

Missed Obturator Hip Dislocation in a 19-Year-Old Man

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Abstract

Traumatic obturator hip dislocations are rare injuries that are typically diagnosed and managed acutely. We encountered a patient who presented with a painful hip 2 months after sustaining an undiagnosed traumatic obturator hip dislocation. After failed closed treatment, the hip was reduced with open reduction, utilizing a Kocher approach and a trochanteric osteotomy. At 15 months postoperatively, the patient maintained a functional range of motion without clinical or radiographic signs of posttraumatic arthritis or avascular necrosis.

Traumatic obturator hip dislocations are rare injuries. This injury pattern accounts for 7% to 10% of all traumatic hip dislocations¹ and 35% to 55% of these injuries demonstrate concurrent femoral head impaction lesions.² Eighty-four percent of hip dislocations occur as a consequence of motor vehicle crashes. In 70% of these cases, other injuries are present.³ To our knowledge, all of the traumatic obturator hip dislocations that have been reported were diagnosed and managed acutely.

In this article, we describe a patient who presented with a painful hip 2 months after an undiagnosed traumatic obturator hip dislocation. The patient provided written informed consent for print and electronic publication of this case report.

CASE REPORT

A 19-year-old man was referred to our trauma center. He had reports of right hip pain and a limp 2 months after a motor vehicle crash in which he was a restrained passenger. He had initially presented with the same reports to a community hospital. Although appropriate imaging (standard radiographic trauma series) had shown an anterior obturator hip dislocation, the official reading

was “no hip bone fracture or dislocation.” Accordingly, a reduction maneuver was not attempted. The patient was given crutches and instructions for gradual weight-bearing as tolerated.

The right hip pain persisted. After 2 ½ weeks, the patient reported being able to ambulate without crutches but only over a short distance (6 m) and with difficulty. Finally, 2 months after the injury, he presented with reports of continued hip pain and a limp to the emergency department at the hospital. He was then referred to our trauma center.

Radiographs (Figures 1, 2) and computed tomography (CT) (Figure 3) showed an anterior dislocation of the right hip with incarceration of the femoral head and a superolateral impaction lesion in the obtura-



Figure 1. Presenting anteroposterior radiograph shows chronic obturator dislocation.

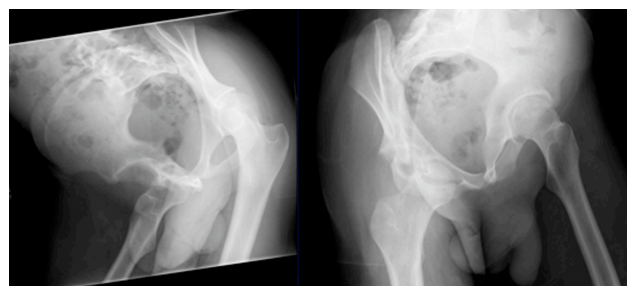


Figure 2. Presenting Judet radiographs show chronic obturator dislocation.

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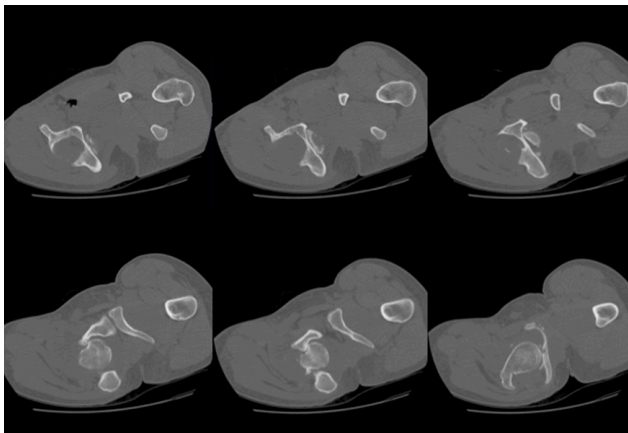


Figure 3. Presenting computed tomography axial scan cuts show chronic obturator dislocation.

tor foramen. The patient was placed in skeletal traction for 3 days to decrease soft-tissue tension. Daily radiographs failed to show any change in hip position. An open reduction was performed through a Kocher-Langenbeck approach. Although an anterior approach could have been used, a posterior approach was chosen because we believed it would facilitate placement of the femoral distractor and allow for direct protection of the sciatic nerve. Furthermore, we believed the planned greater trochanter osteotomy would improve anterior exposure, which was inherently more limited with the posterior approach. During surgery, the labrum was protected, a large amount of tissue was removed from the acetabulum, and skeletal traction was applied. Final reduction was achieved with a slide trochanteric osteotomy and a femoral distractor spanning the hip joint. The decision to perform a slide osteotomy—as opposed to a flip osteotomy, which is a viable alternative—was based on surgeon preference and experience.

