



## **Percutaneous Fixation for Pipkin type II Femoral head fracture associated with posterior dislocation of the hip**

**T.S.Rajagopal (✉) & P.Kanse , Department of Orthopaedic Surgery,  
Withybush General Hospital, Haverfordwest, SA61 2PZ, Wales, United Kingdom**

### **Correspondence :**

Fax: +44-1437-773455

E-mail: [tsrajagopal@hotmail.com](mailto:tsrajagopal@hotmail.com)

### **Abstract**

Open reduction and internal fixation is an established procedure in the management of femoral head fracture associated with fracture dislocation of the hip. To our knowledge percutaneous fixation after closed reduction for such an injury has not been reported in the literature so far. We present a case report of a Pipkin type II fracture of the femoral head, treated by percutaneous fixation after closed reduction of the dislocation.

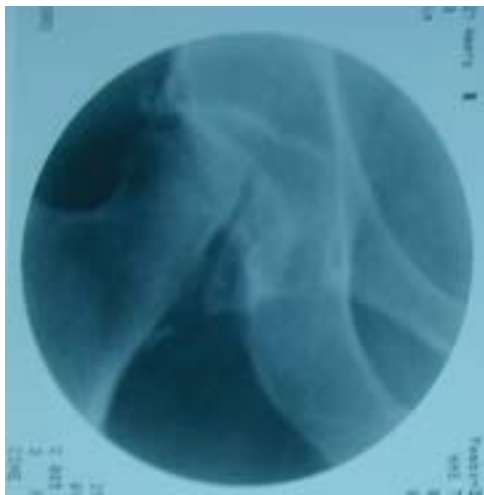


## Introduction

Fracture of the femoral head associated with a hip dislocation is a relatively rare injury, often associated with a poor functional outcome [6]. The treatment of femoral head fracture is a controversial subject in many respects. In Pipkin type II fractures many authors believe that the head fragment should be treated by open reduction and internal fixation to achieve better results [5,6,8]. However percutaneous fixation after a successful closed reduction has not been reported so far. We report a case of Pipkin type II fracture treated by the above method.

## Case Report

60 year old man sustained an isolated injury to the right hip following a high speed road traffic accident. Radiographs showed a posterior dislocation of the hip with a Pipkin type II fracture of the femoral head (Fig. 1).



