

## Chief Complaint

Motor vehicle rollover

## History of Present Illness

A 42-year-old male unrestrained back seat passenger with unknown past medical history was brought in by ambulance after a motor vehicle accident. The vehicle was traveling approximately 75 mph when the driver lost control and fishtailed into oncoming traffic, causing a rear-end collision and rollover. The vehicle was found upside down, and the patient was partially ejected with his legs angulated to the back of the vehicle and underneath him. Per EMS, the patient was altered and combative on scene.

## Pertinent Physical Exam

**VS:** BP 100/79, HR 124, RR 42, T 36.1°C, O2 sat 98% RA

**GEN:** Agitated, screaming, uncooperative with exam.

**NEURO:** GCS 14, confused.

**GI:** Abdomen soft, nontender. Good rectal tone w/o blood.

**MSK:** Left lower extremity hyperflexed, abducted, and externally rotated. Right lower extremity flexed, adducted, and internally rotated with open deformity of right femur. Pedal pulses intact. Compartments soft. Pelvis stable. No C/T/L-spine step-offs.

## Pertinent Laboratory Data

**WBC:** 20.2  
**HGB:** 13  
**AST:** 151  
**ALT:** 95  
**CK:** 2428  
**UDS:** Amphetamines

## Image



## Case Discussion

Due to the patient's combative presentation and sudden drop in oxygen saturation to 86%, he was intubated on arrival. Initial eFAST exam was negative, but the patient became increasingly hypotensive and tachycardic. Massive transfusion protocol (MTP) was initiated with 2 units pRBCs and 2 units FFP. Pelvis x-ray confirmed the suspected bilateral hip dislocations (see Image) and closed reduction of both hips and right femur were performed. After initial resuscitation and stabilization, CT imaging was performed and additionally revealed a hematoma involving the right gluteal musculature with possible hemorrhage, pulmonary contusion, left 6th-9th rib fractures, several areas of intimal injury involving the right common carotid artery, intimal injury of the descending thoracic aorta, and grade 1 kidney and liver lacerations. The patient was admitted to the surgical ICU and underwent ORIF the following day. He had a complex 17-day hospital stay and was subsequently discharged to a long-term acute care hospital (LTACH).

## Q & A

### QUESTIONS:

1. What is the injury depicted in the photo and the urgent procedure that must be performed?
2. What are the most common complications?

### ANSWERS:

1. Bilateral asymmetric hip dislocations:
  - ❖ Left hip inferior posterior dislocation with fracture of the left pubic bone.
  - ❖ Right hip superior anterior dislocation with fracture of the right acetabulum and distal right femur.

Urgent closed reduction should be attempted to avoid potential complications. Open reduction is necessary for irreducible dislocations.
2. Neurovascular complications can occur, of which sciatic nerve injury and avascular necrosis of the femoral head are most common. Other long-term complications include heterotopic ossification (abnormal growth of bone in the non-skeletal tissues), post-traumatic arthritis, and recurrent dislocations.

## Pearls

- ❖ Asymmetric bilateral hip dislocations occur when one hip dislocates anteriorly and the contralateral hip dislocates posteriorly. **They are remarkably rare and account for 0.01% - 0.02% of all joint dislocations.** Men are more commonly affected than women and MVAs are the most common mechanism.<sup>1</sup>
- ❖ **Early recognition of this injury pattern and urgent reduction is imperative to prevent complications that increase with time to reduction.**<sup>2</sup> The patient should be in the supine position and traction applied in-line with the deformity.<sup>3</sup> Sedation is often necessary for muscular relaxation. Pre- and post-reduction neurovascular exams are essential given the risk of compromise.
- ❖ **Asymmetric bilateral hip dislocations are indicative of a high-energy trauma, and the patient should promptly be evaluated for other serious and life-threatening injuries.** While a hip dislocation itself should not lead to hemorrhagic shock, associated injuries can. Femur fractures, for instance, can cause up to 1.5L (closed) to 3L (open) of blood loss.<sup>4</sup> Additionally, while true pelvic volume is approximately 1.5L, with disruption of the pelvic ring and loss of the tamponade effect, the pelvic space can potentially accommodate a patient's entire blood volume.<sup>5</sup>

## References

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4. Lee C, Porter KM. Prehospital management of lower limb fractures. Emerg Med J. 2005;22:660-63.
5. Suzuki T, Smith WR, Moore EE. Pelvic packing or angiography: competitive or complementary? Injury. 2009 Apr;40(4):343-53.