MANAGEMENT OF PERINEAL AND PELVIC INJURIES

Lenworth M. Jacobs, MD, MPH, FACS
Director, Trauma Institute
Hartford Hospital
Professor of Surgery
University of Connecticut
OPEN PELVIC FRACTURES

DEFINITION
Direct communication between pelvic fracture and vagina, perineum or groin
RESUSCITATION PRIORITIES

- Evaluate entire patient
- Airway and ventilation
- Hemorrhage control
PELVIC FRACTURES
Key and Conwell Classification

Kane Modification - Anatomic

Type I  Breaks not involving the pelvic ring
Type II Single breaks, non-displaced
Type III Double breaks
   a) Malgaine
   b) Straddle Fracture
   c) Severe Multiple or crushing fractures
Type IV Acetabular Fractures
   a) Rim fracture
   b) Central
   c) Ischio-acetabular
PELVIC FRACTURES

Bucholz Classification

Stability

Type I  Mildly displaced anterior fracture
Non-displaced sacral fracture
Mild disruption of S-I ligaments

Type II  Open book - hemi-pelvis
Externally rotated

Type III  Total disruption S-I joint
Tri-plane displacement hemi-pelvis
Cephalad, Posterior and External Rotation
ANALYSIS OF PELVIC FRACTURE MANAGEMENT

- 533 patients/5 years
- 6.4% overall mortality
- 18% mortality in group III Kane
- Hemodynamically stable: 3.4% mortality
- Hemodynamically unstable: 42% mortality
- Pelvic fracture major cause of death in 12%
  - Contributing role in 53% deaths
  - No role in 35% deaths
PELVIC FRACTURES

• Stable
  • Anatomically
  • Hemodynamically

• Unstable
  • Identify location
  • Control hemorrhage
DILEMMAS WITH COMBINED SEVERE ABDOMINAL-PELVIC INJURIES

Rapid diagnosis of:

- Intra-peritoneal hemorrhage
- Retro-peritoneal hemorrhage
- Pelvic hemorrhage
- Extent of soft tissue injury
PELVIC HEMORRHAGE

Venous 70%: Restore Normal Anatomy

Arterioles: Pelvic Compression

Major Arteries: Embolise or Surgical Control
PELVIC HEMORRHAGE

Control Bleeding Vessel

• External Pressure
• Pelvic Wrap
• C-Clamp
• Internal
• Embolization
• Operative Management
EXTERNAL FIXATION DEVICES

Return Pelvis to normal Anatomic Position

Pelvic Wrap - Sheet
EXTERNAL FIXATION DEVICES

Return Pelvis to normal Anatomic Position

Pelvic Binder
EXTERNAL FIXATION DEVICES

Return Pelvis to normal Anatomic Position

C-Clamp
CT SCANS IN PELVIC TRAUMA

- Defines anatomy
- Specific and sensitive
- Defines intra-pelvic pathology
- Defines intra-peritoneal pathology
- Quantifies hemorrhage
CT SCAN IN PELVIC TRAUMA

- Requires stable patient
- Remote environment
- Delays definitive care
History

25 y/o male helmeted MCC

Combative in field, intubated by EMS

Hypotensive in trauma bay

Deformed Left thigh, Left inguinal hematoma, Open Left tibial fracture
ROLE OF ANGIOGRAPHY

Delineate source of hemorrhage
Evaluation of Major Vascular Structures and abdominal organs
Therapeutic Embolisation