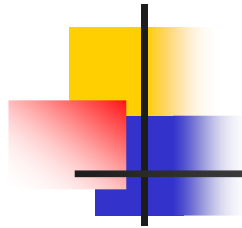


Pediatric Burns





Objectives

- Review assessment, stabilization, management and transfer of pediatric patients with burn injuries
- Estimate burn size and depth
- Determine associated injuries
- Special issues and treatment of burns
- Specify transfer criteria



Etiology

- Thermal (flame, scald)
 - Scald (50-60%) infants and toddlers
 - Flame (30%) especially 5-13 year age group
 - 10% child abuse
- Chemical
- Electrical
- Radiation



Management Principles

- Establish and maintain airway
- Assess breathing - ventilation & oxygenation
- Assess perfusion – fluid resuscitation
- Maintain fluid & electrolyte balance
- Maintain normal body temperature



Airway and Breathing

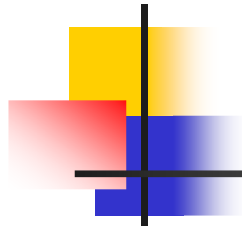
- Assess for injury
- Early definitive airway - intubation
- Assume CO exposure – 100% O₂
- Oxygenate and Ventilate
- ABG's and CO levels





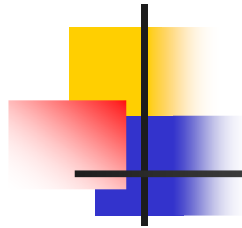
Signs of Inhalation Injury

- History – closed space
- Facial burns, singed hair
- Inflamed oropharynx
- Stridor, hoarseness, raspy voice, brassy cough, bronchorrhea
- Carbon deposits
- Carbonaceous sputum
- CO Hb > 10%



Inhalation Injury

- 15-18% burn admissions
- 30-80% burn-related deaths
- Caused by products of incomplete combustion (carbon particles) and toxic fumes (polyvinyl chloride, ammonia)
- Bronchospasm (1-12 hrs), edema (6-72 hrs), pneumonia (>60 hrs)



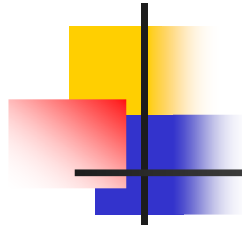
Circulation

- Venous access
 - Through nonburned tissue if possible
 - Peripheral IV
 - Central venous access
- Monitor Vital Signs
 - HR, BP, temperature, O2 saturation
 - CVP
- Foley catheter for hourly output
 - Minimum 1 cc/kg/hr



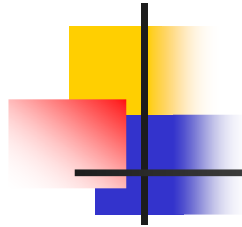
Peripheral Circulation

- Remove constricting clothes and jewelry
- Assess for circumferential burns
- Assess distal circulation
- Escharotomy



Burn Treatment

- Remove ALL clothing, jewelry, foreign material (fabric residue, chemicals)
- Prevent hypothermia
- 2 large bore IV's
- Warmed Ringer's lactate for burn wound resuscitation



Treatment

- Burn size and depth
- Assess for associated injuries
- Weigh patient
- Bloodwork- ABG, CBC, lytes, G&M
- Chest X-ray
- Flow sheet documentation



Burn Assessment

- History
 - Mechanism of injury
 - Associated illnesses
 - Allergies
 - Tetanus status



Burn Depth

- First degree
 - Erythema
- Second Degree
 - Red, mottled, weeping, blisters, PAINFUL!
- Third Degree
 - Dark, leathery, waxy, dry, painless
- Fourth Degree
 - Bones and muscles











