

Case Report

Volume 4 Issue 1 – December 2016
DOI: 10.19080/OROAJ.2016.04.555630

Ortho & Rheum Open Access

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Arthrodiastasis to Treat Traumatic Fracture Dislocation of the Hip in Elderly: Case Report

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Submission: December 10, 2016; **Published:** December 19, 2016

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Abstract

The term “hip arthrodiastasis” describes a regime of articulated Iliofemoral distraction, which has been used in order to treat a variety of conditions such as osteoarthritis, chondrolysis and avascular necrosis Perthes’ disease, dislocated hip and avascular necrosis of the femoral head following septic arthritis. There are a few studies reporting the use of iliofemoral distraction and external fixation (arthrodiastasis) to treat acetabular fractures.

We present a case report of a dislocated hip associated with comminuted acetabular fracture of the posterior wall treated by arthrodiastasis using a hinged external fixation frame. Key words: arthrodiastasis, dislocation, acetabular fracture, Perthes’ disease.

Introduction

Acetabular fractures treatment represents a great controversy for an orthopedic surgeon. Displaced fractures of the acetabulum are best treated with anatomical reduction and rigid internal fixation. In spite of advances made in the operative management, conservative treatment is being followed in most of the centers in developing countries. There are previous studies reporting the long term outcome of conservatively treated acetabular fractures [1,2].

The term “hip arthrodiastasis” describes a regime of articulated Iliofemoral distraction, which has been used in Verona since 1979, in order to treat a variety of conditions such as osteoarthritis, chondrolysis and avascular necrosis [3,4], Perthes’ disease [5,6], dislocated hip and avascular necrosis of the femoral head following septic arthritis [7]. There are a few studies reporting the use of iliofemoral distraction and external fixation (arthrodiastasis) to treat acetabular fractures [8-10]. We present a case report of a dislocated hip associated with comminuted acetabular fracture of the posterior wall treated by arthrodiastasis using the FERN hinged external fixation frame [11].

Case Report

A 67-year-old woman was involved in a road traffic accident. Upon evaluation in the emergency department, she was diagnosed with a right hip dislocation (Figure 1) and initial pelvic

radiographs revealed a posterior hip dislocation associated with a comminuted acetabular fracture of the posterior wall (Figure 2a). One hour after admission, she was taken to the operating room for reduction and stabilization of the hip.



Figure 1: Clinical Presentation: the affected limb of a posterior hip dislocation most commonly appears shortened, internally rotated, and adducted.



Figure 2: (a) Posterior wall comminute fracture of the acetabulum with posterior dislocation of the femoral head. (b) Postoperative anteroposterior radiograph showing reduction of the acetabular fracture-dislocation.

Operative Procedure

The operation was performed under general anaesthesia. After placing the patient on the fracture table a closed reduction of the fracture was performed under image intensification. Two 5 mm diameter and 20-25 cm long thread pin with sharp tip were introduced into the subchondral bone of the ilium in the transverse plane. The FERN external fixator was positioned in 15° of abduction and two or three more thread pins were placed distally in the femur in the axial plane (Figure 2b).

The hip was distracted until widening of the joint space was seen on the image intensifier. After operation, the patient was mobilized partially weight-bearing on crutches and hip flexion- extension exercises were encouraged. Ten weeks after her injury, the external fixator was removed, with no subsidence of her pelvic injury (Figure 3). She was then lost to follow-up, but ultimately returned for evaluation at one year post-injury. She did not exhibit any gait abnormalities and denied pain with ambulation.



Figure 3: Ten weeks after injury: Postoperative anteroposterior radiograph showing no subsidence of acetabular injury.

Discussion

By itself, a fracture of the acetabulum is generally not a life-threatening injury although some patients with these fractures will also have other serious injuries. Due to their weight, as well as the consequences they leave, acetabular fractures occupy an important place in traumatology.

Ferguson et al. [12] presented radiological and epidemiological studies on acetabular fractures in patients aged over 60 years. The study showed that the fracture was more frequently in the elderly when compared to younger patients.