Intraoperative inspection revealed a large impaction lesion at the junction of the femoral neck and articular surface of the femoral head at its point of incarceration in the superolateral aspect of the ipsilateral obturator foramen. This lesion caused no instability once the hip was reduced. Postoperative CT confirmed concentric reduction (Figure 4). After surgery, the patient received a 700-cGy dose of radiation for prophylaxis against heterotopic ossification.

Recovery was uneventful. The patient was discharged in an abduction orthosis and instructed to engage in weight-bearing as tolerated. After 1 month, the brace was discontinued and formal physical therapy begun. At the first postoperative visit, the patient denied pain and demonstrated functional hip range of motion (ROM), albeit with a slight abduction contracture.

Fifteen months after the procedure, he reported occasional hip discomfort and lateral hip pain without ROM restriction. He denied limping, weakness, and instability. On physical examination, he demonstrated right hip flexion passive ROM to 100°. He lacked 20° of

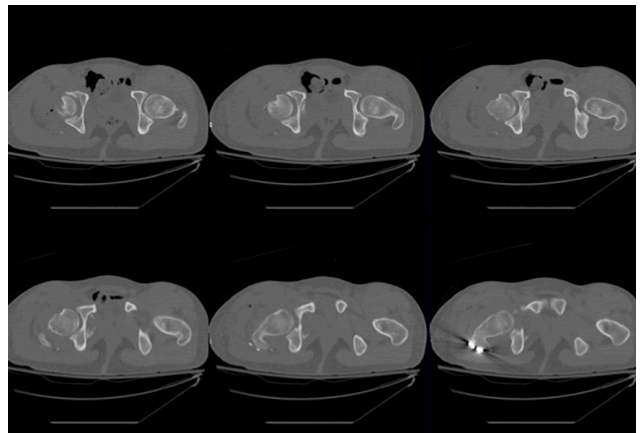


Figure 4. After open reduction, computed tomography axial scan cuts show reduced chronic obturator.

terminal flexion, compared with the contralateral side. Internal rotation was 15° (10° discrepancy), and external rotation was 20° (25° discrepancy). The iliopsoas, quadriceps, hamstrings, and ankle dorsiflexion and plantarflexion muscle groups had full strength. There was no evidence of Trendelenburg gait or abductor weakness at slow or brisk paces. Radiographs showed a concentrically reduced right hip and an osteotomy site union with continued bony defect on the lateral aspect of the femoral head and neck. The joint space was symmetrical, without radiographic evidence of posttraumatic osteoarthritis. Anteroposterior and lateral radiographs also showed a symmetrically shaped femoral head, excluding the previously identified and known impaction lesion, without subchondral collapse or femoral head heterogeneity (Figure 5). Therefore, clinical and radiographic findings were consistent with femoral head viability at 15 months.

DISCUSSION

Hip dislocation, which results from transmission of force through the femur, is often generated by an impact on the knee. A weak posteroinferior capsule coupled with a posteriorly directed force, commonly sustained from dashboard impaction during motor vehicle crashes, most commonly results in posterior hip dislocation. Infrequently, anterior hip dislocation may result.

Anterior hip dislocation has been demonstrated to result from simultaneous hip abduction, external rotation, and flexion.² In this setting, the femoral head extrudes through the anterior capsule beneath the pubofemoral ligament and comes to rest in the obturator ring.⁴

In our review of the post-1954 English-language literature, we found only 13 case reports (18 dislocations) and 1 retrospective review (15 anterior dislocations) confirming the rarity of obturator dislocation. All the injuries in this subset occurred secondary to a high-energy mechanism, and the predominant patients were young males. The literature also includes an interesting



Figure 5. Fifteen months after open reduction, final anteroposterior and lateral radiographs show reduced chronic obturator.

spectrum of local injuries that co-occur with anterior hip dislocation. Erb and colleagues¹ and DeLee and colleagues² found that 5% to 55% of these patients sustained concurrent femoral head impact lesions. Bilateral obturator hip dislocation was documented in 3 case studies.⁵⁻⁷ Reported concomitant injuries in bilateral cases included posterior wall fracture,⁷ ipsilateral inferior ramus fracture with extruded femoral head,⁸ and ipsilateral femoral shaft fractures.^{8,9} Concomitant femoral neck fractures have also been described.^{10,11}

Anterior hip dislocation traditionally has been managed without surgery. DeLee and colleagues² successfully managed 14 of 15 obturator dislocations with use of closed reduction. Two years after initial injury, poor patient outcome correlated with concomitant femoral head fracture and radiographic evidence of degenerative joint disease. With respect to the case reports,^{1,2,5-11} open treatment was overwhelmingly chosen for definitive management. Few other studies or case reports have evaluated the long-term results of anterior hip dislocation.

