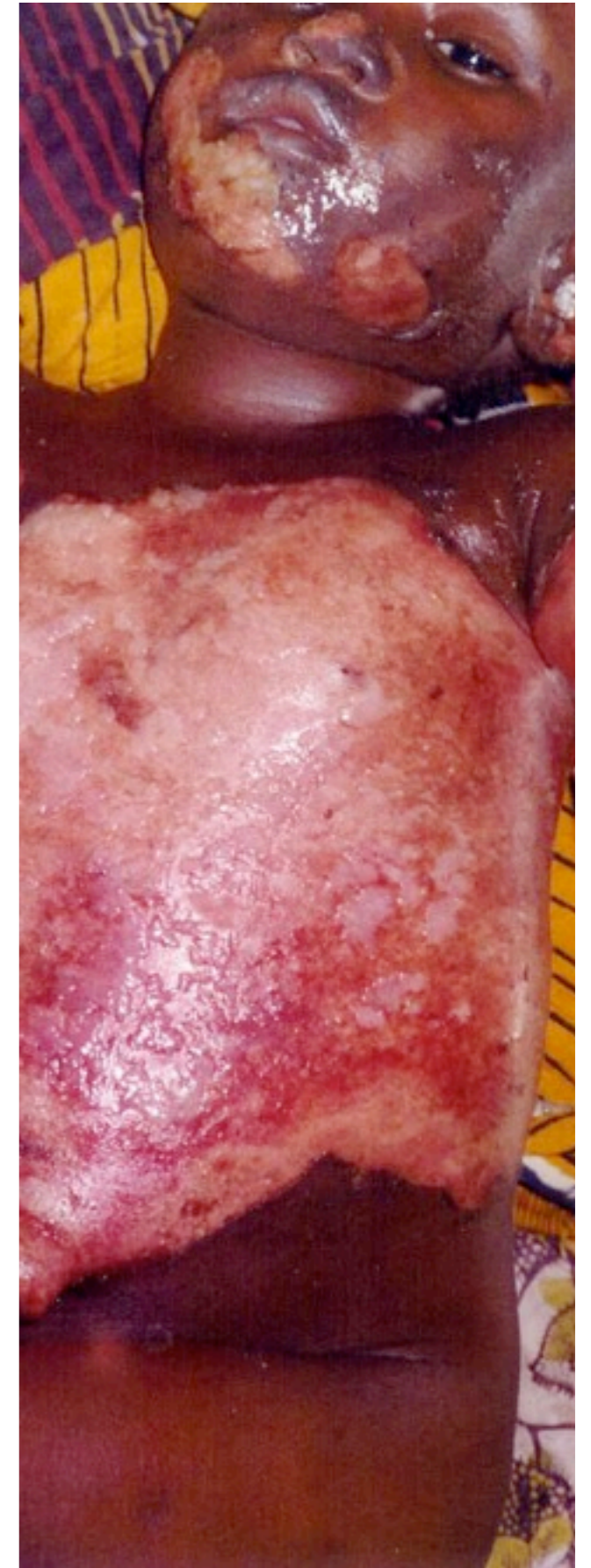




BURNS

Mr Colin Dibble
Consultant in Emergency Medicine
North Manchester General Hospital



Contents

- Types
- Pathophysiology
- Clinical Features and assessment
- Management
- Referral
- Chemical and Electrical burns



