

CASE REPORT OF RARE ISOLATED PIPKIN TYPE II FEMORAL HEAD FRACTURE

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DOI: <https://doi.org/10.17605/OSF.IO/7TE38>

Article Received on 20/12/2020

Article Revised on 10/01/2021

Article Accepted on 30/01/2021

ABSTRACT

Femoral head fractures in adults are often associated with femoral neck fractures, acetabular fractures, and sciatic nerve neurapraxia. We report the case of a 38-year-old patient with an isolated fracture of the femoral head. The treatment consisted on an open-air reduction and fixation with screws. The functional results were good.

KEYWORDS: Femoral head, hip dislocation, Pipkin.

INTRODUCTION

Femoral head fractures without associated injury to the hip are extremely rare. Only 5 to 15% of posterior hip dislocations are associated with fractures of the femoral head.^[4,5] The first to have described this fracture is Birkett in 1869.^[1] It was classified by Pipkin in 1957.^[2] Mostly, femoral head fractures are caused by high impact road accidents and falls from great heights.^[3] Given the frequency of poor functional results associated with conservative treatment, surgical treatment is the most often adopted procedure.^[4-6]

However, there is no consensus regarding adequate treatment.

CASE PRESENTATION

This is a 38-year-old woman, with no particular history, brought to the emergency department after falling from a height of 6 meters with a landing on the left half body. After conditioning and stabilization, our patient complained of severe pain in his left hip with complete functional impairment. The vasculo-nervous examination does not reveal any sensory-motor deficit, in the same way the distal pulses are bilateral and symmetrical. Computed tomography (CT) of the left hip demonstrated the presence of a type II fracture of the PIPKIN classification. (fig1)



Fig. 1: CT scan of the left hip showing the type II Pipkin fracture.

The patient was operated on the same day, an open reduction was performed by the Hueter approach (fig 2) and osteosynthesis by screwing.



Fig. 2: intraoperative image showing screwing on the femoral head.

Postoperative radiographs show a good reduction (fig 3 and 4).

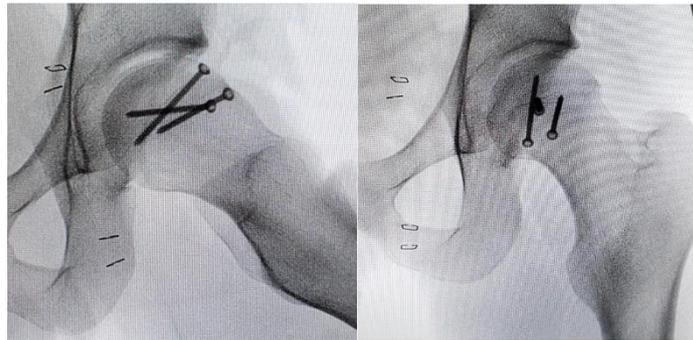


Fig. 3 and 4: Postoperative X-Ray.

Hip mobilization without weight-bearing was authorized in the postoperative course which proceeded without notable complications. The patient was discharged 3 days after the surgery. At 6 weeks of follow-up, the patient began partial weight bearing.

DISCUSSION

The frequency of traumatic hip injuries is constantly evolving due to the increase in road accidents.^[19]

Isolated femoral head fracture is an extremely rare injury. In fact, only 10 cases of femoral head fracture without hip dislocation have been reported, including ligament avulsion.^[7-8] A close review of the literature revealed only a few cases of femoral head fracture without hip dislocation published un-tilded.^[10-11]

Van der Werken and Blankensteijn^[9] suggested that a fracture of the femoral head may precede its dislocation because the forces are resisted by the firm upper part of the acetabular rim with the hip joint flexed below 60°. They suggested that direct hits to the greater trochanter in a relatively young person with normal bones may not break the neck of the femur and instead transmit force to the femoral head.

To treat this kind of fracture, there is no consensus on the optimal surgical approach. While some argue for a posterior approach due to allegedly less disruption of the blood supply to the femoral head,^[12] others have argued that the anterior Smith-Peterson approach provides access easier on the femoral head with positive results.^[13,14,15] More recently, a trochanteric tilt osteotomy has been described in the literature.^[16,17,18]

In our case, a fracture of the femoral head without dislocation could have occurred probably due to a high-energy impact on the femoral head with a force acting on the greater trochanter resulting in impaction of the femoral head on the acetabulum. We managed the femoral head fracture with surgical dislocation of the hip and fixation with several Herbert screws.

