

Subtrochanteric Fracture Complicating the Cannulated Screw Fixation of Femoral Neck Fracture : A Case Report

BANCHONG MAHAISAVERIYA
KITTI JIRARATTANAPHOCHAI

Srinagarind Hospital, Khon Kaen University Khon Kaen 4002, Thailand

Department of Orthopaedics Faculty of Medicine Khon Kaen university, Khon Kaen 4002, Thailand.

Correspondence should be sent to B. Mahaisavariya.

Femoral neck fracture can be treated by internal fixation using multiple screws. The cannulated AO screw is now one of the most commonly used for such procedures. This paper is to present a case of a complication from a technical error in the procedure.

CASE REPORT

A 68 year-old-woman sustained a basilar neck fracture of the left femur from a fall at home (Fig. 1). The patient underwent surgery by closed reduction under fluoroscopy. The fracture was fixed by triple cannulated screws. Two guide wire holes were at first drilled but it was found that they were located too distally and were therefore unsuitable for proper screw placement. A more proximal location was tried and this left these extra-guidewire holes unused. No intraoperative complications occurred. During first postoperative days the patient felt sharp pain with crepitus around the affected hip while lifting her buttock over the bed pan. The roentgenograph showed that another fracture had occurred below the screw (Fig. 2). The patient underwent removal of the screws and the fracture was re-stabilized by using the Gamma-AP nail (Howmedica), (Fig. 3). The patient could have early ambulation with partial weight bearing on the seventh day and the fracture united at three months postoperatively.

DISCUSSION

Most reported cases of subtrochanteric fractures complicated by the use of multiple screw fixation for the femoral

neck fracture have occurred after the use of cross Garden screw fixation^{1,2,3}. The fracture is often located at the entry point of the lower screw. This is believed to result from the bone weakening caused by the relatively large entry hole for the Garden screw and the stress raiser effect in combining with the high stress from the bending moment at the relatively distal location of the lower screw^{1,2}. This problem is believed to diminish with parallel screw fixation, which makes the lower screw be placed at the proximal part of the femur, thus causing only half of the tensile stress at the lateral end of the lower screw than with cross screws^{1,4}. This complication has never been reported after the use of the AO cannulated screw, which is smaller in diameter and fixed in a parallel manner. However, our case shows that the complication may occur as a result of a technical error of having an extraguidewire hole just as when using the garden screw fixation¹.

This complication can effectively be treated by using the Gamma nail (Howmedica). The lag screw can firmly stabilize the femoral neck fracture while the nail system can effectively stabilize the subtrochanteric fracture. This enabled our patient to have early rehabilitation postoperatively and resulted in the fractures healing three months postoperatively.

ACKNOWLEDGEMENT

The authors thank Mr. David Narot for his review of the manuscript.

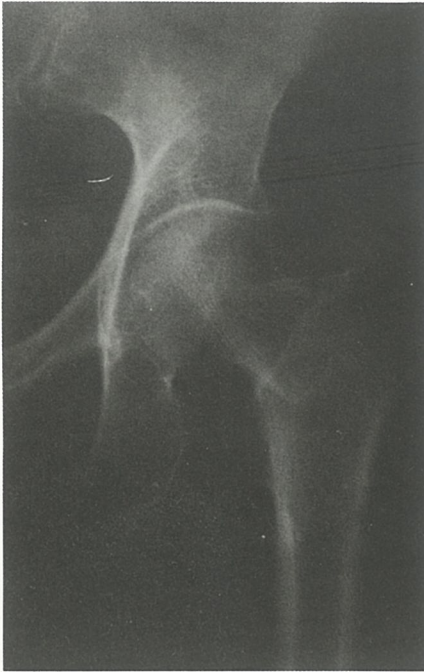


Figure 1. Radiograph shows basilar neck fracture of femur.

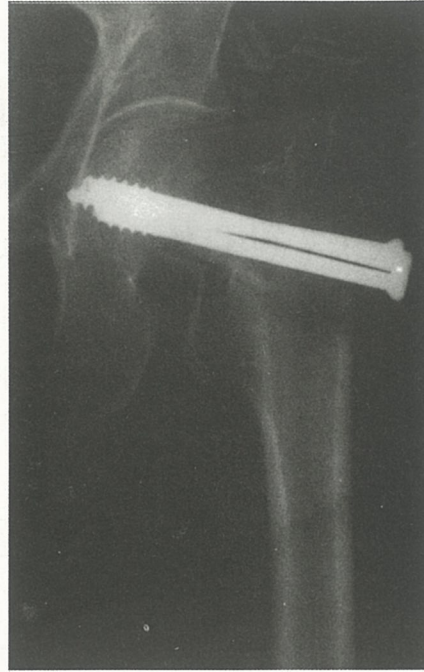


Figure 2. Radiograph shows fracture through the extra guide wire hole after the fixation using cannulated screws fixation.



Figure 3. Radiograph after the revision of fixation device using the Gamma nail for both fractures.

REFERENCES

1. Andrew TA, Thorogood M. Subtrochanteric fracture after Garden screw fixation : a review of predisposing factors and management in nine cases. *Injury* 1984;16:169-77.
2. Howard CB, Davies RM. Subtrochanteric fracture after Garden screw fixation of subcapital fractures. *J Bone Joint Surg(Br)* 1982;64:565-7.
3. MacEachern AG, Heyse-Moor GH, Jone RN. Subtrochanteric fracture of the femur through the track of the lower Garden screw treatment with a Richards sliding screw. *Injury* 1984;15:337-40.
4. Parker MJ, Porter KM, Eastwoot DM, et al. Intracapsular fractures of the neck of femur: parallel or crossed Garden screw? *J Bone Joint Surg(Br)* 1991; 73:826-7.