Soft-Tissue Injuries

& Burns
Anatomy of the Skin

Look up in text!
Function of the Skin

- Protection
- Sensation
- Temperature control
Soft-Tissue Injuries

- Closed injuries
- Open injuries
- Burns
Types of Wounds
Closed injuries
Contusion

- Results from blunt force striking the body
Hematoma

- Pool of blood that has collected in the body
Crushing Injury

- Occurs when a great amount of force is applied to the body for a long period of time
Open Injuries
Abrasions

- Caused by friction
Laceration

- Smooth or jagged cut
Avulsion

- Skin is either torn completely off or hanging as a flap
Penetrating Wound

- Results from a sharp pointed object
Gunshot Wounds

- Gunshot wounds have unique characteristics
Crushing Open Wound

- May involve damaged internal organs or broken bones
Types of Bleeding

- arterial - spurting, lighter
- venous - flowing, darker
- capillary - oozing

- arterial bleeds need aggressive management!
Control of Bleeding

- direct pressure
- elevate extremity
- pressure dressing
- pressure points
- Tourniquet (last resort)
Tourniquets

- **use as last resort only**
- must be wide (at least 2")
- NEVER over a joint
- NEVER loosen

- Tourniquets are discouraged because they can cause tissue damage and impaired circulation - results in increased damage to limb or healing problems.
Applying a Tourniquet

- Pad skin with dressing
- Fold a triangular bandage into 4" cravat.
- Wrap twice loosely
- Use a wooden dowel as a handle to twist and secure the stick.
- Write “TK” and time and place on patient.
Treatment of Wounds

- clean dressing  (sterile not feasible)
- dry for bleeding
- wet if wound is drying
- secure with bandage
Impaled Objects

- Do not attempt to move or remove the object*
- Bulky dressing
- Shorten object if possible
- Transport carefully

*Exception: CPR interference
Amputations

- Immobilize partial amputation with bulky dressings and splint.
- Wrap severed part in dry* sterile dressing and place in plastic bag.
- Put bag in a cool container filled with ice.
- Transport severed part with patient.
Neck Injuries

- Open neck injury can be life threatening
- Air can get into the veins and cause an air embolism
- Cover with occlusive dressing
- Apply manual pressure.
ALSO ... Bleeding from:

- Ears
- Penetrating head wounds
- Rectum
- Vagina

- Use loose dressings
- Do not stop blood flow
- Do not Pack
- Do not apply pressure
AND...

- do not let disfiguring wounds distract you from what is important!

- A B C’s first & foremost!
Crushing Trauma and Its Aftermath

Crush Injury
Crush Syndrome
Compartment Syndrome
Crush Injury

- Injury sustained from a compressive force sufficient to interfere with the normal metabolic function of the involved tissue
Crush Syndrome

- Systemic side affect of crush injury
- Cell membrane compromised
- Acids and potassium spill into surrounding tissue
- On reperfusion, acids and K get back to heart with often fatal results
Compartment Syndrome

- Local side affect
- Excessive swelling/confined space
- Ischemia kills muscle cells in 4-12 hrs
- Permanent disabilities/amputation can result if undiagnosed
Crushing Mechanisms

1 - Building & structure collapse
2 - Motor vehicle accidents
3 – Collapse of Earth
4 – Industrial accidents
5 – Farming accidents
Involved Anatomy

- Upper extremities
- Lower extremities & pelvic girdle
- Other body areas generally result in immediate death

Head - Abdomen - Chest
Injury Management

“Treatment in the rubble”

- ACLS Treatment should be started before pressure is released (when possible)

- May be hampered by the multi-causality incident and confined space situations
Burns

Thermal
Chemical
Electrical
Burn Assessment

- Depth of burn
- Extent of burn or BSA (burn surface area)
- Identify critical burn
- Under 5 or over 55?
Depth of Burn

- **First Degree (Superficial)**
  - reddened, painful skin

- **Second Degree (Partial-thickness)**
  - blisters, painful skin

- **Third Degree (Full-thickness)**
  - charred, leather like skin, white, waxy, painless
BSA - burn surface area

- **Rule of Nines** - for large area burns

- **Patients palm size** - for small area burns
  
  (palm = 1%)
Rule of Nines
Critical Burns

- any burn involving respiratory tract
- any electrical burn
- Hands, feet or genitalia
- face
- 2\textsuperscript{nd} degree w/ over 30\% BSA
- 3\textsuperscript{rd} degree w/ over 10\% BSA
Respiratory Involvement

- burned face or mouth
- singed nasal hair
- sooty sputum
- voice changes
- dyspnea
- ENCLOSED SPACE BURNS
Under 5 or over 55?

- Do not tolerate burns as well
- More likely to develop shock, hypothermia and experience airway problems
- May indicate child/elder abuse
Pediatric Needs

- Burns to children more serious
- More surface area relative to body mass
- Many burns result from abuse
- Report all suspected cases of abuse to the authorities
Thermal Burn Rx

- remove patient from source & stop the burning process
- assess burn
- high flow oxygen
- remove jewelry & clothing
- cool burn areas
- cover with clean dressing / sheet
- be aware of hypothermia
- transport
Electrical burns

- safety first (be sure power is OFF before touching pt)
- look for entrance & exit
- can be very deceiving
- monitor vitals closely

**Patient can arrest without warning=V-fib**
Care for Chemical Burns

- Safety first
- Remove the chemical from the patient
- If powder chemical, brush off first
- Remove all contaminated clothing
- Flush with water for 15 to 20 minutes
- Rapid transport
Radiation burns

- quit & run away!
Radiation burns

- summon expert assistance
- contain source of radiation
- remove patient’s clothing
- follow decontamination procedures
and...with all burns

- do not miss other problems - other trauma.
- do not over irrigate - protect patient from hypothermia
- transport code 3 if ABC problem.
- tar burns - cool with water, do not remove tar.
the END

questions??