Types

Thermal
Chemical
Friction
Radiation

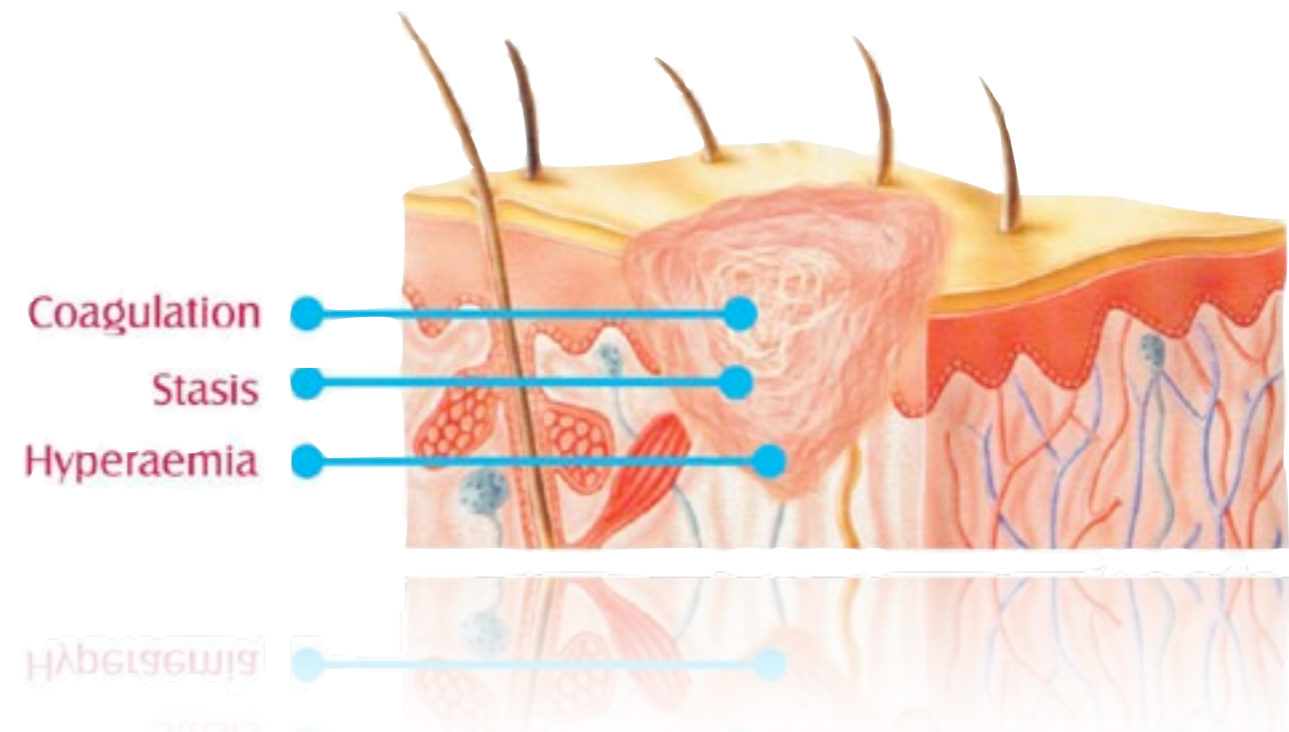


Pathophysiology

- Skin layers and function:
- Local/Systemic effects of thermal injury:
- Prognosis: %+age >100 = dismal prognosis
- Zones:

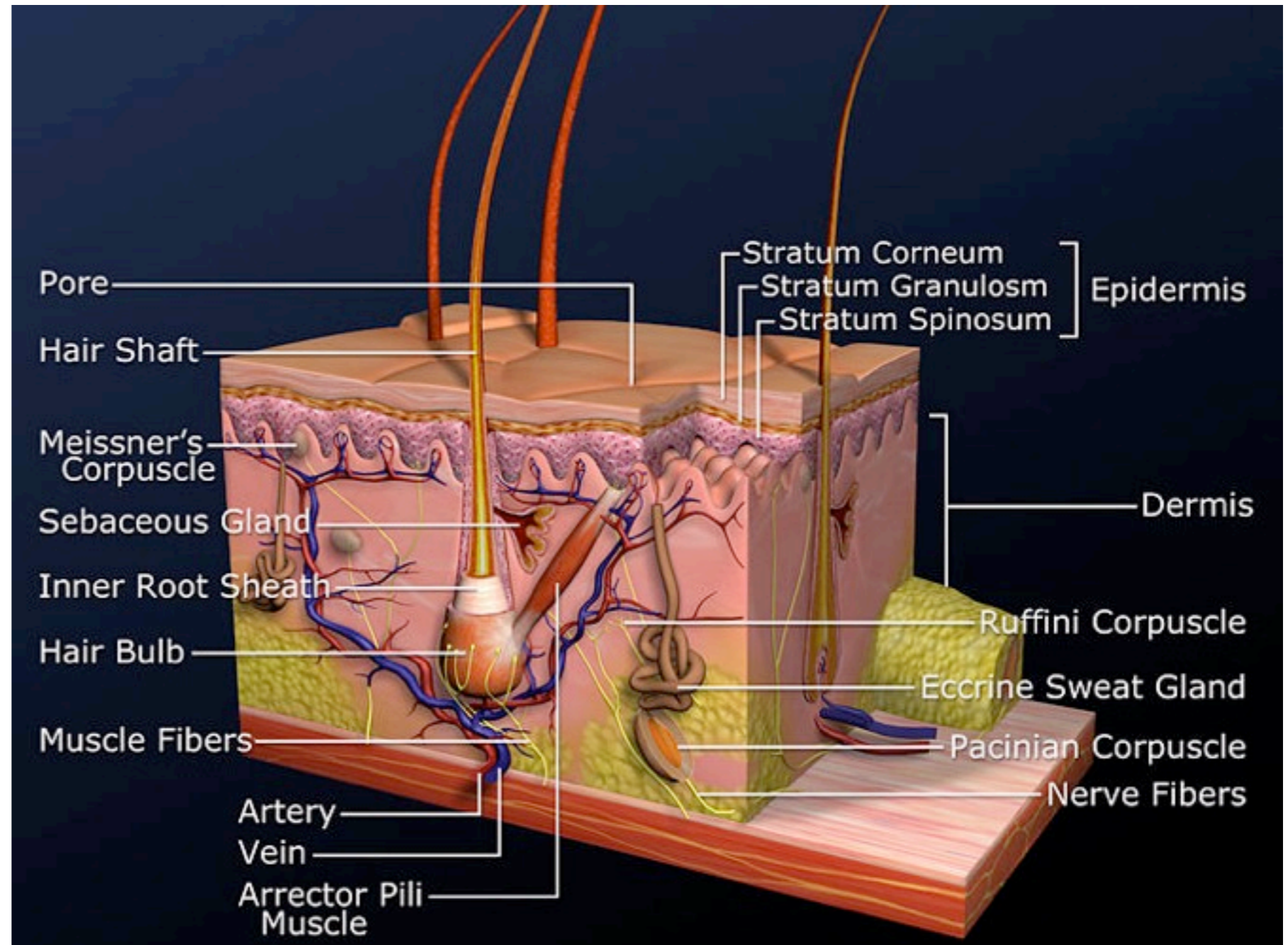
Pathophysiology

- Skin layers and function:
- Local/Systemic effects of thermal injury:
- Prognosis: %+age >100 = dismal prognosis
- Zones:



Skin

- largest organ-15% BW
- 1.5-2 m²
- most 2-3mm thick
- temperature, immune, vit D production, sensation, water retention

