

Case Study

INDICATION

Acetabular Fracture with Displaced Anterior Column and Quadrilateral Surface Disruption

PRODUCTS

Anterior Brim Plate
Quadrilateral Surface Plate



Case Study

Acumed® Pelvic Plating System

PATIENT HISTORY

A 46-year-old female with preexisting primary osteoarthritis was driving a moped when she was struck by a car. She was brought to the trauma center with a closed head injury and right acetabulum fracture. She was initially treated in skeletal traction until her neurological status improved. Computed tomography (CT) scan confirmed diagnosis of a displaced anterior column comminuted medial wall acetabular fracture. Given the amount of displacement and concern for a complicated total hip replacement, the decision was made to stabilize the acetabulum fracture initially and proceed with total hip replacement on a delayed basis if necessary.

TREATMENT

Anterior Brim Plate, 12 Hole, Right Quadrilateral Surface Plate, Right

On hospital day 3, the patient was taken in for repair of the right acetabulum. In the operative suite, the patient was anesthetized and placed on a radiolucent flat top table. The knee was slightly flexed to relax the iliopsoas and aid exposure. Skeletal traction was pulled through the distal femoral traction pin. The surgical field was then draped. The inner brim of the pelvis was exposed through the modified Stoppa approach. The mortis vessels were ligated and divided to expose the medial wall of the acetabulum. The Quadrilateral Surface Plate was placed on the medial wall and provisionally pinned into position. The fracture table offset post was used to provide a lateral distracting force on the inner thigh and thereby femoral head. The medial wall was then reduced by applying pressure with a ball spike placed directly on the Quadrilateral Surface Plate. The anterior column was then reduced with the use of a second ball spike pusher. With the column and wall reduced, two screws were initially placed into the Quadrilateral Surface Plate, pushing the tabs of the plate directly against the medial wall. Next, the precontoured Anterior Brim Plate was passed over the Quadrilateral Surface Plate and secured through the medial and lateral windows, utilizing the Plate Manipulator Drill Guide for the difficult to reach lateral screws. Multi-planar fluoroscopic views were obtained to confirm reduction and screw and plate positioning. The single Pfannenstiel incision was closed in layers.

POSTOPERATIVE CARE

The patient was transferred back to the intensive care and on post-op day 2 was extubated. The head injury cleared with mild residual loss of short term memory. Perioperative antibiotics were administered per protocol along with DVT prophylaxis once cleared by neurosurgery. She was placed on touch down weight-bearing affected side for a total of 8 weeks, after which she progressed to full weight-bearing. At 3 months post-op, the patient was able to ambulate with a cane. At 4 months post-op, she walked without assistive device. The patient planned to return to work for at least a year, before taking time off for total hip replacement.

SURGEON

Chris Boullion, D.O.



Preoperative X-ray 1



Preoperative X-ray 2

DISCUSSION

With the potential advantage of saving operative time and providing a template for anatomic reconstruction, the use of precontoured plates in the pelvis provides a theoretical advantage to traditional bending and plating methods. As seen in this case, the buttressing effect of the contoured Quadrilateral Surface Plate prevents protusion of the femoral head. This will provide the patient the opportunity to undergo a routine total hip replacement, when necessary. The instrumentation provided oftentimes allows for the surgery to be executed through a single Pfannenstiel incision, yielding a cosmetically more pleasing result for many individuals.

Anecdotally, titanium implants have been discussed as being more biocompatible than stainless steel. Metal elements used in implants that are known to be sensitizers include nickel, cobalt, and chromium. While stainless steel and cobalt alloy contain various levels of the top three metal sensitizers, titanium alloy does not¹. In an orthopedic subspecialty where patient selection is often not an option, the Acumed Pelvic Plating System is a convenient option for titanium implants.

ABOUT ACUMED® PELVIC PLATING SYSTEM

Indications: The Acumed Pelvic Plating System includes plates, screws, and accessories designed to provide fixation during fractures, fusions, and osteotomies for the acetabulum, sacrum, ilium, and entire pelvic ring, as well as treatment of sacroiliac joint dislocations and symphysis pubis disruptions.

Contraindications: Active or latent infection, sepsis, osteoporosis, insufficient quantity or quality of bone/soft tissue, material sensitivity, and patients unwilling or incapable of following postoperative care instructions. These devices are not intended for screw attachment or fixation to the posterior elements (pedicles) of the cervical, thoracic, or lumbar spine.

Warnings and Precautions: For safe effective use of this implant, surgeon must be thoroughly familiar with the implant, the methods of application, instruments, and recommended surgical technique. Device is not designed to withstand stress of weight-bearing, load bearing, or excessive activity. Device breakage or damage can occur when implant is subjected to increased loading associated with delayed union, nonunion, or incomplete healing. Improper insertion of device during implantation can increase possibility of loosening or migration.

Adverse Events: Possible adverse effects are pain, discomfort, or abnormal sensations, nerve or soft tissue damage, fracture of the implant, implant migration and/or loosening, metal sensitivity or histological or allergic reaction, bone resorption, tissue necrosis, or inadequate healing.

¹ Nadim Hallab, Katharine Merritt, Joshua J. Jacobs. Metal Sensitivity in Patients with Orthopaedic Implants. *The Journal of Bone & Joint Surgery* 2001:Volume 83-A, Number 3:428

* The information found within this material contains the opinion of a medical professional. Compensation was made to the consulting medical professional for the creation of this case series.



Immediate Post Op X-ray 1



Immediate Post Op X-ray 2



Immediate Post Op X-ray 3



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