



Denver Health Orthopaedics In The News

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Combined injuries of the pelvis and acetabulum: Nature of a Devastating Diad

Suzuki T, Smith WR, Hak DJ, Stahel PF, Baron AJ, Morgan SJ. *J Orthop Trauma*. 2010; 24: 303-308.

In this study, we reviewed 82 patients who sustained combined fractures of the acetabulum and pelvic ring. This group was compared to two similar cohorts of patients with isolated fractures of the acetabulum or pelvic ring.

Patients with the combined injuries had significantly worse overall injuries than the patients sustaining isolated acetabular or pelvic fractures with regard to Injury Severity Score, systolic blood pressure on arrival, and need for blood transfusions.

While posterior wall acetabular fractures are the most common fracture pattern seen in isolated acetabular fractures, in the combined group of injuries, the transverse acetabular fracture was the most common, occurring in 61 % of cases.

Anatomic reduction of the acetabular surface is critical for good long term outcome. In evaluation of the accuracy of acetabular fracture reduction, we found that initial accurate reduction of the posterior pelvic ring injury was essential.

Take home point: Patients who sustain combined displaced fractures of the acetabulum and pelvic ring represent a more serious injury that includes the resuscitative challenges of severe pelvic fractures coupled with the challenges of precise acetabular fracture reduction. These patients should therefore be referred to a trauma center with expertise in managing the "deadly duo" of combined pelvic and acetabular fractures.



The physicians at Denver Health's Center for Complex Fractures and Limb Restoration are highly specialized and available 24 hours a day to provide orthopaedic trauma and surgery coverage.

Physician consults are also available 24 hours a day, seven days a week.

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Case of the Month

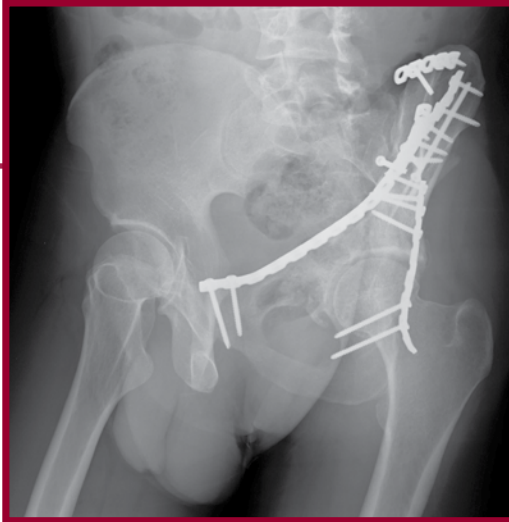
This 24-year-old male was a restrained driver involved in a T-bone motor vehicle collision with significant intrusion into the driver's side. He was initially seen at another hospital and transferred to Denver Health, a Level I Trauma Center, for management of his acetabular fracture.

He was initially managed by both the General Surgery Trauma team and the Orthopaedic team at Denver Health. He underwent emergent pelvic angiography with embolization of his left internal iliac artery. In addition to bilateral clavicle fractures and a lung contusion, he sustained a both column acetabular (hip socket) fracture.

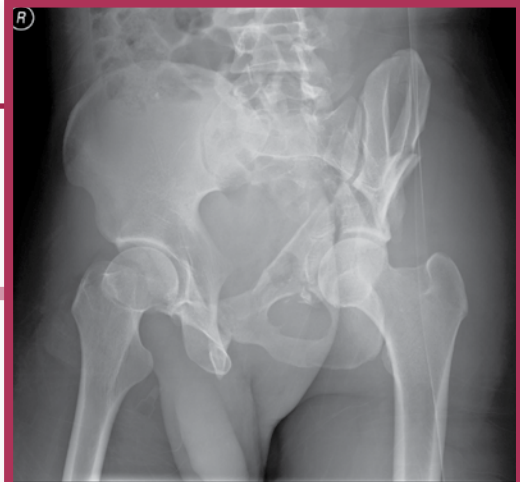
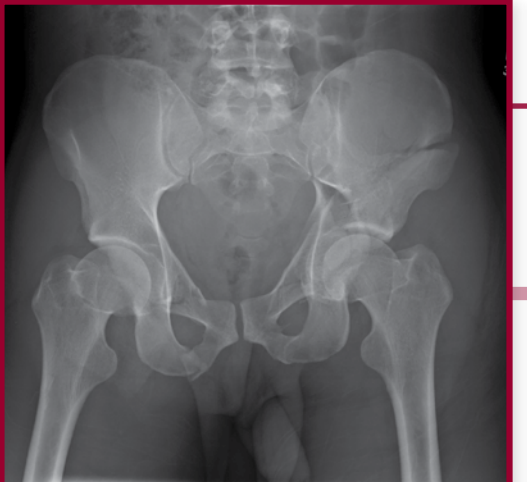
The acetabulum (hip socket) can fracture in a number