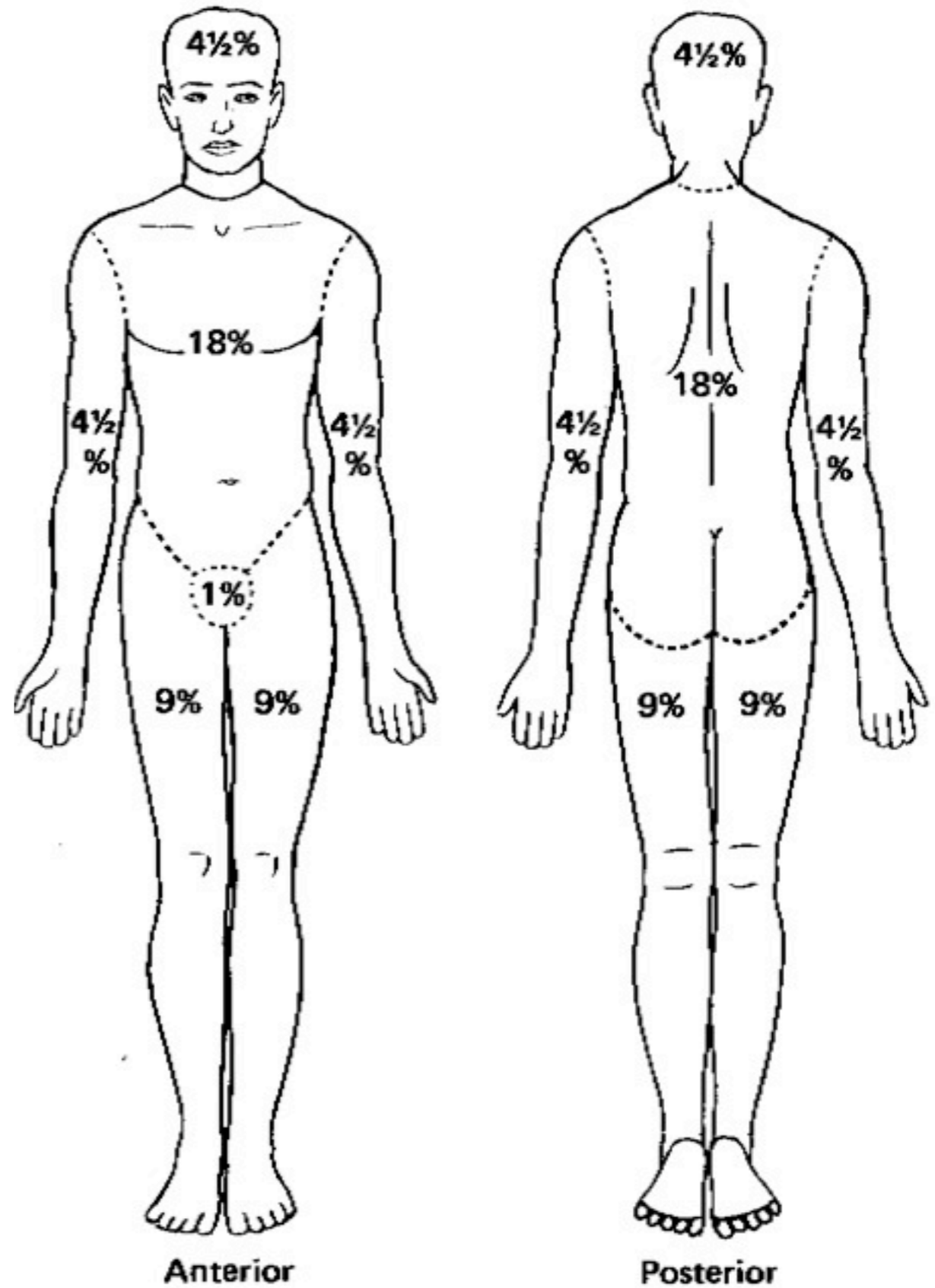


Local/Systemic Effects

- Local
 - Loss of thermoregulation barrier immune/water retention function
 - Inflammatory response and pain
- Systemic (more severe burns)
 - Increased haematocrit early, anaemia later
 - Hypothermia, hypovolaemia, hyperkalaemia
 - Reduced immunity
 - Renal damage from myoglobin
 - Cardiac output reduced in >60% burns
 - Stress ulcers in stomach

Clinical Features

Surface Area;
Rule of Nines (Wallace)