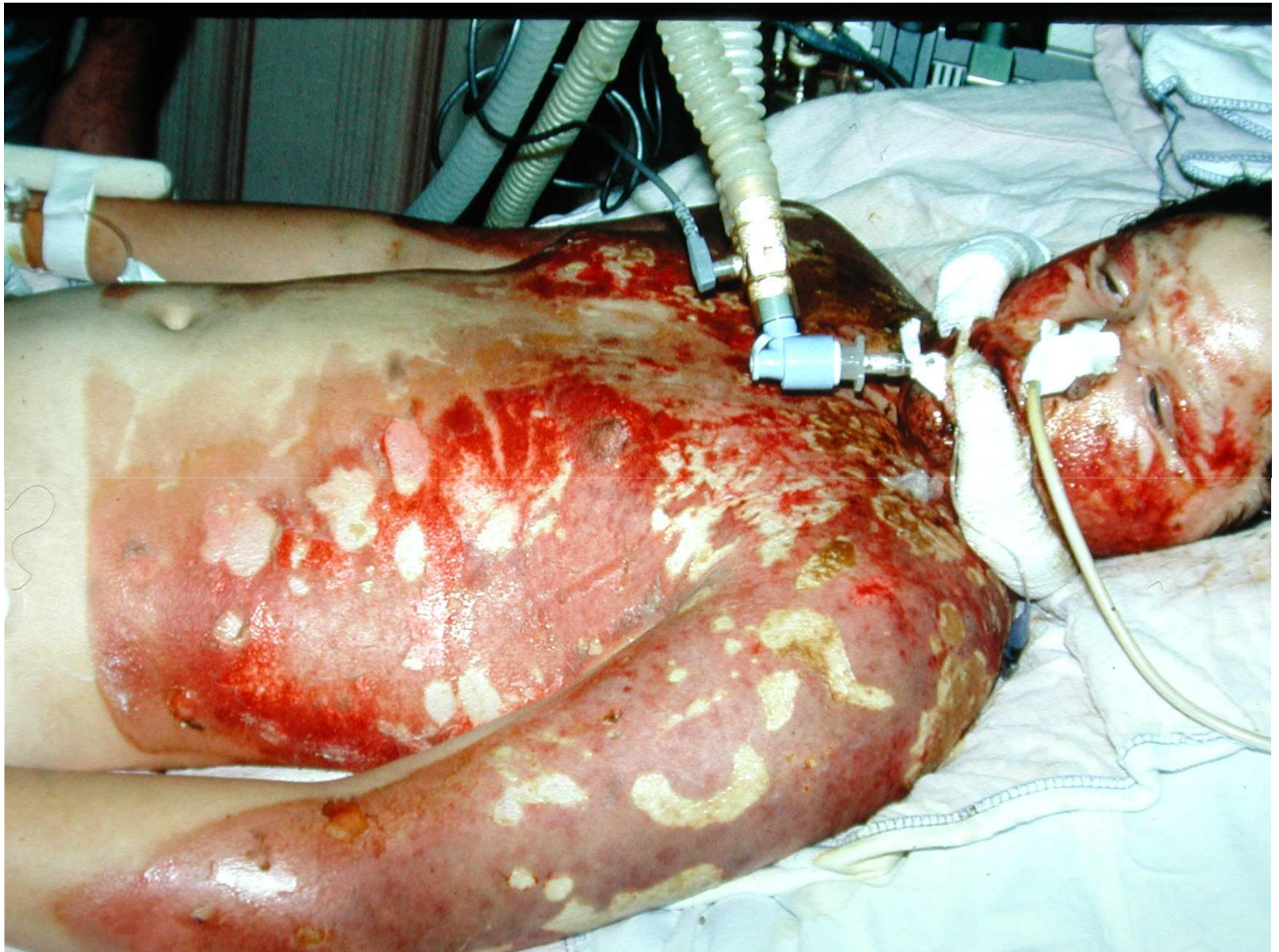
Burn Wound Extent

- Rule of nines
- Children – head bigger
- Surface area larger per unit weight
- Surface of palm and fingers = 1% BSA











Burn Resuscitation

- Parkland Formula
 - 4 cc / kg / % BSA in 1st 24 hrs
 - ALWAYS RINGER'S LACTATE
 - 1/2 in first 8 hours
 - 1/2 in next 16 hours
 - FROM TIME OF INJURY
 - Monitor response



