Disclosures

Depuy Synthes – consultant/ speaker bureau
Orbis Medical – design consultant
Citieffe- design consultant
Thanks

- AO Trauma
- Claude Sagi MD
- Pierre Guy MD
Case

• 48 y/o male
• Avid cyclist (100 miles/week)
• Struck by motor vehicle
• Isolated injury to left hip
Objectives

- Discuss which fracture patterns will benefit from an anterior exposure
- Discuss the ilioinguinal and AIP approaches
  - Similarities
  - Differences
  - Tips for maximizing your exposure
- How do I choose?
What Patterns?

• 30% of acetabular fractures require anterior fixation
  • Anterior wall
  • Anterior column
  • High (transtectal) transverse
  • T-type*
  • Anterior column posterior hemitransverse*
  • Associated both column*
    • *May require sequential/ simultaneous approaches
Ilioinguinal Approach

• Developed by Emile Letournel
• Exposure of the inner innominate bone from the SI joint to the symphysis
• Indirect access to the quadrilateral plate and posterior column
Ilioinguinal

• Requires development of 3 wound intervals
  • Mobilization of the femoral vessels and nerve and the spermatic cord (round ligament)
• Articular reductions are indirect
• Femoral and inguinal hernias
Ilioinguinal
Ilioinguinal

- Must understand the anatomy of the femoral canal and the ilipectineal fascia
Tips for Exposure - II

- First window
  - Iliac fossa from SI to iliopsoas eminence
  - Hip flexion relaxes iliopsoas
  - Exposure can be increased by osteotomy of ASIS to access medial eminence
    - PAO (Bern CH)
    - Useful in avoiding second window exposure
Tips for Exposure - II

• Second window
  • Access to pelvic brim and quadrilateral surface from SI joint to the lateral third of the ramus
    • Flexion and external rotation of the ipsilateral hip will maximize exposure
    • Complete release of the iliopectineal fascia
Tips for Exposure - II

- Third window
  - Release the ipsilateral rectus insertion
    - Will expose entire medial ramus to the quadrilateral plate
Tips for Exposure - II

• Third window
  • Incise vertically along the linea alba
  • Can be extended into the AIP approach
    • Operate from the opposite side of the table
AIP

• First described for hernia repair by Rene Stoppa in 1975.
• Revised for pelvic and acetabular surgery by Hirvensalo et al in 1993
• “Modified Stoppa” was described in 1994 by Cole et al.
• Access to the entire anterior column when supplemented with a lateral window
  • Unlike ilioinguinal allows direct instrumentation of the quadrilateral plate
  • Limited access to anterior wall
  • Operate from the opposite side of the table (limits utility for simultaneous approaches)
Tips for Exposure - AIP

• Complete release of the iliopsoas fascia is mandatory
Tips for Exposure - AIP

VS

Courtesy of Pierre Guy MD
Tips for Exposure - AIP

VS

Courtesy of Pierre Guy MD
Tips for Exposure - AIP

- Skeletonize and mobilize obturator neurovascular bundle
- Operate around it rather than retracting it
Tips for Exposure - AIP

• Specialized retractors can be useful but are not mandatory
Tips for Exposure - AIP

Addition of first window

- Exposure of entire ilium
- ASIS osteotomy can extend lateral exposure to medial aspect of iliopectineal eminence
  - Pre drill osteotomy and repair with lag screw to minimize nonunion
What’s the evidence?


Randomized, controlled trial of the modified Stoppa versus the ilioinguinal approach for acetabular fractures.

What’s the evidence?

• Level 2 evidence (prospective comparative)
• 60 consecutive patients randomized to either an AIP (modified Stoppa) or ilioinguinal approach
• Assessed multiple preoperative, intraoperative, and postoperative parameters

• AIP decreased intraoperative blood loss and operative time
• Direct (AIP) vs indirect (II) exposure of the retropubic anastomosis
Comparison of Acetabular Fracture Reduction Quality by the Ilioinguinal or the Anterior Intrapelvic (Modified Rives–Stoppa) Surgical Approaches

Shazar, Nachshon MD•;•; Eshed, Iris MD†;•; Ackshota, Nissim MD•; Hershkovich, Oded MD, MHA•; Khazanov, Alexander MD§; Herman, Amir MD, PhD•;•;•

What’s the evidence?

• Level 3 evidence (retrospective review)
• 122 patients (1993-2006)
• Assessed fracture type, fracture reduction quality, surgical time, and postoperative complications

• AIP 82.5% anatomic
• II 68.9% anatomic
• Fracture type, surgical time, and complications similar in both groups
Direct (AIP) vs indirect (II) access to the posterior column segment
Post Op
2 years
Summary

• 30% of acetabular fractures will need an anterior approach
  • Anterior wall
  • Anterior column
  • High (transectal) transverse
  • T-Type*
  • Anterior column posterior hemitransverse*
  • Associated both column*
    • *may require sequential/simultaneous approaches
Summary

• Simultaneous approach ("floppy lateral" position) only possible with ilioinguinal approach (KL + II)

• Sequential approach (KL + II or AIP) requires meticulous attention to screw placement and intraoperative repositioning
Summary

• AIP approach
  • Direct visual access to quadrilateral plate and posterior column
  • Indirect access to anterior wall

• Ilioinguinal approach
  • Direct visual access to anterior wall
  • Indirect access to quadrilateral plate and posterior column
Summary

• The use of the AIP has gained significant popularity since its development

  • Addition of the lateral window +/- ASIS osteotomy increases utility

  • Access to the anterior wall is still limited
Summary

• THE PATIENT AND THE FRACTURE PATTERN ARE THE DECIDING FACTORS IN THE APPROACH

• THE SURGEON SHOULD BE FAMILIAR AND FACILE WITH BOTH!!!