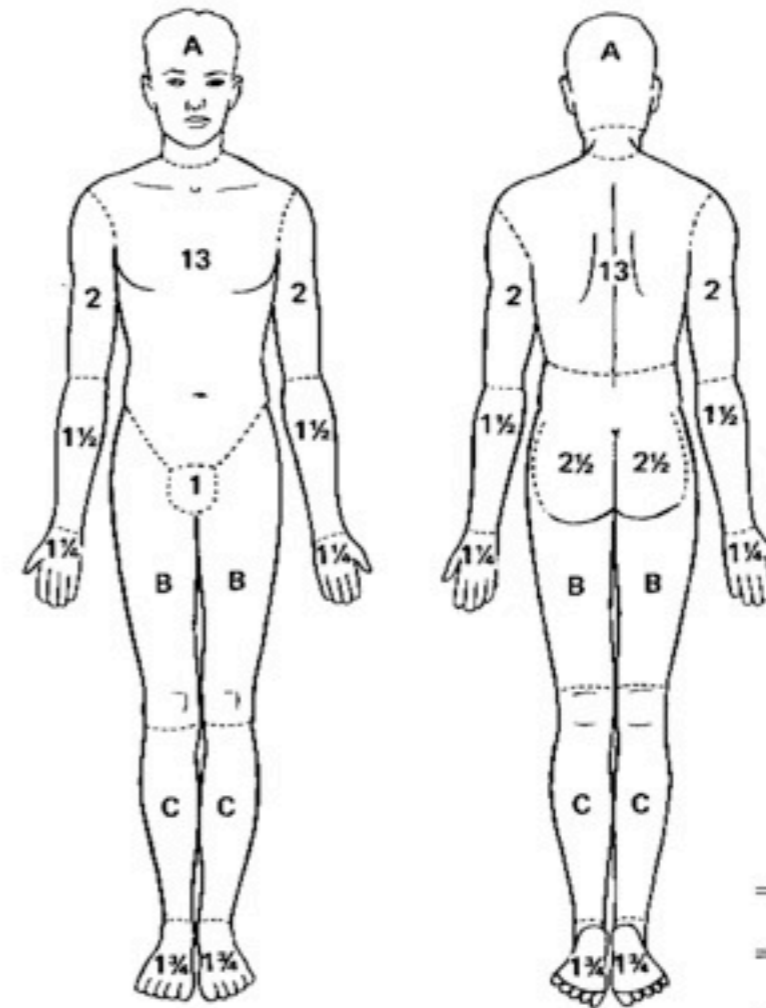


Clinical Features

Lund and Browder chart

BURN SHEET

Name AGE NUMBER
 BURN RECORD. AGES 7 TO ADULT. DATE OF OBSERVATION



= 1ST DEGREE
 = 2ND DEGREE
 = 3RD DEGREE

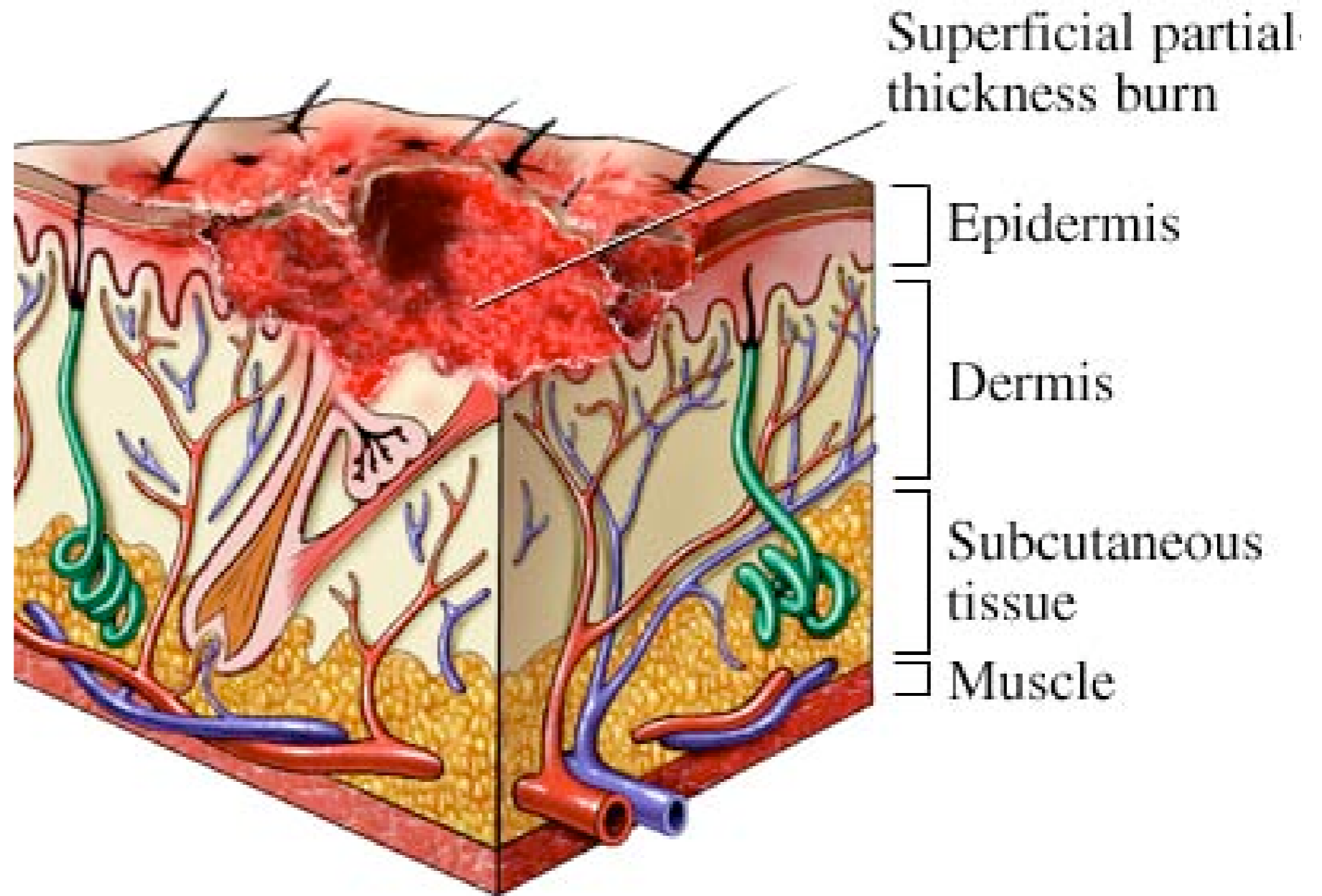
RELATIVE PERCENTAGES OF AREAS AFFECTED BY GROWTH

AREA	AGE 10	15	ADULT
A 1/2 OF HEAD	5 1/2	4 1/2	3 1/2
B 1/2 OF ONE THIGH	4 1/4	4 1/2	4 1/2
C 1/2 OF ONE LEG	3	3 1/4	3 1/2

% BURN BY AREAS

PROBABLE 3RD° BURN	{ HEAD ... NECK ... BODY ... UP. ARM ... FOREARM ... HAND GENITALS BUTTOCKS THIGHS LEGS FEET
TOTAL BURN	{ HEAD ... NECK ... BODY ... UP. ARM ... FOREARM ... HAND GENITALS BUTTOCKS THIGHS LEGS FEET

