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Iatrogenic fracture neck femur while internal fixation of fracture shaft femur by femur interlocking nail

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Abstract

Purpose: We have reviewed our experience of three iatrogenic femoral neck fractures in 190 femoral fracture of shaft femur which were operated by close reduction and internal fixation by femoral interlock nail.

Materials & Methods: We reviewed our experience of close femoral nailing and made radiographic measurement of neck shaft angle in blind manner as to occurrence of fracture neck femur. **RESULTS & Discussion:** The average neck shaft angle in the bone that fractured was 140 ± 1 SD (139-141). We believe that excessive adduction of limb for reduction of fracture may cause fracture of neck femur. Also, excessive maneuver using nail or reamer for reduction also causes fracture of neck femur. Out of the three iatrogenic fractures, one was unicortical, undisplaced with intact calcar. It was fixed using two 4.5 mm malleolar screw. Remaining two were bicortical but undisplaced which were again fixed by two 4.5 mm malleolar screw.

Conclusion: We have found that fixation of iatrogenic fracture neck femur while doing femoral interlock nail by malleolar screw rather than removing the nail and doing Proximal Femur Nailing is good option in the view operative time, blood loss and infection.

Keywords: Iatrogenic fracture neck, internal fixation and femur interlocking nail

Introduction

In today's highly advanced modern era for fracture shaft femur, femoral interlocking nail is the procedure of choice for the fracture of shaft of femur. Its value has been proven by high union rate, low number of complications and minimal invasiveness to the soft tissues around the shaft. Femoral interlocking nail has advantages over the other methods of fracture shaft femur fixation. Kuntschner in 1967 recommended the insertion of his nail through the tip of the greater trochanter to avoid possible damage to the hip (1). Winquist, Hansen and Clawson in 1984 found that this was associated with increased proximal and medial comminution in some cases and recommended introduction through the piriform fossa (2). If the piriformis fossa is selected as the point of entry, it provides direct access to the femoral shaft. More rigid straight stainless steel nail need piriformis fossae point of entry. However, if the nail has 6° proximal bend, it has to be introduced from the tip of greater trochanter.

The entry point is identified in the piriformis fossa and slightly posteriorly at the junction of anterior $2/3^{\text{rd}}$ and posterior $1/3^{\text{rd}}$ on the greater trochanter. If the starting position is more medial or anterior, it becomes difficult to pass the nail into the medullary canal and fracture of femoral neck may occur.

Materials & Methods

We reviewed our experience of close femoral nailing and made radiographic measurement of neck shaft angle in blind manner as to occurrence of fracture neck femur. In five year period, 190 femoral interlocking nailing procedures were done in municipal hospital of metropolitan city. There were 85 females and 105 males. Average age was 27 years. The average radiographic neck shaft angle was 125 ± 9 . All the patients were operated in the supine position on the fracture table. We report retrospectively to identify the possible causes that could produce fracture of neck femur while fixing the fracture shaft femur.

Results & Discussion

In the three cases that we report, there was no evidence of femoral neck fracture intra-operatively under the image intensifier. The fracture neck of femur was evidenced on postoperative x ray. All the three patients who developed neck femur fracture had neck shaft angle in the range of 139°-141°. Out of the three, one was female having age of 35 years, other two were male having the age of 40 and 45 years respectively. All the patients were consented for the fixation of fracture neck femur by the two 4.5 mm malleolar screws. While fixing, complete anatomical reduction of fracture neck femur was achieved, fixation was held by the guide wire. After that, malleolar screws were passed. Due to limited space for the insertion of malleolar screw, we were able to pass only two malleolar screws instead of three. Patient was immobilized for three weeks. After that knee ROM and non-weight bearing mobilization was started for three weeks. Thereafter partial weight bearing started for three weeks. Later after three weeks, patients were allowed all the activities of daily living with complete weight bearing. All iatrogenic fracture of neck femur united. None of the patient developed avascular necrosis of head of femur or non-union neck of femur. Radiographs with hip internally rotated are necessary to give the best visualization of the medial femoral neck. Most emergency antero-posterior radiographs of pelvis fail to show a concomitant neck fracture, because they are taken in external rotation.

Conclusion

We learnt that while inserting the nail one should not reduce the fracture using the nail. One should not excessively adduct the leg. If any patient gets the iatrogenic fracture neck femur, it should be fixed as early as possible using the malleolar screw. We have found that fixation of iatrogenic fracture neck femur while doing femoral interlock nail by malleolar screw is a better option than removing the nail and doing Proximal Femur Nailing in the view less operative time, blood loss and reduced infection.

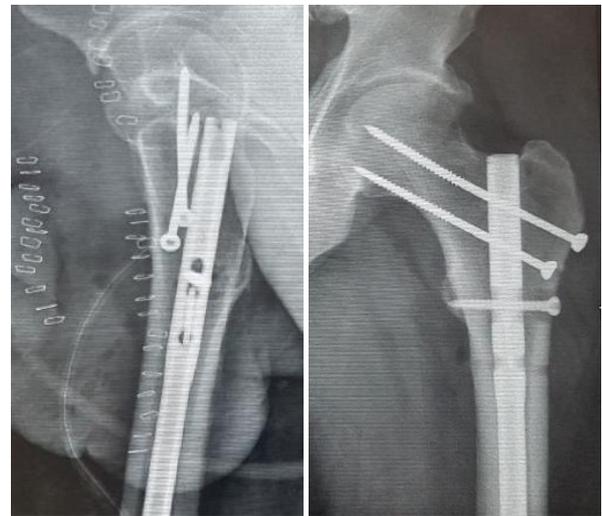


Fig 2: X rays showing fixation of iatrogenic femur neck fracture with two 4.5 mm malleolar screws

References

1. Bick EM. The intramedullary nailing of fracture by G. Kuntscher. *Cli orthop relat res* 1968; 60:5-12
2. Winqvist RA, Hansen ST Jr, Clawson DK. Closed intramedullary nailing of femoral fracture *J Bone Jiont Surg Am.* 1984; 66:529-539
3. Brumbac rj, Uwagie- eros. lakatos rp intramedullary nailing of femoral shaft fracture *j bone jiont surg am.* 1988; 70:1453-1462.
4. Christie J, Court-brown C. Femoral neck fracture during closed medullary nailing *J bone jiont surg br.* 1988; 70:760.
5. Bostman o, varjonen l, vainionpaa s, majola a, rokkanen p. Incidence of local complication after intramedullary nailingand after femoral fixation of frcture shaft femur.*j trauma.* 1989; 29:639-645.

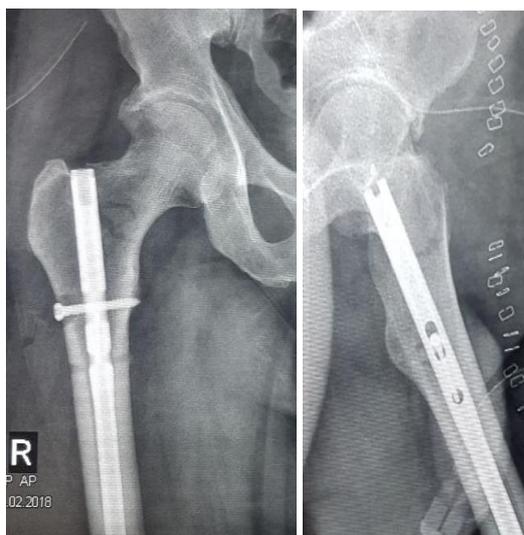


Fig 1: X rays of the patient with iatrogenic undisplaced neck femur fracture after femur interlocking nail