Avascular necrosis (AVN), traumatic arthritis, and heterotrophic ossification are late complications of hip dislocation. The development of AVN is the result of multiple factors, likely a combination of immediate pressure and chronic ischemic vessel damage. Regardless of direction of dislocation, severity of injury has been found to correlate with unsatisfactory results.¹² Dreinhöfer and colleagues¹³ reported improved prognosis (ie, less osteoarthritis and AVN) with anterior versus posterior dislocated hips. Traditionally, longer time to reduction has been postulated as a potential factor in the development of AVN.

Farag and colleagues⁸ found grade II AVN 1 year after surgery and concluded that the patient's extensive soft-tissue damage and 8-day delay before reduction made development of AVN almost inevitable. Our patient's longer reduction delay (>2 months) certainly

placed him at high risk for developing AVN. We decided to use open reduction as a means of improving his gait and minimizing his pain.

CONCLUSION

In 1984, Harris wrote, "Marked deformity, permanent disability and the great suffering resulting from old unreduced dislocations of the hip have led surgeons at all times to resort to extreme measures to effect a reduction."¹⁴ In 1920, Buchanan concluded, "Open reduction in old hip luxations is usually difficult and not altogether devoid of danger, but it is the operation of choice."¹⁴

To our knowledge, this is the first case report of an obturator dislocation missed for 2 months after initial trauma and then managed with open reduction (trochanteric osteotomy) through a posterior approach. At 15-month follow-up, there was no clinical or radiographic evidence of instability or AVN, and the patient's functional outcome was acceptable.

AUTHORS' DISCLOSURE STATEMENT

The authors report no actual or potential conflict of interest in relation to this article.

REFERENCES

- Erb RE, Steele JR, Nance EP Jr, Edwards JR. Traumatic anterior dislocation of the hip: spectrum of plain film and CT findings. *AJR Am J Roentgenol.* 1995;165(5):1215-1219.
- DeLee JC, Evans JA, Thomas J. Anterior dislocation of the hip and associated femoral-head fractures. *J Bone Joint Surg Am.* 1980;62(6):960-964.
- Sahin V, Karakaş ES, Aksu S, Atlihan D, Turk CY, Halici M. Traumatic dislocation and fracture-dislocation of the hip: a long-term follow-up study. *J Trauma.* 2003;54(3):520-529.
- Jensen BV, Sandermann J. Traumatic anterior dislocation of the hip. Case report. *Arch Orthop Trauma Surg.* 1989;108(5):327-328.
- Endo S, Hoshi S, Takayama H, Kan E. Traumatic bilateral obturator dislocation of the hip joint. *Injury.* 1991;22(3):232-233.
- Gibbs A. Bilateral obturator dislocation of the hip joint. *Injury.* 1980;12(3):250-251.
- Duygulu F, Karagoğlu S, Kabak S, Karahan OI. Bilateral obturator dislocation of the hip. *Arch Orthop Trauma Surg.* 2003;123(1):36-38.
- Farag AW, Shohayeb KA. Intrapelvic dislocation of the head of femur through the obturator foramen associated with ipsilateral fracture femur. *J Bone Joint Surg Br.* 2003;85(7):1056-1058.
- Sambandan S. Obturator dislocation of the hip associated with fracture shaft of femur: a case report. *Singapore Med J.* 1986;27(5):442-445.
- Izquierdo RJ, Harris D. Obturator hip dislocation with subcapital fracture of the femoral neck. *Injury.* 1994;25(2):108-110.
- McClelland SJ, Bauman PA, Medley CF Jr, Shelton ML. Obturator hip dislocation with ipsilateral fractures of the femoral head and femoral neck. A case report. *Clin Orthop.* 1987;(224):164-168.
- Jacob JR, Rao JP, Ciccarelli C. Traumatic dislocation and fracture dislocation of the hip. A long-term follow-up study. *Clin Orthop.* 1987;(214):249-263.
- Dreinhöfer KE, Schwarzkopf SR, Haas NP, Tscherner H. Isolated traumatic dislocation of the hip. Long-term results in 50 patients. *J Bone Joint Surg Br.* 1994;76(1):6-12.
- Sarkar SD. Delayed open reduction of traumatic dislocation of the hip. A case report and historical review. *Clin Orthop.* 1984;(186):38-41.

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