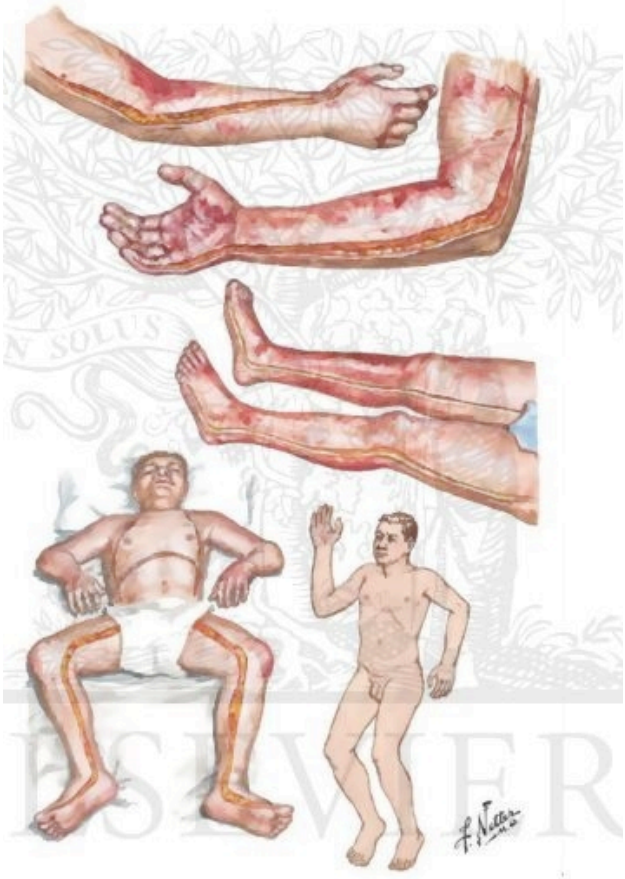
- The properly executed escharotomy releases the eschar to the depth of *subcutaneous fat only.*
- Results in minimal bleeding (controlled by pressure or electrocautery).
- These wounds are a potential source of infection and require dressing (preferably with gauze impregnated with topical antimicrobials - eg. sulfadiazine cream).
- Fasciotomy (which involves a deeper incision) may be required for thermal or electrical burns.

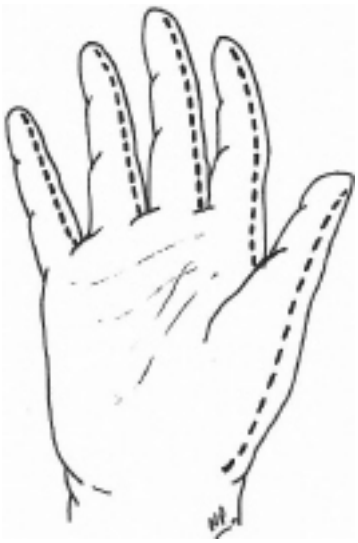
TECHNIQUE.

Limbs:

- STERILE CONDITIONS.
- Lateral & medial aspects of the involved limb are incised with scalpel.
    - ~1cm proximal to burned area to ~1cm distal to involved area.
- Incision made through full thickness of skin only.
    - Results in immediate separation of constricting eschar to expose subcutaneous fat.
- Care must be taken to avoid *vital structures,* eg. radial or ulnar nerve, common peroneal nerve or posterior tibial artery (see image below).

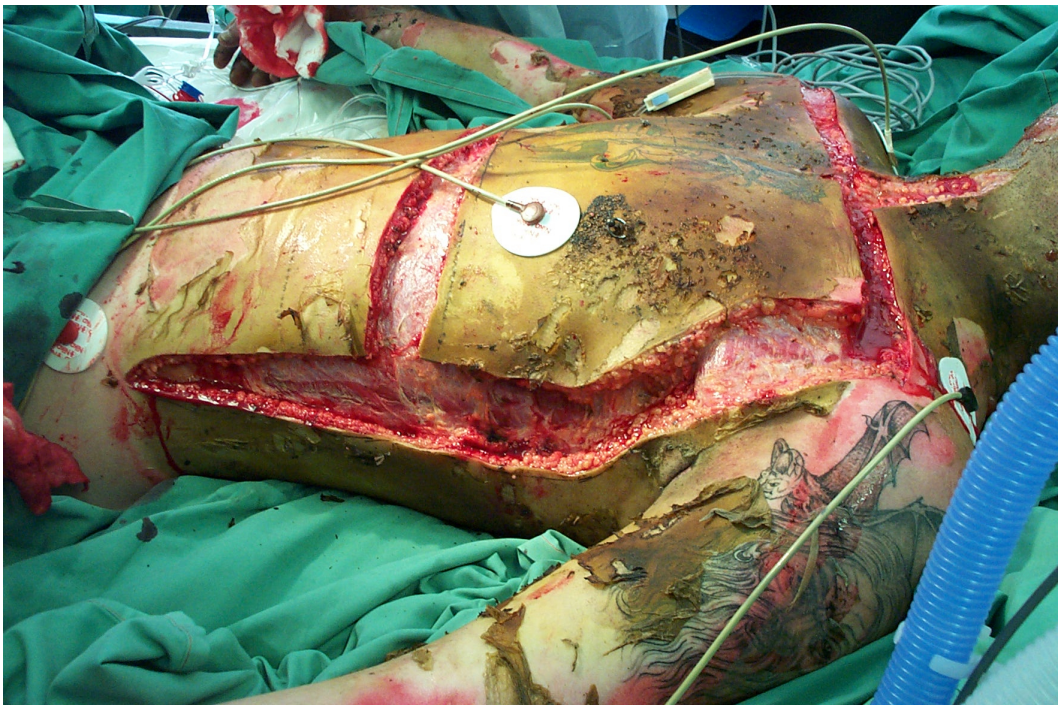






Chest:

- May be required to improve ventilation.
- Incision extends from *clavicle to costal margin* (anterior axillary line, bilaterally).
    - Avoid breast tissue in females.
- May be joined by transverse incisions.



Neck:

- Should be performed laterally & posteriorly to avoid the carotid & jugular vessels.

Penis:

- Performed *mid-laterally* to avoid the dorsal vein.

COMPLICATIONS.

Include:

- Bleeding, infection & damage to underlying structures.
- Inadequate decompression of tissues.
    - Myoglobinuria, ARF, hyperkalaemia & acidosis.
    - Amputation.