



Proximal Femoral Nailing for Intertrochanteric Fracture in Birmingham Hip Resurfacing Arthroplasty

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Abstract

Neck of femur fractures in elderly patients with hip resurfacing in situ are rarely reported injuries. We report a case of intertrochanteric fracture in a 62 year old man with ipsilateral Birmingham Hip Resurfacing (BHR) arthroplasty, successfully treated with internal fixation using proximal femoral nail. There were no intraoperative or postoperative complications and the patient returned to his normal level of activities within 6 months after the fixation. In conclusion we have demonstrated that fixation with proximal femoral nails can be an alternative safer option in treatment of these complex injuries.

Keywords: Proximal femur nailing; Hip resurfacing; Intertrochanteric fracture; Fixation

Introduction

Neck of femur fractures in hip resurfacing patients is rarely reported injuries. According to a large cohort follow up study done on 3,076 Birmingham hip resurfacing, the prevalence of neck of femur fractures was found to be 1.1% [1]. Hip resurfacing arthroplasty has been gaining popularity in recent years and is usually used for young patients with hip arthritis with physically demanding jobs as its advantages include less bone resection, lower dislocation rates, and possible lower wear and long term survival rate [2]. Complications associated with the procedure include femoral neck fractures particularly intra operative sub capital fractures related to operative technique and range around 0.5% to 4% [3-6].

However other patterns including Intertrochanteric and subtrochanteric are also seen following trivial trauma to the prosthetic hip. The complex fracture patterns along with the associated osteoporosis in the geriatric population makes the surgical management challenging. Various management options include conservative [7], internal fixation using proximal femoral nail [8], cancellous cannulated screws [9], proximal femoral locking compression plate and revision to total hip arthroplasty [10]. We present a case report of the use of proximal femoral nail with trochanteric entry and dual fixation in neck for the treatment of Intertrochanteric fracture in his resurfacing patient. To our knowledge, there has been no case report described in the literature demonstrating successful long term follow up of the patient.

Case Presentation

A 62 year old gentleman, retired police personnel by profession presented after a fall on his left hip when he tripped over a step in his garden and presented with pain in left hip and inability to weight-bear. The preoperative X-rays depicted below confirmed the complex injury with stable grade 1 (Boyd and Griffin) Intertrochanteric fracture with bilateral resurfacing hip Arthroplasty *in situ* (Figure 1). This was an isolated and closed injury with no associated neurovascular deficit. Prior to the fall, he used to mobilize independently and his Harris Hip score at two year follow up following BHR was 88 for right and 84 for left side. Past medical history including oral steroids intake in the past for psoriasis and hypertension.

The case was discussed in a multidisciplinary meeting in the department and it was decided to fix the fracture while retaining the prosthesis in an attempt to avoid major reconstruction and also considering the fact that he had no problems with respect to his resurfaced hip prior to the fall. There was no evidence of loosening or osteolysis of the BHR implants on preoperative X-rays.

Patient was taken to theatre within 36 h of admission. Satisfactory reduction was achieved intraoperatively after closed reduction on the traction table. The fracture was fixed using Expert Lateral Femoral Nail (Synthes) and two proximal locking screws were inserted, one superior and

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Figure 1: Preoperative Ap view showing left intertrochanteric fracture with bilateral hip resurfacing.



Figure 2: Immediate postoperative AP view showing fracture fixed with intramedullary nail.



Figure 3: Immediate postoperative lateral view of left hip.



Figure 4: Six months follow up Ap view of left hip showing union at fracture site.

one inferior to the central peg of BHR femoral component. Care was also taken to avoid drilling near the prosthesis so that the prosthesis fixation would not be jeopardized.

Postoperatively he was allowed to mobilize without any weight bearing restrictions and he was discharged on 3rd postoperative day with no complications. Post operative radiographs taken on day 2 were satisfactory (Figure 2 and 3). He made a successful recovery and within 6 months he had returned to his normal level of activities. Examination of hip at follow up showed a painless range of movement

equal to that of his other hip. Radiographs at 6 month follow up confirmed the healing of the fracture site (Figure 4).

Discussion

Although an Intertrochanteric fracture is a very common injury it is extremely unusual to have this in a hip resurfacing patient. Various management options include non operative, internal fixation and revision Arthroplasty. The choice depends on the fracture pattern and physiological status of the patient. It is always a surgical dilemma to whether retain a well fixed resurfacing implant with stable internal fixation of the fracture or to revise to total hip Arthroplasty. Annig et al. [8] reported good results following intramedullary fixation along with cerclage wires in their case report of a patient with a comminuted fracture of the proximal femur with Birmingham hip resurfacing implant in situ. Jones et al. [10] reported fixation of a subtrochanteric fracture femur around a hip resurfacing in a 32 year old female following a road traffic accident fixed with non locking broad AO DCP. They felt using an intramedullary nail could cause further comminution or could have inadequate fixation in the femoral neck due to fixed angulation of locking screws of the nail being precluded by the stem of the resurfacing implant. However, we did not encounter any of the above problems during the procedure.

We describe an alternative technique that could be considered as a method of choice for internal fixation due to inherent advantages of an intramedullary nail over plating, which include early full weight bearing mobilization and less blood loss and early recovery. We feel the success of the technique relies on achieving stable and near anatomic reduction of fracture and offers clear advantage in dealing with unstable Intertrochanteric fracture with comminution or reverse oblique pattern. It also allows preservation of bone stock and retention of previous well functioning prosthesis.

Conclusion

Proximal femoral nail can be considered an option in treating Intertrochanteric Periprosthetic fractures in the presence of a Birmingham hip resurfacing implant. With meticulous preoperative planning and precise attention to the surgical technique, favourable results can be achieved to manage these challenging fractures.

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