Periacetabular Osteotomies: New Two Incision Approach

Introduction
Since its description in 1983 by R. Ganz et al, Periacetabular Osteotomy (PAO) has undergone significant technical refinement. Many attempts have been made to alter the approach and corrective techniques to reduce the morbidity associated with this extensive procedure. To date, the approaches described for PAO are the modified Smith-Petersen, Iliopinguinal, Direct Anterior, Dual Anterior/Posterior, and Transsartorial approach. We discuss two a surgical incision technique to the PAO which we believe reduces morbidity, as well as improves visualization of the majority of the osteotomies performed.

Technique
1. Patient placed in the supine position on a radiolucent table
2. Anterior intra-pelvic (AIP) exposure of the pubis and posterior column through a small pfannenstiel incision (Modified Stoppa)
3. Pelvis packed and then a second small incision is made between the ASIS and AIIS to expose the area of anterior column osteotomy and allow manipulation of the acetabular fragment
4. A schanz pin is placed just above the AIIS with the tip stopping at the intended posterior extent of the osteotomy (Fig. 2)
5. An osteotome is placed just superior to the pin and used to perform the superior osteotomy of the anterior column extending to the posterior column under Fluoroscopy in the iliac oblique view (Fig. 3)
6. The intra pelvic exposure is then used to perform the posterior column, ischial and pubic root osteotomies under direct visualization (Fig. 4)
7. The intended correction is performed and confirmed by radiograph
8. Standard graft placement and screw fixation is utilized (Fig. 5)

Discussion
- PAO is a technically complex procedure with multiple approaches most of which include large extensile incisions
- Varying amount of blind osteotomies performed depending on the approach
- Trend is toward less extensile approaches attempting to decrease risk of morbidity and improve visualization and cosmesis
- New two incision approach proposed advantages:
  - Muscle sparing and no need for ASIS osteotomy
  - All but the anterior column osteotomy are performed under direct visualization
  - Less risk to the neurovascular structures
  - More cosmetic scars compared to other approaches (Fig. 6)
  - Combines best view and access for acetabular correction and also increases the number of osteotomies made under direct visualization
- Since relatively little imprecision in the osteotomy can lead to catastrophic failure, in such a technically demanding procedure, the approach/exposure plays a central role in achieving consistent, safe, appropriate correction
- We believe this two incision approach to PAO improves visualization, decreases risk of complications, and still maintains excellent access for achieving appropriate correction
- Further studies are needed to compare clinical results and associated complications with other existing approaches to PAO

Reference