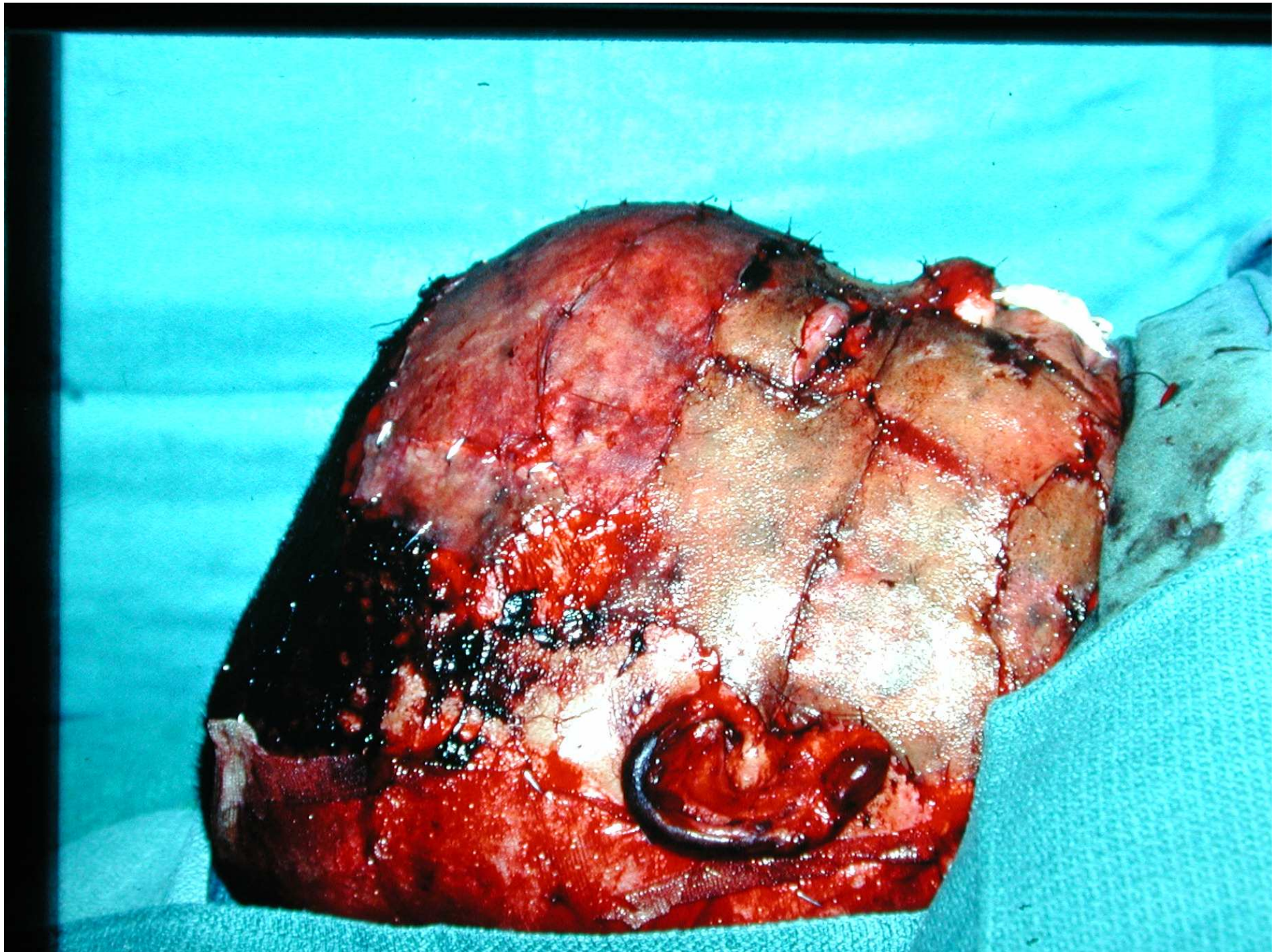
Other Management

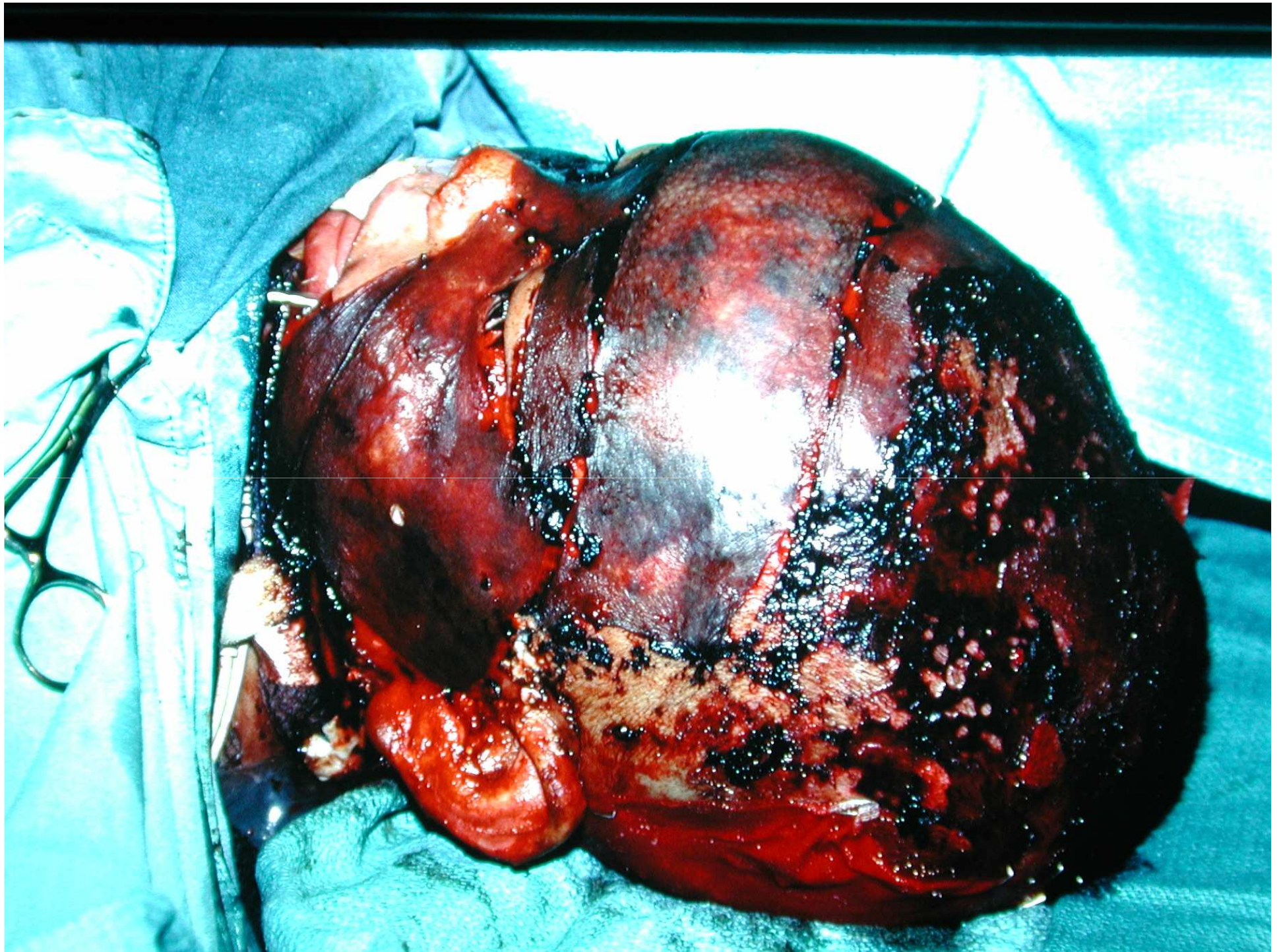
- Maintenance fluids
- ? Role of Pentaspan or colloid
- Gastric tube
 - Nausea, vomiting, > 20% burn
- Medications
 - Narcotics for pain, only IV, titrate
 - Antibiotics not indicated
- Nutrition
 - Enteral / Parenteral nutrition
 - Multivitamin replacement

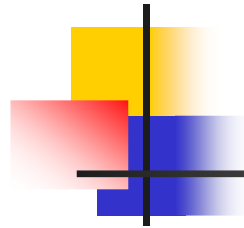


Wound Management

- Flamazine (silver sulfadiazine)
- Polysporin or Bacitracin
- Biobrane
- Early wound excision and grafting

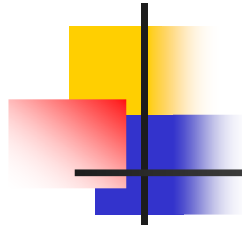






Multidisciplinary Management

- Nursing
- Plastic Surgery
- Dietary
- Physiotherapy
- Occupational Therapy
- Social Work
- CPC if indicated



Chemical Burns

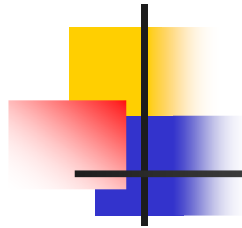
- Duration, concentration, amount
- Brush away dry chemicals