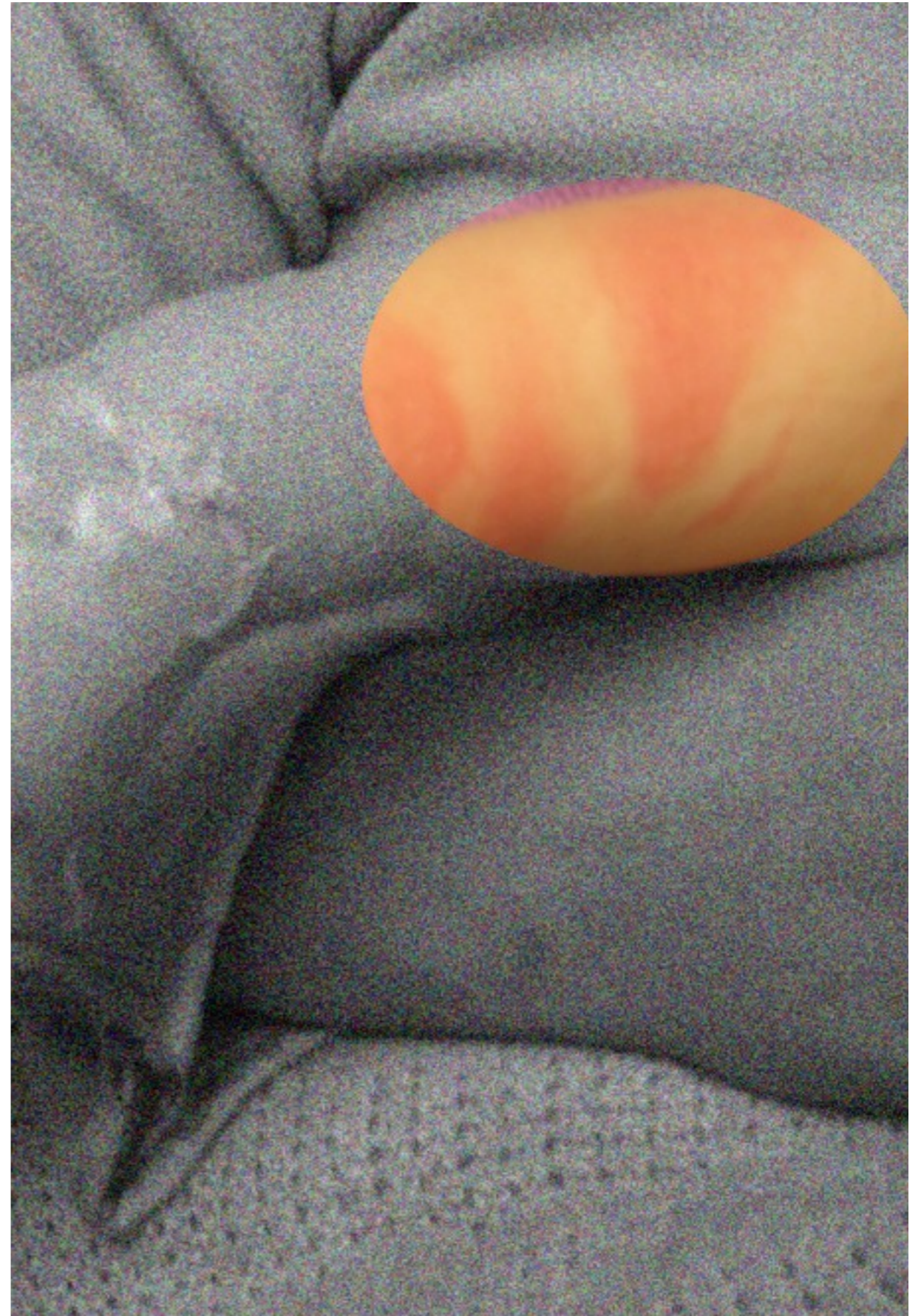
1. Superficial
2. Partial thickness (superficial and deep)
3. Full thickness