Any delay in the diagnosis and management of a fracture of the femoral head can generate multiple functional complications of the hip, which requires any orthopedic surgeon to keep the search for this fracture as a reflex in

front of any multiple trauma patient or in the event of multiple trauma. high-speed public highway accident.

CONCLUSION

Traumatic hip fracture without dislocation is a rare entity. Any delay in the diagnosis and management of a fracture of the femoral head can generate multiple functional complications of the hip, which requires any orthopedic surgeon to keep the search for this fracture as a reflex in front of any multiple trauma patient or in the event of multiple trauma. high-speed public highway accident.

Conflict on interest

None.

REFERENCES

1. Sahin V, Karakaş ES, Aksu S. Et al. Traumatic dislocation and fracture-dislocation of the hip: a long-term follow-up study. *J Trauma*, 2003; 54: 520–9.
2. Pipkin G. Treatment of grade IV fracture-dislocation of the hip. *J Bone Joint Surg Am*, 1957; 39-A: 1027–42.
3. Epstein HC, Wiss DA, Cozen L. Posterior fracture dislocation of the hip with fractures of the femoral head. *Clin Orthop Relat Res*, 1985; 201: 9–17.
4. Droll KP, Broekhuyse H, O'Brien P. Fracture of the femoral head. *J Am Acad Orthop Surg*, 2007; 15: 716–27.
5. Giannoudis PV, Kontakis G, Christoforakis Z. Et al. Management, complications and clinical results of femoral head fractures. *Injury*, 2009; 40: 1245–51.
6. Yu YH, Hsu YH, Chou YC. Et coll. Traitement chirurgical de la fracture de la tête fémorale Pipkin de type IV. *J Orthop Surg (Hong Kong)*, 2017; 25: 2309499016684970.
7. Matsuda DK. A rare fracture, an even rarer treatment: the arthroscopic reduction and internal fixation of an isolated femoral head fracture. *Arthroscopy*, 2009; 25(4): 408–412.
8. Mody BS, Wainwright AM. Fracture of the femoral head without associated hip dislocation following low-energy trauma: a report of two cases. *Arch Orthop Trauma Surg*, 1996; 115(5): 300–302.

9. Van der Werken C, Blankensteijn JD. Fracture de la tête fémorale sans luxation: un rapport de cas. *Acta Orthop Scand*, 1987; 58(2): 173–174.
10. Kim KI, Koo KH, Sharma R, Park HB, Hwang SC. Concomitant fractures of the femoral head and neck without dislocation of the hip. *Clinorthoprelat Res.*, 2001; 391: 247–50.
11. Fabre A, Bures C, Levadoux M, Leguilloux P, Rigal S. A comminuted fracture of the femoral head without dislocation of the hip. *Eur J orthopsurgtraumatol*, 2003; 13: 166–8.
12. Epstein HC. Posterior hip fractures; long-term follow-up. *J Bone Joint Surg Am*, 1974; 56: 1103–27.
13. Marchetti ME, Steinberg GG, Coumas JM. Mid-term experience of Pipkin's hip fracture dislocations. *J Orthop Trauma*, 1996; 10: 455-61.
14. Stannard JP, Harris HW, Volgas DA, Alonso JE. Functional outcome of patients with fractures of the femoral head associated with dislocations of the hip. *Clin Orthop Relat Res.*, 2000; 377: 44–56.
15. Swiontkowski MF, Thorpe M, Seiler JG, Hansen ST. Surgical management of displaced fractures of the femoral head: A case-paired comparison of anterior and posterior approaches for Pipkin I and Pipkin II fractures. *J Orthop Trauma*, 1992; 6: 437–42.
16. Ganz R, Gill TJ, Gautier E, Ganz K, Krügel N, Berlemann U. Surgical dislocation of the adult hip a technique with full access to the femoral head and the acetabulum without risk of avascular necrosis. *J Bone Joint Surg Br*, 2001; 83: 1119–24.
17. Henle P, Kloen P, Siebenrock KA. Femoral head trauma: what treatment strategy can we recommend?, 2007; 38: 478–88.
18. Keel MJ, Bastian JD, Büchler L, Siebenrock KA. Surgical dislocation of the hip for traumatic posterior locked dislocation with femoral neck and associated acetabular fractures. *J Bone Joint Surg Br*, 2010; 92: 442–6.
19. Bauer GJ, Sarkar MR. Injury classification and surgical approach in hip dislocations and fractures. *Orthopade*. 1997; 26: 304–16.