- Flush with large amounts of water
- Alkali vs acid





Chemical Burn- Ingestion

- ABC's
- ? PICU for observation
- Early endoscopy
- Gastrostomy
- ? Role of antibiotics and steroids
- Acids vs Alkali burns



Electrical Burns

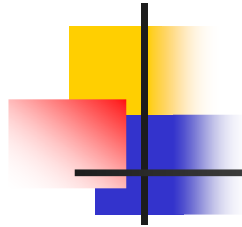
- Often more serious than appearance
- Deep tissue damage- fascia, muscle
- Rhabdomyolysis- myoglobinuria
 - Maintain high urine output
 - Mannitol
- Metabolic acidosis
 - Maintain perfusion, adequate resuscitation
 - Sodium bicarbonate











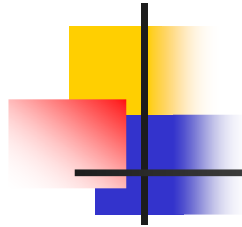
Transfer Criteria

- $> 10\%$ if < 10 yrs
- $> 20\%$ BSA
- Burns involving:
 - Face
 - Eyes/ Ears
 - Hands / Feet
 - Genitalia / Perineum
 - Major joints









Transfer Criteria

- CHILDREN
- 3 degree burns > 5% BSA
- Electrical or chemical burns
- Inhalation burns
- Preexisting illnesses
- Child Abuse?