of different patterns. The both column pattern is perhaps the most complex of these injuries. In the both column injury no portion of the joint surface remains connected to the intact posterior ilium.

His condition stabilized and he underwent open reduction and internal fixation of his acetabular fracture through both anterior and posterior approaches four days following his injury. His post-operative course was unremarkable. He remained touch-down weight-bearing on his right leg for three months and then was progressed with physical therapy to full weight-bearing. He is now able to walk unassisted.



Post-operative x-rays



Pre-operative x-rays

Surgeon Spotlight

David J. Hak, M.D., MBA

David J. Hak, M.D., MBA, is the Associate Director of Orthopaedics at Denver Health, and Associate Professor at the University of Colorado. He currently serves on the Board of Directors of the International Society for Fracture Repair (ISFR) and the Orthopaedic Trauma Association (OTA), where he also serves as the OTA Chief Financial Officer.

Dr. Hak is a graduate of The Ohio State University. He completed his internship and residency training at the University of California, Los Angeles and a Trauma Fellowship at the University of California, Davis.

He has served on the faculty at the University of Michigan and at the University of California, Davis prior to assuming his current position.

Dr. Hak is actively involved in both clinical and basic science research relating to orthopaedic trauma.

Dr. Hak specializes in Orthopaedic Trauma, including the treatment of complex pelvic and acetabular fractures, long bone fractures, and complex periarticular fractures involving injured joint surfaces.

Management of complex pelvic and acetabular fractures is provided 24/7 by the Orthopaedic Trauma Specialists at Denver Health.



David J. Hak, M.D., MBA

Recent Pelvic and Acetabular Publications

Suzuki T, Morgan SJ, Smith WR, Stahel PF, Flierl MA, Hak DJ. "Stress Radiograph to Detect True Extent of Symphyseal Disruption in Presumed Anteroposterior Compression Type I Pelvic Injuries." *J Trauma*. 2010; 69: 880 - 885.

Krappinger D, Kammerlander C, Hak DJ, Blauth M. "Low Energy Osteoporotic Pelvic Fractures - A Review." *Archives of Orthopaedic and Trauma Surgery*. 2010; 130: 1167 - 1175.

Suzuki T, Morgan SJ, Smith WR, Stahel PF, Gillani SA, Hak DJ. "Postoperative Surgical Site Infection Following Acetabular Fracture Fixation." *Injury, Int J Care Injured*. 2010; 41: 396 - 399.

Hak DJ, Baran S, Stahel PF. "Sacral fractures: Current strategies in diagnosis and management." *Orthopaedics*. 2009; 32: 752 - 757.

Suzuki T, Hak DJ, Ziran BH, Adams SA, Stahel PF, Morgan SJ, Smith WR. "Outcome and Complications of Posterior Transiliac Plating for Vertically Unstable Sacral Fractures." *Injury*. 2009; 40: 405 - 409.

Burlew C, Moore E, Smith W, Johnson J, Biffi W, Barnett C, Stahel P. "Preperitoneal Pelvic Packing/External Fixation with Secondary Angioembolization: Optimal Care for Life Threatening Hemorrhage from Unstable pelvic Fractures." *J Am Coll Surg*. 2011 Apr; 212 (4):628-35.



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Did You Know?

Denver Health Orthopaedic patients also have access to:

- Full rehabilitation services including Physical Medicine and Rehabilitation Physician Specialists.
- Full Physical and Occupational Therapy Services.
- Comprehensive Podiatry Care.
- Specialty Geriatric Fracture Clinic.
- Primary Care Non-operative Sports Medicine Clinic.
- Interdisciplinary Spine Care



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