Depth

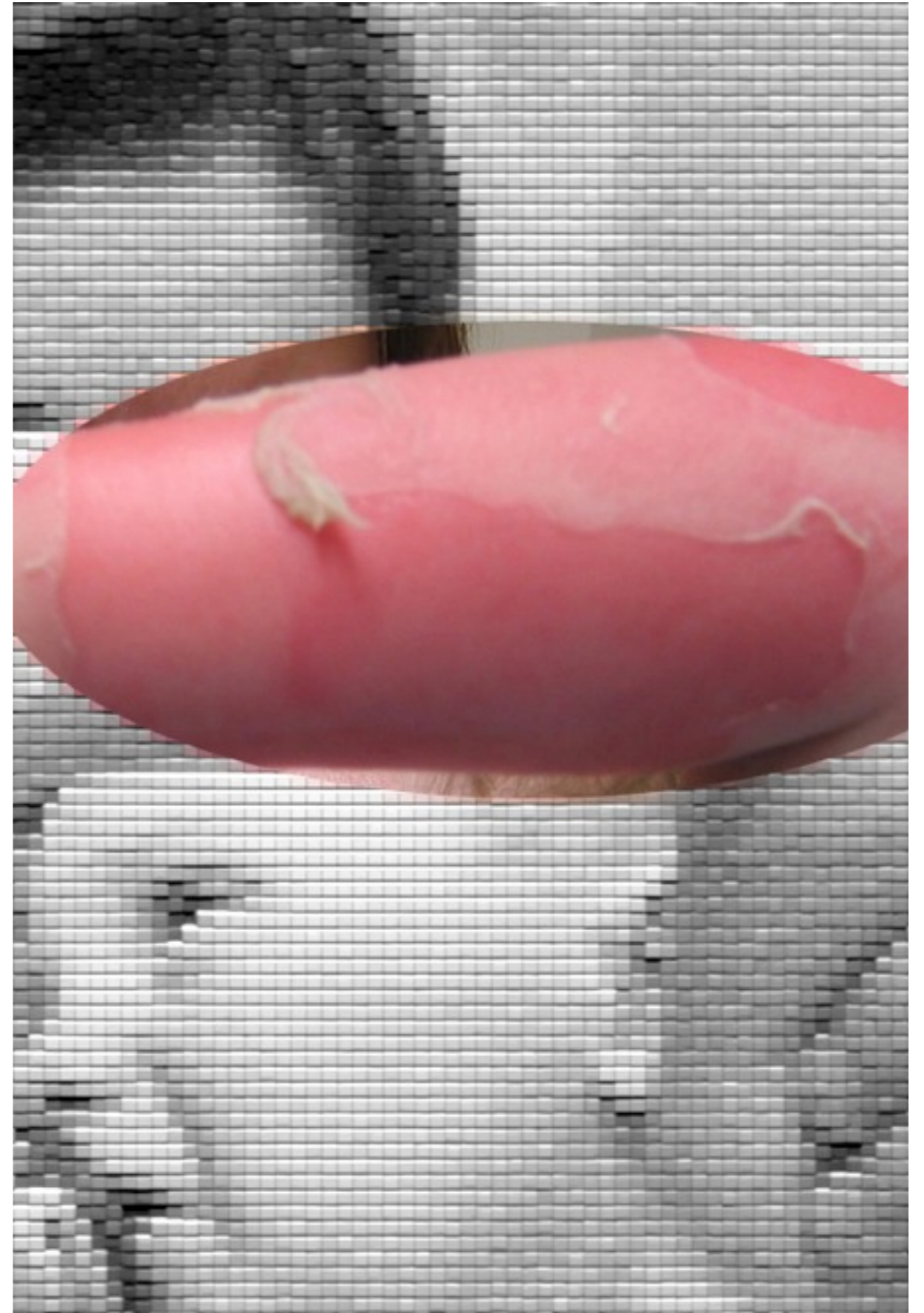
Depth: Superficial

- Erythema eg sunburn
- Painful
- Blanching
- No blistering
- Don't include in surface area calculations



Depth: Superficial Partial thickness

- Spares deep dermis
 - Sweat glands/hair
 - Follicles/sebaceous.
- Painful, pos. cap. refill, blistering.
- Heals in 14-21 days, min/no scarring



Depth: Deep Partial Thickness

- Painful
- Reduced sensitivity
- Mottled
- Some oedema
- Few blisters (often peeling sheets)



Depth full thickness

- Entire thickness
- Minimal pain
- Non-blanching
- Leathery/waxy
- Charred
- Needs grafting



Management

- Caution/Remove source (prehospital)
- Airway risk (carbon sputum, singed nasal hair, hoarse voice, etc) early intubation. (Inhalational injury)
- O2/IV access and fluids
- Analgesia (entonox/morphine)
- Assess depth and percentage surface area
- Cover (cling film then dressings)
- Refer?

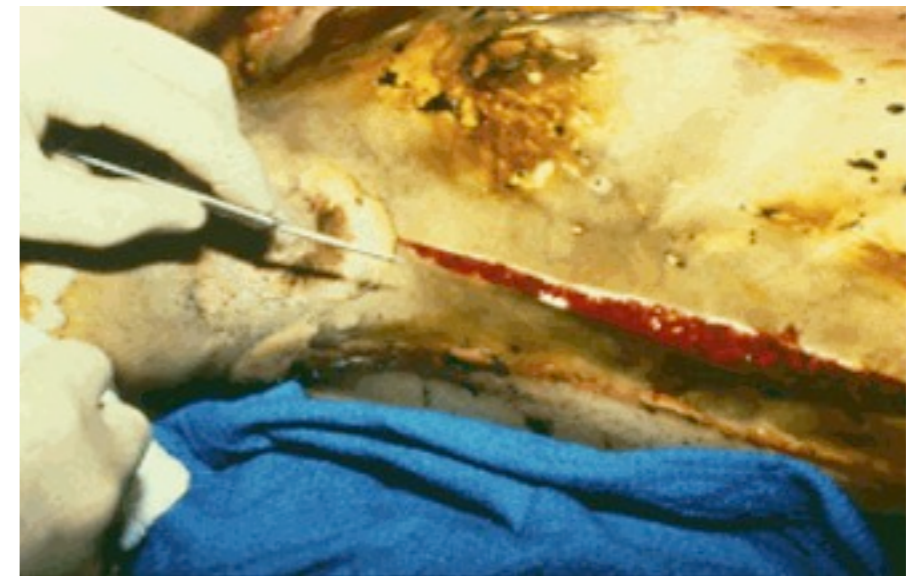
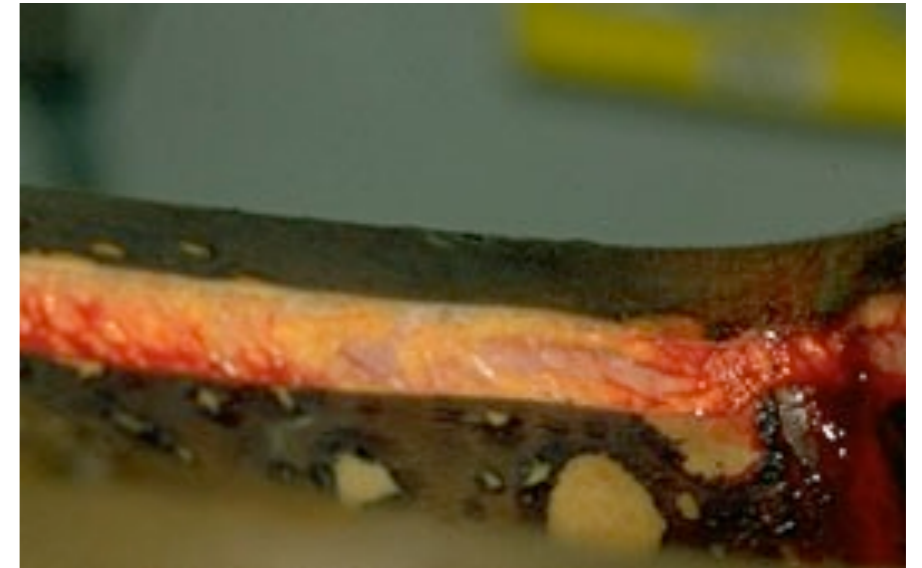
IV fluids-Parkland

