

Femoral Derotation of Malrotated Segmental Femur Fracture : Technical Considerations

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INTRODUCTION:

Segmental femur fractures are challenging to fix especially assessment of intraoperative rotation with 28% of patients demonstrating malrotation of more than 15 degrees.¹

CASE REPORT:

A 33 year old man with a closed right segmental femur fracture fixated with an antegrade nail (Synthes FRN) presented 1 month later with outward deviation of the right leg. Clinically right hip demonstrated excessive internal rotation and diminished external rotation. Radiologically the distal femur appears to be rotationally correct however the proximal screws are directed posteromedially in relation to femoral neck suggesting excessive external rotation at proximal fragment. Revision of the surgery by derotation of the proximal segment to restore mechanical alignment was planned. 3 techniques was utilized; (1) Intraoperative image intensifier to calculate degree of version of proximal and distal fragment (2) Steinman pin over the distal fragment to joystick fragment to match proximal fragment (3) Correct valgus of the knee due to nail design, by intentional varus of the distal fragment for compensation. Post operatively femoral anteversion and mechanical alignment was restored.

DISCUSSION:

Considerations when facing a malrotated femur fracture would be (1) The need for revision ,if anteversion is less than 15 degrees gait alternation would occur, if more than 30 degrees gait would be severely affected (2) To revise or to allow fracture union followed by deformity correction; If fragment not united, revision would allow improved rehab capacity with better gait. (3) How to revise? ; rotational deformity to correct mismatch with proximal/distal fragment

manipulation preferably joystick, malunion for removal of implant and correction osteotomy. (4) How much to correct? ; Pre op CT scan to determine rotation/ Intra-op using anatomical landmarks to determine degree of version

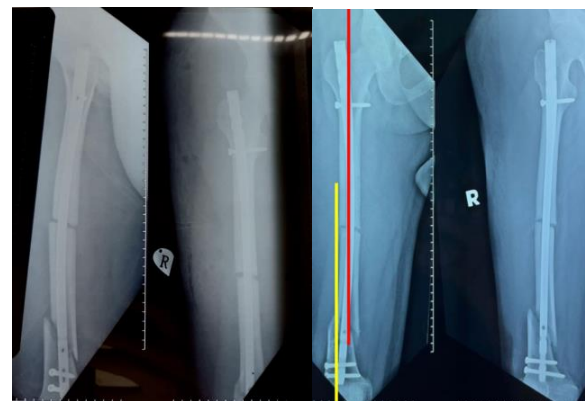


FIG 1

FIG 2

Figure 1: Pre-op

Figure 2: Post revision

CONCLUSION:

We suggest that these points are taken into consideration when malrotated femur fractures are encountered.

REFERENCES:

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