Pelvis and Acetabulum Fractures

Steven Sands D.O.
Orthopaedic Traumatologist
INTEGRIS Orthopedic Specialists

Objectives

• Describe Pelvis Fractures

• Describe Acetabulum Fractures

• Differentiate between the two

• Understand the different treatment methods

Pelvis Anatomy

• The pelvis connects the spine to the lower extremities

• Divided into right and left halves

• The ring is split into anterior and posterior halves
Pelvis Anatomy

- The anterior ring is connected by the pubic symphysis – a hard, fibrocartilaginous disc
- The posterior ring contains three structures: left iliac wing, right iliac wing, and sacrum
- The iliac wings are connected to the sacrum via anterior and posterior sacroiliac ligaments – Posterior sacroiliac ligaments – strongest in body

The Pelvis is a Pretzel

- Just like a pretzel, it is virtually impossible to break a pelvis in only one spot
- If it breaks in the front (anterior), look for an injury in the back (posterior)
Common Pelvis Fracture Patterns

- Anterior: Pubic Symphysis
- Posterior: Sacroiliac (SI) joints
- Anterior: Superior and Inferior Pubic Rami
- Posterior: Sacral Ala (Wings)

Pelvis Fractures

- In the younger patient – result from severe trauma and high-energy injuries
- In the elderly, can be due to much lower energy injuries, even a fall from standing height

37 y.o. MVC - AP Pelvis
Inlet and Outlet
Pelvis Fracture Treatment

- The pelvis is a ring – the forces applied to one side of the pelvis affect what happens to the other side
- Cannot bear weight on either side of the pelvis before it is healed
- Bedrest only initially, then wheelchair, then progressive weight bearing
- Takes 10-12 weeks to fully heal
- Long-term prognosis – usually good
Pop Pelvis Quiz

- Please label structures A through F

Acetabulum Anatomy

- Acetabulum = socket

- Four parts of the acetabulum
  - Anterior wall
  - Posterior wall
  - Anterior column
  - Posterior column
Acetabulum Anatomy

• “Inverted Y” concept

Acetabulum Fractures

• Most acetabulum fractures are caused by high-energy injuries, except in the elderly or severely osteoporotic patient

• Most common pattern is posterior wall – 60%

• Associated with femoral head dislocations and often need traction before surgery

Acetabulum Surgery

• If posterior wall or posterior column fracture, then posterior approach to acetabulum
  — Kocher-Langenback approach

• If anterior wall or anterior column fractures, then anterior approach to acetabulum
  — Ilioinguinal approach
40 y.o. MVC
Acetabulum Fracture Treatment

- The two acetabuli are not connected to each other
- If pelvic ring is intact, then only one side will be injury
- Able to bear weight on non-injured side
- Takes 3 months to heal with full weight bearing
- Long-term prognosis - poor

Pelvis Fracture Exercise

- Some anterior pelvic ring fractures can be treated with an external fixator

- Objective: align anterior pelvis injury with external fixator
  - Two pins, two bars, three clamps
Pelvic External Fixation