- >20% BSA adults, >10% paedts
- $4\text{ml} \times \text{kg} \times \% \text{BSA}$ Ringers Lactate in 24 hours
- Half in the first 8 hours from burn
- Other half over 16 hours
- Monitor eg urine output/CVP



Escharotomy

- Deep circumferential limb/chest burns
- Consult Burns Unit first

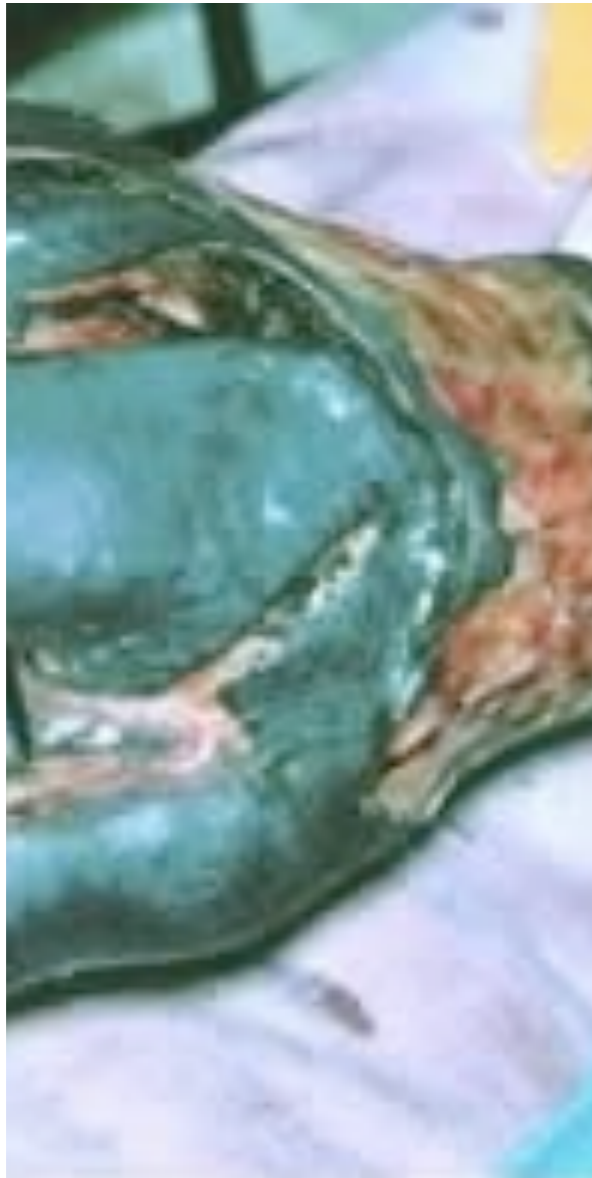


Whom to Refer?

- FTB >5%
- Electrical + Chemical.
- Inhalational.
- Involving special areas (hands/feet/face/genitalia).
- PTB >15% (>10% if age <10 or > 50).
- Other serious coexistent medical illnesses

Chemical Burns

- Wash with water ++, 20-30mins
- Brush first if powder
- DO NOT use neutralising agents
- Alkali worse than acid

