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Case Report

Anterior dislocation of hip following DHS fixation of intertrochanteric fracture: A case report

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ABSTRACT

Intertrochanteric fractures are commonly seen in elderly population. 90% of these occur following a trivial fall. Dynamic hip screw fixation is one of the most common modality of treatment, although intramedullary fixation devices are gaining popularity in recent times, especially in unstable fractures. Dislocation of hip following a DHS fixation of hip is a very rare complication. There are only two case reports which describes dislocation of hip following DHS fixation of an intertrochanteric fracture. Here we present a case of anterior dislocation of hip following DHS fixation of an intertrochanteric fracture. We also discuss about the possible causes of this rare complication, its management and follow up.

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1. Background

Intertrochanteric fractures are commonly seen in elderly population. 90% of these occur following a trivial fall. In younger individuals it usually occurs following a high velocity motor vehicle accident. It is more common in females than in males.¹ Dynamic hip screw fixation is one of the most common modality of treatment, although intramedullary fixation devices are gaining popularity in recent times, especially in unstable fractures. Failure of fixation, malunion & non-union are some of the common complications. Osteonecrosis of femoral head, disengagement of lag screw and side plate, and intrapelvic migration of the lag screw are some of the rare

complications. Dislocation of hip following a DHS fixation of hip is a very rare complication. There are only two case reports which describes dislocation of hip following DHS fixation of an intertrochanteric fracture.^{2,3} Here we present a case of anterior dislocation of hip following DHS fixation of an intertrochanteric fracture. We also discuss about the possible causes of this rare complication, its management and follow up.

2. Case report

A 45-year-old female presented with sudden onset of pain in her left hip, when she rolled over in her bed. Following this she

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Fig. 1 – Immediate post injury radiograph showing a comminuted trochanteric fracture.

was unable to bear weight on the affected limb. Except for the history of a transient ischaemic attack 2 years ago, there was no other significant past history. Radiographs taken in A & E showed a comminuted intertrochanteric fracture of left hip (Fig. 1). Keeping in view the triviality of injury that produced this fracture, patient was investigated for pathological fracture. Mammogram, ultrasound abdomen, chest X-ray, CT guided aspiration cytology/biopsy and blood investigations for metabolic disorders did not reveal any inflammatory, neoplastic or metabolic disorder to suggest a pathological fracture.

Patient was planned for a closed reduction and internal fixation with DHS. During surgery, while reaming and tapping there was malrotation of head, which required an open reduction through the Watson-Jones approach. Because of the extensive comminution autologous bone grafting was also done. Immediate post-operative radiograph showed a valgus reduction with slight inferior placement of the lag screw (Fig. 2). Patient was discharged on 5th post-operative day.

Fig. 2 – CT guided biopsy to look for any suspected underlying pathology.

Fig. 3 – Immediate post-operative radiograph of DHS fixation with inferior screw placement & valgus reduction.

Patient was mobilised toe-touch weight bearing with a walker. Surgical wound healed well. Six weeks later patient had a trivial fall at home and developed pain, shortening and inability to bear weight on the operated limb. She presented to us 4 weeks following the second fall. On examination the left lower limb was externally rotated. Radiograph revealed an

Fig. 4 – Radiograph showing anterior hip dislocation with DHS in situ.

Fig. 5 – Follow up radiograph after total hip replacement.

anterior dislocation of left hip with heterotopic ossification (Fig. 3).

Taking into account the delayed presentation, DHS removal, excision of heterotopic ossification and hemiarthroplasty with uncemented modular bipolar prosthesis was done (Fig. 4). Intraoperative findings included signs of union at the fracture site, excessive ante-version of femoral neck (25–30°) with valgus reduction and unstable hip. There was no evidence of underlying infection.

At 1 year follow up patient was ambulating without support. Radiologically there was brooker⁴ grade 3 heterotopic ossification around hip (Fig. 5). Her Harris hip score⁵ was 87 indicating a good outcome.

3. Discussion

Munjal et al reported a case of atraumatic posterior dislocation of hip 2 weeks following the DHS fixation for intertrochanteric fracture. Following unsuccessful closed reduction, an open reduction was performed. Intraoperatively the authors found complete stripping of hip capsule anteriorly, which was reattached. There were no further dislocations until patient passed away at 6 months following index surgery because of chest infection. The author attributed this unreported complication to initial soft tissue injury rather than the operative technique.

Melton et al in their case report presented two cases of dislocation of hip following valgus fixation of an unstable intertrochanteric fracture. Both cases suffered an atraumatic posterior dislocation of hip at around 3-weeks following fixation and underwent an open reduction. Following open reduction both had an atraumatic redislocation and underwent girdlestone excision arthroplasty. The authors proposed that patient factors (parkinsonism in case 1 &

excessive alcohol in case 2) along with malreduction (retroverted reduction) might have been the cause of posterior dislocation.

Retrospectively, on our analysis we propose that following factors may have contributed to this extremely rare complication.

Valgus reduction and fixation for unstable hip fractures is well described.⁶ But the resultant decrease in the horizontal offset may contribute towards instability of hip joint. Extensive comminution makes the femoral head extremely mobile. Drilling, tapping strips it of its soft tissue attachments and puts it into excessive anteversion/retroversion along with rotational malalignment. Application of a derotation screw before reaming or tapping the guide wire for lag screw can significantly help in avoiding these problems. Capsular stripping done to expose the fracture site for primary bone grafting may also have contributed to the instability of hip.

Although it's an extremely rare complication, its avoidable by taking all possible precautions to avoid rotational malalignment & maintaining capsular attachment. Valgus reduction of trochanteric fractures has its own advantages, we need to be aware of its effect on hip stability.

Conflicts of interest

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

REFERENCES

1. Melton 3rd LJ, Ilstrup DM, Riggs BL, Beckenbaugh RD. Fifty-year trend in hip fracture incidence. *Clin Orthop Relat Res.* 1982;(162):144–149.
2. Munjal S, Krikler SJ. Dislocation of the hip following intertrochanteric fracture. *Injury.* 1995;26(9):645–646.
3. Melton JTK, Yates P, Middleton RG. Dislocation of the hip following valgus fixation of unstable pertrochanteric hip fractures: a complication. *Inj Extra.* 2007;38(2):61–63. <http://dx.doi.org/10.1016/j.injury.2006.07.046>.
4. Brooker AF, Bowerman JW, Robinson RA, Riley Jr LH. Ectopic ossification following total hip replacement. Incidence and a method of classification. *J Bone Joint Surg Am.* 1973;55(8):1629–1632.
5. Harris WH. Traumatic arthritis of the hip after dislocation and acetabular Fractures: treatment by mold arthroplasty, an end-result study using a new method of result evaluation. *J Bone Joint Surg Am.* 1969;51(4):737–755.
6. Parker MJ. Valgus reduction of trochanteric fractures. *Injury.* 1993;24(5):313–316. [http://dx.doi.org/10.1016/0020-1383\(93\)90053-9](http://dx.doi.org/10.1016/0020-1383(93)90053-9).