

# Traumatic Obturator Hip Dislocation in a 9-Year-Old Boy

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## Abstract

Traumatic hip dislocation is a rare but potentially devastating injury in a child. Although most hip dislocations are posterior, other variants have been described. An anterior dislocation in the pediatric population is uncommon and, to our knowledge, this is the first case of anterior-inferior (obturator) dislocation (ie, the femoral head lies in the obturator foramen), to be reported in the English-language literature.

In this article, we describe the case of a young boy with a traumatic obturator hip dislocation treated conservatively with closed reduction and followed closely for 1 year. The patient did not develop any sequelae throughout the follow-up year. This case report, along with a review of the literature, will help guide clinicians in the care of patients with this rare injury.



Figure 1. Anteroposterior radiograph reveals obturator dislocation of left hip.

**T**raumatic hip dislocation is a rare but potentially devastating injury in the pediatric population. Pediatric hip dislocations account for 5% of all hip dislocations.<sup>1</sup> Although most of these dislocations are posterior, other variants have been described. An anterior dislocation in the pediatric population is uncommon and, to our knowledge, this is the first case of anterior-inferior (obturator) dislocation (ie, the femoral head lies in the obturator foramen) to be reported in the English-language literature.

In this article, we describe the clinical presentation and treatment of an obturator dislocation in a pediatric patient, along with a review of the literature to help guide clinicians in treating this rare injury.

The patient's father provided written informed consent for print and electronic publication of this case report.

## Case Report

A 9-year-old boy presented to the emergency department (ED) with left hip pain, deformity, and inability to bear weight. He had fallen awkwardly while running from a playmate. The fall forced the left leg into hyperabduction and external

rotation. He felt pain in the left leg immediately following the injury, with an obvious fixed abduction deformity. He was transported by ambulance to the ED.

On examination, the boy's left lower extremity was fixed in slight flexion, external rotation, and about 90° of abduction. There was an obvious deformity of the left lower extremity. Neurovascular examination revealed intact sensation in the left lower extremity and intact distal pulses. Detailed motor examination was not possible given the child's discomfort and deformity, but he was observed dorsiflexing and plantarflexing the left ankle.

Radiographs of the pelvis and the left hip revealed a hip dislocation (Figure 1). The femoral head was inferior to the acetabulum, situated in the obturator foramen. No fractures or physeal separations were observed.

The patient was adequately sedated in the ED, and the hip was reduced with gentle hyperabduction, external rotation, distal traction, and adduction with internal rotation after the femoral head was cleared from the obturator foramen. Post-reduction radiographs and computed tomography showed concentric reduction of the hip with no intra-articular bodies

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and no physal displacement (**Figure 2**). Adequate reduction was achieved within approximately 3 hours after injury.

Postreduction examination revealed the extremity to be neurologically intact with respect to motor activity and sensation, and the limb maintained excellent distal pulses. The patient was admitted overnight for neurovascular checks and was discharged home 24 hours later. Weight-bearing was protected with crutches, and abduction restricted for 4 weeks.

At 1-month follow-up, he had no hip pain at rest or with ambulation, and excellent range of motion, with no apprehension on passive abduction. He remained neurovascularly intact. Radiographs of the left hip showed a well-located left femoral head and no abnormal findings. The patient was allowed to resume weight-bearing without an assistive device.

At 3-month follow-up, the patient reported no deficits in left hip function. Gadolinium-enhanced magnetic resonance imaging (MRI) of the left lower extremity was ordered to assess for early avascular necrosis (AVN), and showed a mild strain of the left quadratus femoris muscle and a focal bone contusion of the right posterior superior iliac spine without fracture (**Figure 3**). There was no difference in femoral head enhancement between the injured and uninjured sides.

At 6-month follow-up, the patient was playing football and engaging in all functional activities without pain or limitation. Radiographs showed no evidence of AVN. Two years after injury, the patient showed no evidence of hip pain or AVN and reported no limitations in functional activities.

## Discussion

In the pediatric population, traumatic hip dislocations are rare, particularly anterior dislocations. To our knowledge, an

obturator dislocation has not been reported in the English-language literature. Given the low incidence of this injury, a physician has very little information on which to base treatment. As previously mentioned, traumatic pediatric hip dislocations comprise approximately 5% of all traumatic hip dislocations. As in adults, most of these dislocations are posterior; 5% to 10% are anterior.<sup>2-4</sup> Dislocations can be caused by high- or low-energy trauma.<sup>2,3,5</sup> Complications include AVN (10%),<sup>2,4,6,7</sup> associated fracture ( $\leq 40\%$ ),<sup>6</sup> neurologic or vascular compromise ( $\leq 25\%$ ),<sup>2,8,9</sup> articular cartilage injury (6%),<sup>3,4,10,11</sup> and bodies entrapped in the acetabulum ( $\leq 25\%$ ).<sup>2-5</sup> This injury should be treated as a true emergency and reduced within 6 hours of injury,<sup>2</sup> as prolonged time to reduction is a predictor of AVN.<sup>12</sup> Although the outcome of AVN in children is similar to that in adults, this complication is particularly devastating in pediatric patients, as treatment options for AVN of the hip present a challenge in this population.<sup>2</sup>

To decrease the risk of AVN, surgeons should perform reduction as soon as adequate sedation is available. Whether this is done in the ED or in the operating room is an institutional choice. However, sufficient sedation and analgesia are crucial to safe and effective reduction and to lowering the risk for physal injury.<sup>2</sup>

After prompt reduction and activity modification, our patient recovered well. All of his recent imaging studies showed no evidence of AVN or physal injury. Since AVN has been reported to present up to 2 years after injury, and given the possibility of growth disturbance from an unrecognized physal injury, we will continue follow-up with annual visits. The patient's family was instructed to return before an appointed visit should hip pain or a limp develop.



**Figure 2.** Computed tomography after reduction shows relocation of femoral head.



**Figure 3.** Magnetic resonance imaging shows symmetry of femoral heads 3 months after initial injury.

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*This paper will be judged for the Resident Writer's Award.*

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