Nail-plate Docking Technique for Segmental Femur Fracture Fixation

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INTRODUCTION:

Double segmental femur fracture is a high-energy impact injury, involved four main fracture fragments. Management of these fractures are technically demanding.

REPORT:

A 54-year-old gentleman was brought to hospital following a high-velocity motorcycle collision. Clinical examination revealed tender over right thigh and knee with a shortened and externally rotated leg.

The radiographs demonstrated segmental fracture of right femur involving the basicervical of femur. Patient also had patella fracture in same limb that is not discussed in this article.

Figure 1: Segmental fracture of right femur involving the basicervical of femur**.**

Surgery was performed in supine position on a traction table. Fracture fragments exhibited the typical deformities due to strong muscle forces, were corrected with a minimally invasive clamp assisted reduction technique, also prevented the middle fragments to rotate during reaming.

A proximal femoral nail was implanted and a hip screw was introduced after the position had been confirmed. A distal femur locking plate was placed at the lateral aspect of the distal femur as the supplement fixation for distal stability. The distal screws were fixed into the femoral condyle. The distal locking hole of the nail and the screw hole of the plate are in matched positions and the screw of the locking plate is inserted, achieving bi-cortical screw fixation. Wiring systems also added to obtain a more stable fixation.

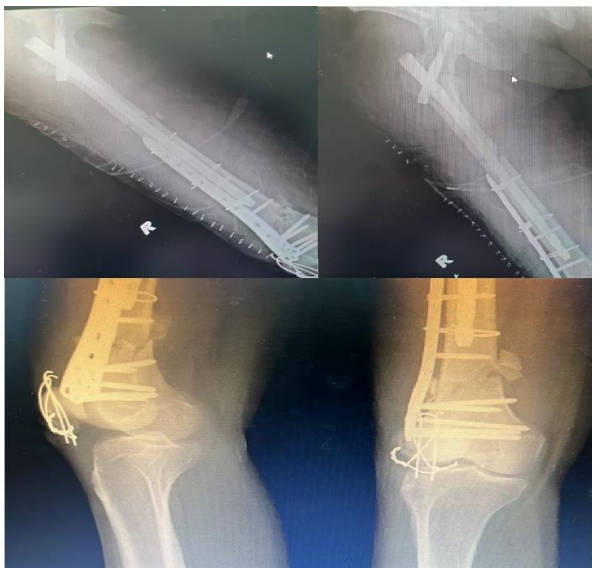

Figure 2: Osteosynthesis of the fracture with nail-plate docking technique.

Postoperatively, patient was allowed to ambulate using non-weight bearing crutches, range of motion exercise was commenced as tolerated.

CONCLUSION:

Double segmental femur fractures are rare injuries. The most critical aspect of this type of injury is to achieve anatomical reduction with bone biology preservation. The "nail-plate docking technique" gives satisfactory results with more stable fixation of the whole femur.

REFERENCES:

1. Wang et al., A comparative study of ipsilateral intertrochanteric and femoral shaft fractures treated with long proximal femoral nail antirotation or plate combinations 2012;Pg41-6.