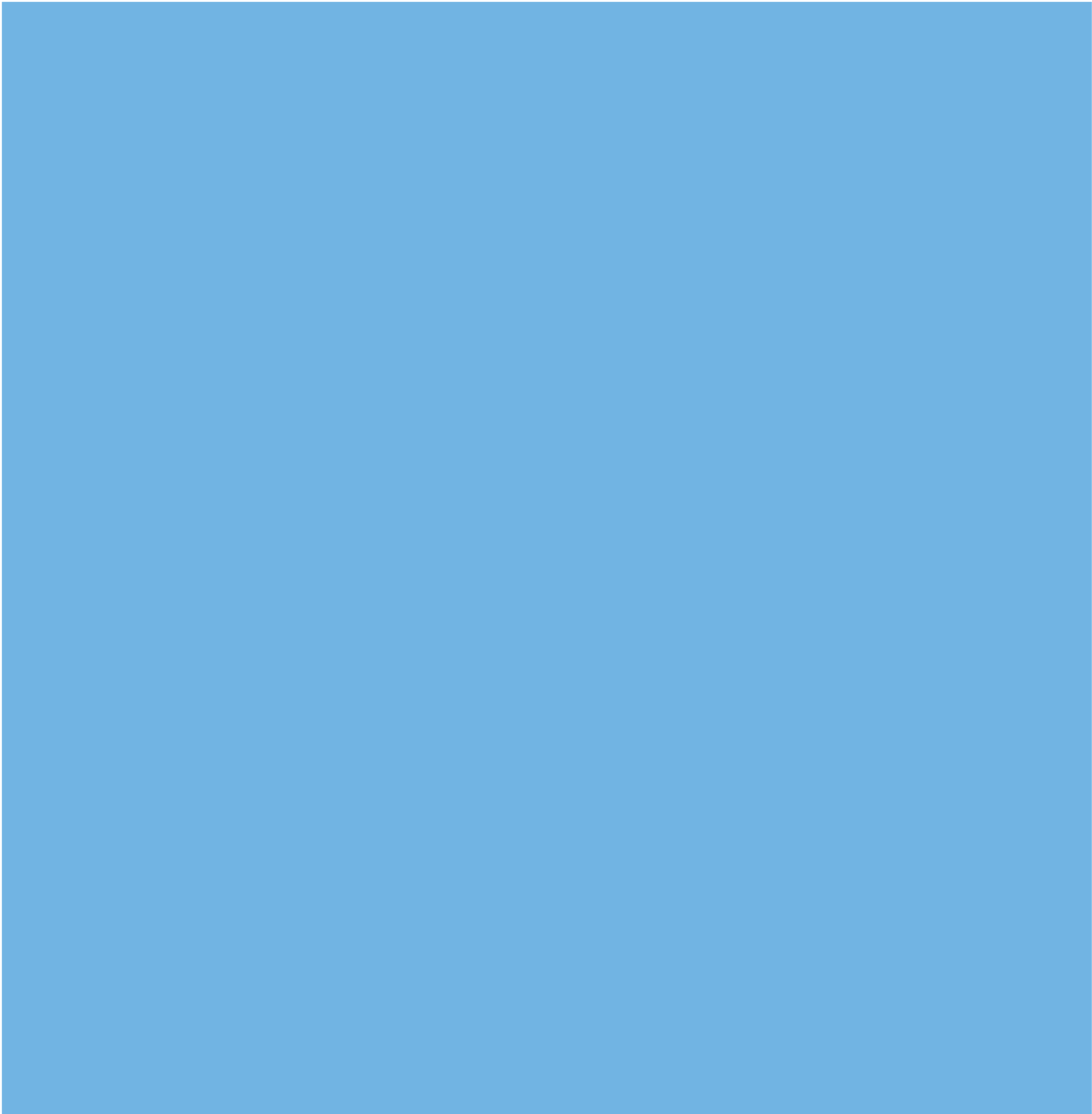


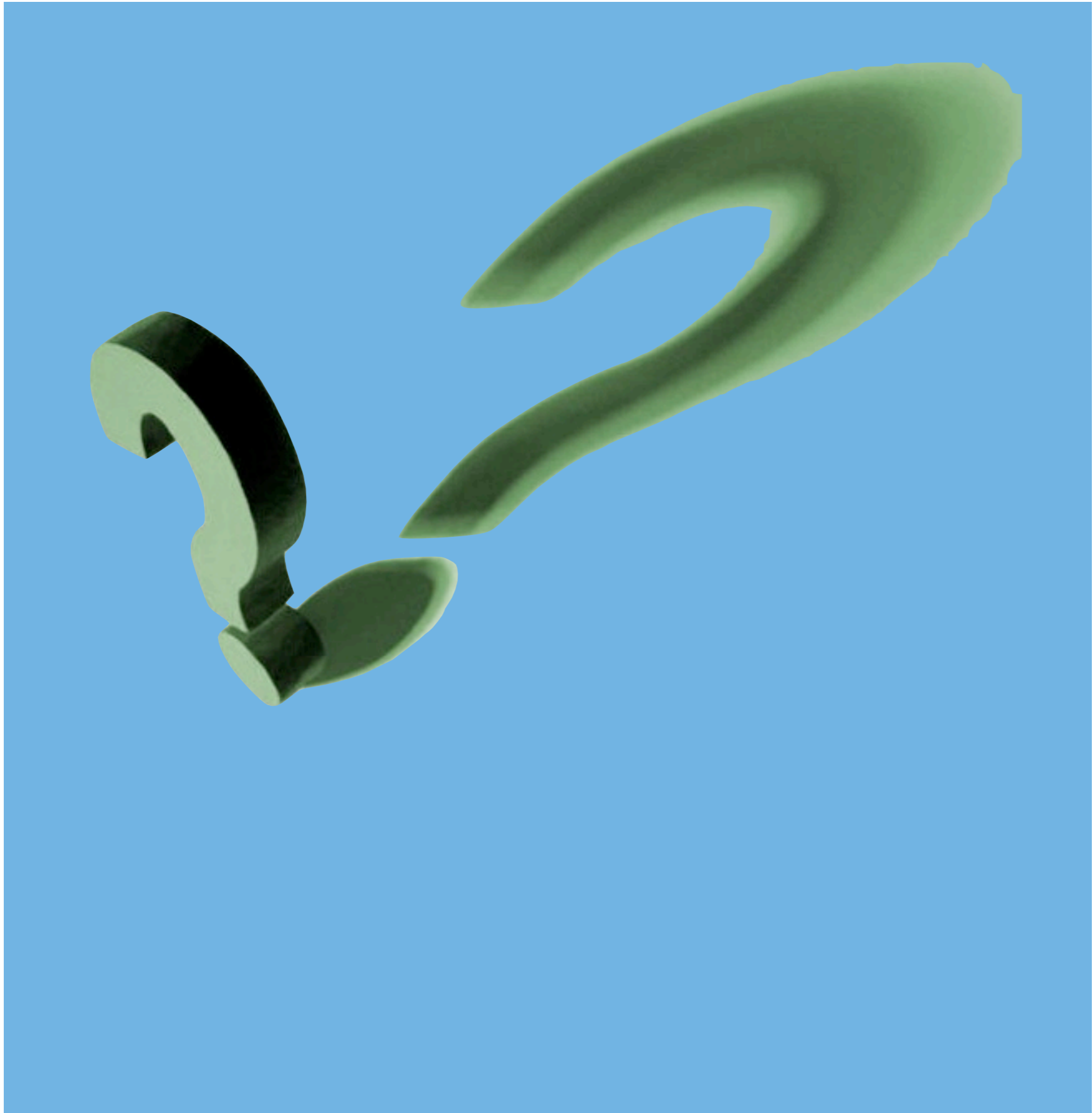
Electrical Burns

- Often deep and severe, but normal overlying skin initially
- Myoglobinuria and renal failure

Follow Up

- All burns within 24-48 hours, except minor superficial burns
- Patient advice re-infection and return if any systemic upset/fever (staphylococcal sepsis)
- May still need referral





Summary

- ▶ Local and systemic effects of burns
- ▶ Superficial, Partial thickness and Full thickness in depth
- ▶ Assess surface Area
- ▶ ABCD then IV fluids 4ml/kg/%
- ▶ Don't forget analgesia