DCO - Five Tricks for Pelvic Fractures

- Pelvic ex fix
- C-clamp
- Pelvic packing
- IS screws
- In-fix

Many thanks to Drs. John Floyd, Wade Smith, Bruce Ziran and Will Reisman!

DCO for Pelvic Fractures

Construction – pelvic frames

- Indications:
  - “Open-book” pelvic injuries in hypovolemic shock not responsive to other measures.
  - Grossly unstable fractures.
- Methods:
  - Iliac crest pins.
  - AIIS pins.
Construction – pelvic frames

• Iliac crest frames:
  – Three 5 mm pins/side.
  – Place on medial 1/3 of iliac crest.
  – Assemble anterior bars to allow access to the abdomen and sitting.

• AIIS Frame:
  – 6 mm pin anterior to posterior.
  – Placed in AIIS on the obturator oblique view.
Pelvic Clamp

- Quick (5 minutes)- anterior position
- Put on anywhere in the hospital
- Improved posterior control (in the OR)
Denver Health Experience-
modified retroperitoneal
approach

- Shock after 2u RBC
- Retroperitoneal packing
- C clamp, Exfix or plate in
  some cases
- Angio if continued shock or
  arterial bleeding seen in
  OR
- Takes 30 minutes
  maximum
  - Journal of Trauma, Dec 2005
  - Journal of Trauma, Jan 2007

Pelvic Packing: Suprapubic Incision

Retroperitoneal Packing as a Resuscitation Technique for Hemodynamically
Unstable Patients with Pelvic Fractures. Report of Two Representative Cases and a
Description of Technique

Wade R. Smith, Ernest E. Moore, Patrick Osborn, Juan F. Agudelo, Steven J.
Morgan, Anand A. Parekh, Clay Cothren, The Journal of TRAUMA, Injury,
Infection, and Critical Care

Emergent Pelvic Packing: LC III Pelvic Fracture
May Lower Mortality

Pelvic Packing: Retract Bladder

Emergent Retroperitoneal Pelvic
Pelvic Packing: Lap Pads X 3 / Side

Iliosacral fixation
Transsacral fixation
DCO - Five Tricks for Pelvic Fractures

• Pelvic ex fix – learn anterior pins
• C-clamp – if extremis
• Pelvic packing – your trauma person should know
• IS screws – think about it!
• In-fix – under certain circumstances!

DCO - Five Tricks for Soft Tissue Injuries

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Five tricks

• Minimize further injury
• Silvadene
• Reasonable sharp debridement
• NWPT
• Lateral fasciotomies
Minimize further injury

- Reduce deformity
- Splint
- Early irrigation and removal of debris
- Sterile dressings
- Increase oxygenation
- Early antibiotics
- Local antibiotics
- Epifix
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Resuscitation

• Significant relationship between:
  – Incidence of infection
  – Time from injury to admission to the definitive treatment center.
  
• Reason is unclear.
  

Silvadene

• “All blisters were unroofed, and antibiotic cream (Silvadene) was applied twice daily until the blister bed had re-epithelialized.
• “We urge caution when planning to make a surgical incision around … fracture blisters in diabetic patients because the zone of injury might extend beyond the borders of the fracture blister.”
  
Reasonable sharp debridement

- Experience...
- Debride everything that needs to go...
- Don’t get crazy though...
- Come back if you have any doubt at all!

Negative Pressure Therapy

- Greatly decreased open fracture complications.

- Mechanisms of action:
  - Imposed tissue strain stimulating tissue mitogenesis and elaboration of growth factors.
  - Removal of excessive edema fluid.

Lateral fasciotomies
Single incision fasciotomy

- Centered over fibula.
- Superficial dissection can access anterior, lateral and superficial posterior compartments.
- Dissect posterior to fibula and release deep.

Gastrocnemius flaps

- Rotational flaps within the zone of injury actually worked well and provided good coverage when needed.

Bug juice in the wash

- Bacitracin versus castile soap in irrigation.
- No difference in infection rate between the groups.
- Bacitracin group was associated with a higher incidence of wound healing issues (9.5% versus 4%).
High pressure lavage

• High-pressure pulsatile lavage causes considerable soft tissue penetration of particulate markers when compared with low-pressure lavage.


Combat protocols

• Timely and stable axial limb fixation
• Radical débridement of all compromised soft tissues and osseous structures
• Early wound closure with healthy, well-vascularized autologous tissue.


Damage Control

• External fixation to provide temporary stabilization of extremity injuries to mitigate systemic consequences of long bone injury in the context of physiologic instability that precludes safe, definitive treatment.