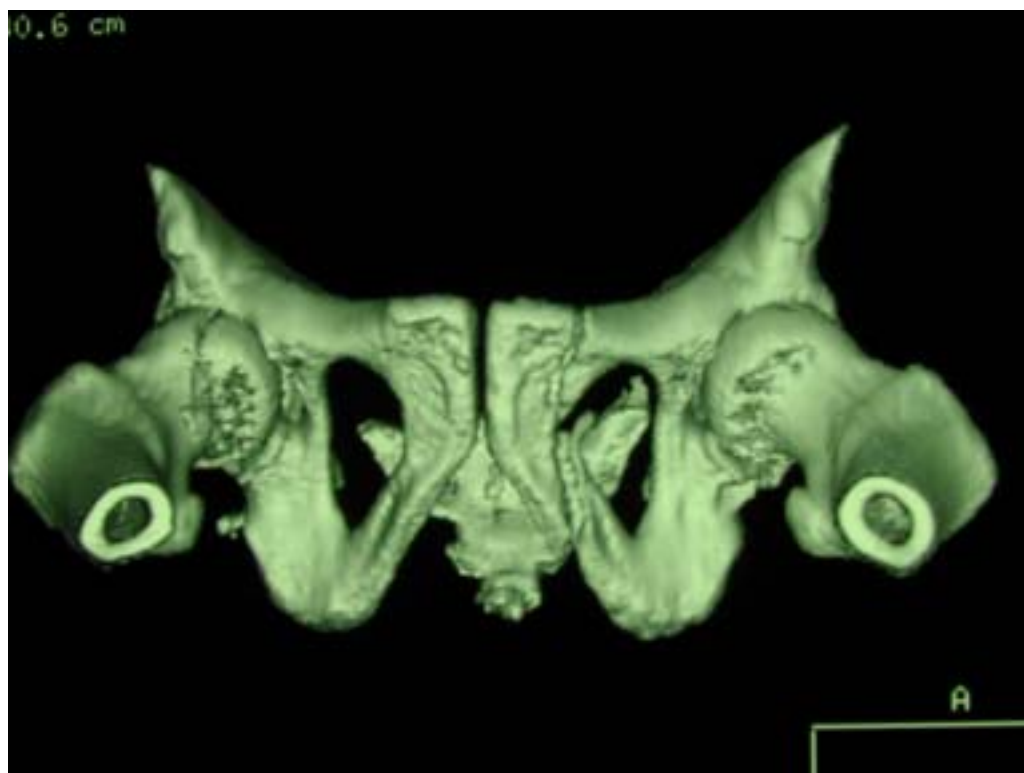
**Figure 1**

*Pipkin type II fracture of the femoral head in the right hip, seen here after closed reduction of the hip dislocation*

Closed reduction of the hip dislocation was done within 2 hours and the patient was put on skeletal traction. A CT scan with 3D reconstruction was done which confirmed the position and the size of the head fragment (Fig. 2). On the third day, under image intensifier control the fracture was fixed with two 4.0 mm cannulated screws (Fig. 3). For six weeks, the patient



was mobilized non-weight bearing, proceeding to full weight bearing at 12 weeks. He was able to resume his normal activities like gardening by 3 months. At one year follow-up, there was no pain with full range of hip motion. Fracture union was complete without any evidence of avascular necrosis. The clinical and radiological outcome at 18 months follow-up was assessed using the criteria outlined by Epstein [2] and was found to be excellent.



**Figure 2**

*CT scan with 3D reconstruction showing the position and the size of the femoral head fragment.*

## **Discussion**

The incidence of fracture dislocation of the hip with associated femoral head fracture has been reported to be about 10 per cent [3,4]. Controversies in the management include indications



for fixation versus excision of the fragment, timing of surgery and the appropriate surgical approach [2,6,7].

In Pipkin type II fractures some authors recommend closed treatment if the fracture fragment is reduced by closed means [1]. While Epstein recommended excision of the fractured fragment, Hougaard suggested that such an excision is contraindicated [3,4]. Many authors reported good results after open reduction and internal fixation to achieve anatomical reduction and early rehabilitation [5,6,8].



**Figure 3**

*Eighteen months follow-up radiograph after percutaneous internal fixation. No evidence of avascular necrosis.*

Percutaneous fixation for femoral head fractures has not been reported in the literature so far, to our knowledge. The damage to the blood supply to the femoral head due to the open



surgical approach is avoided. Other advantages include reduced hospital stay and early rehabilitation. We suggest that it should be undertaken only if an anatomical reduction of the fractured fragment is achieved during closed reduction of the dislocation. Further studies are necessary to confirm that this technique will be a useful alternative in the management of femoral head fractures.

### References

1. Brumback RJ, Kenzora JE, Levitt LE, Burgess AR, Poka A (1987) Fractures of the femoral head. Proceedings of the Hip Society. C V Mosby, St. Louis pp.181-206.
2. Epstein HC (1974) Posterior fracture dislocation of the hip. J Bone Joint Surg [Am] 56 :1103-1127.
3. Epstein HC, Wiss DA, Cozen L (1985) Posterior fracture dislocation of the hip with fractures of the femoral head. Clin. Orthop 201: 9-17.
4. Hougaard K, Thomsen P (1988) Traumatic fracture dislocation of the hip with fractures of the femoral head or neck or both. J Bone Joint Surg [Am] 70:233-239.
5. Mostafa MM (2001) Femoral head fractures. Int Orthop 25: 51-54.
6. Stannard JP, Harris HW, Volgas DA, Alonso JE (2000) Functional outcome of patients with femoral head fractures associated with hip dislocation. Clin Orthop 377:44-56.
7. Swiontkowski MF, Thorpe M, Seiler JG, Hansen ST (1992) Operative management of displaced femoral head fractures: Case matched comparison of anterior versus posterior approaches for Pipkin I and Pipkin II fractures: J Orthop. Trauma 6:437-442.
8. Yoon TR, Rowe SM, Chung JY, Song EK, Jung ST, Anwar IB (2001) Clinical and radiographic outcome of femoral head fractures- 30 patients followed for 3- 10 years: Acta Orthop Scand 72:348-353.