High-energy force causes a fracture in young patients, more frequently in males. More frequently, low-energy force leads to acetabular fractures in elderly patients. Most common causes of acetabular fracture are: traffic accidents in 80.5%, falls from height in 10.7% and other causes in 8.8% [13]. A dislocated hip associated with comminuted acetabular fractures have a difficult and complex management and a reserved prognosis, in what concerns the hip stability, acetabular congruency and femoral head viability.

Conservative treatment of the acetabular fracture-dislocations continues to be the mainstay of treatment in most centers in the developing countries. Lack of infrastructure, non-

availability of skilled services, delayed referrals from peripheral units, economic constraints, patient's unwillingness to undergo surgery often make the conservative treatment inevitable.

After reduction, routinely these fractures have been treated by balanced traction in bed. However, this type of treatment requires a long stay in ward, leading to an increase of treatment costs and a delay in rehabilitation.

Arthrodiastasis, utilizing an external fixator, introduced not only a way of simple reduction and efficient stabilization of articular fractures, and also allowed early walking and rehabilitation. The goal of arthrodiastasis is to prevent dislocation of the hip by creating a space between the bony surfaces, minimizing mechanical stress and maintaining movement in order to allow the synovial circulation will be restored.

Conclusion

The stabilization of hip dislocation with associated acetabular fracture by arthrodiastasis with external fixator could be an effective method. Subsequent studies including clinical trials are necessary to confirm the authors' suggestion.

I. "There are no financial disclosures, commercial associations, or any other conditions posing a conflict of interest to report for any of the above authors."

II. "Each author certifies that his or her institution has approved the reporting of this case report and that all investigations were conducted in conformity with ethical principles of research".

References

1. Narender Kumar Magu, Rajesh Rohilla, Sanjay Arora (2012) Conservatively treated acetabular fractures: A retrospective analysis. *Indian J Orthop* 46(1): 36-45.
2. Sen RK, Veerappa LA (2009) Long-term outcome of conservatively managed displaced acetabular fractures. *J Trauma* 67(1): 155-159.
3. Aldegheri R, Trivella G, Saleh M (2000) Articulated distraction of the hip. In: de Bastiani G, Apley G, Goldberg A, eds. *Orthofix external fixation in trauma and orthopaedics*. London: Springer Verlag 605-12.
4. ALDEGHERI ROBERTO, TRIVELLA GIAMPAOLO, SALEH MICHAEL (1994) Articulated distraction of the hip: conservative surgery for arthritis in young patients. *Clin Orthop* 301: 94-101.
5. Kocaoglu M, Kilicoglu OI, Goksan SB, Cakmak M (1999) Ilizarov fixator for the treatment of Legg-Calvé-Perthes disease. *J Paediatr Orthop B* 8(4): 276-281.
6. Maxwell SL, Lappin KJ, Kealey WD, McDowell BC, Cosgrove AP (2004) Arthrodiastasis in Perthes' disease: Preliminary Results. *J Bone Joint Surg Br* 86(2): 244-250.
7. Nagarajah K, Aslam N, McLardy Smith P, McNally M (2005) Iliofemoral distraction and hip reconstruction for the sequelae of a septic dislocated hip with chronic femoral osteomyelitis: Case Report. *Bone Joint Surg Br* 87(6): 863-866.
8. Craveiro Lopes N (1999) Treatment of comminuted acetabular fractures by ligamentotaxis with Ilizarov frame.

9. Benjamin C. Taylor, Attila Poka (2012) Definitive Treatment of Bilateral Acetabular and Pelvic Ring Injuries Using External Fixation. Iowa Orthop J 32: 220-223.
10. Frank M, Dzupa V, Smejkal K, Baca V, Dedek T (2014) Cross over external fixator for acetabular fractures: a cadaver study. Eur J Trauma Emerg Surg 40(5): 601-606.
11. Fernandez Caycho José (1992) Fijación externa tubular. Acta Traumatológica Militar 1(1): 9-10.
12. Ferguson TA, Patel R, Bhandari M, Matta JM (2010) Fractures of the acetabulum in patients aged 60 years and older: An Epidemiological and Radiological Study. J Bone Joint Surg Br 92(2): 250-257.
13. Predrag Grubor, Ferid Krupic, Mirza Biscevic, Milan Grubor (2015) Controversies in Treatment of Acetabular Fracture. Med Arh 69(1): 16-20.

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