



## A CASE OF POST-TRAUMATIC FRACTURE DISTAL-SHAFT OF FEMUR TREATED WITH ANTERO-GRADE INTRA-MEDULLARY INTERLOCKING NAILING

### Orthopaedics

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### ABSTRACT

Antero-grade intra-medullary nailing is a closed procedure which is essentially used for extra-articular fractures. A 27 year old male patient presented with history of trauma, pain and inability to move the left leg. X-ray of the left thigh showed transverse fracture of distal-shaft of femur with displacement and angulation (fig-1) classified as type I under Winquist and Hansen classification. Patient was treated surgically with antero-grade intra-medullary nailing aftersatisfactory reduction under C-arm.

### KEYWORDS

fracture femoral shaft, antero-grade intra-medullary nail, extra-articular fracture.

### INTRODUCTION:

Antero-grade intra-medullary nailing is mainly used for extra-articular fractures. Intra-articular fractures can be treated by nailing only after stabilizing the epiphyseal part of the fracture with separate screws so that the fracture site does not open up during nailing<sup>1</sup>. Finally, nailing is also used in bi- or tri-focal fractures of the distal femur where it is the treatment of choice<sup>2</sup>. Nailing is not recommended in intra-articular fractures that are complex.

The main advantage of this procedure is that it is a closed procedure therefore it does not disturb the fracture site haematoma. Removal of the implant is also simple as it does not involve the articular surfaces.

Anterograde Intra-medullary nailing is done when the fracture site is more than 3 cm from the proximal screw according to Antekeieret al<sup>3</sup>. According to Hwang et al<sup>4</sup>, distal cortical contact of the nail makes the nailing more stable. Written consent was obtained from the patient to publish his clinical and radiological data.

### Case presentation:

27 year old male patient presented with alleged history of trauma and inability to move the left lower limb and severe pain over the left thigh. On examination there was swelling of left thigh and tenderness was present over the left thigh. Range of movements was painful and restricted. There was no neuro-vascular deficit. X-ray of left thigh was taken which showed a transverse fracture of distal-shaft of femur with displacement and angulation (fig-1) classified as type I under Winquist and Hansen classification<sup>5</sup>.

### Surgical intervention:

Anaesthetic fitness was obtained and the patient was posted for antero-grade intra-medullary inter-locking nailing of left femur. Under spinal anaesthesia, patient in supine position on the fracture table with left leg on traction. Parts painted and draped. Incision of length 8cm is made on the proximal part of the left greater trochanter. Gluteus medius was split greater trochanter was identified. Bone awl was passed through the tip of the greater trochanter and medullary canal entered. With the help of guide wire, serial reaming was done of sizes 9, 10 and 11. A 10 x 38 size nail was passed with the help of guide wire. Proximally the nail was fixed with two screws of 38mm. Distally two screws of 66 mm and 36mm was used to fix the nail.

Reduction was found to be satisfactory under C-arm. Wound was closed in layers with sterile dressings.

### DISCUSSION:

This patient had a traumatic transverse fracture of distal-shaft of femur with displacement and angulation. As the fracture did not involve the articular surfaces and as there was no comminution, antero-grade intramedullary nailing was done for this patient with satisfactory reduction under C-arm. The advantage of nailing is that it is a closed procedure and fracture haematoma is conserved.

### CONCLUSION:

Intra-medullary nailing should be considered in patients with extra-articular non-comminuted fractures as it is a closed procedure with minimum intervention and also aids in fracture healing as it does not disturb the haematoma around the fracture site.

### Case illustration:



Figure 1- X-ray L thigh- showing transverse fracture shaft of femur and fracture mid-shaft fibula.



Figure2 (a & b) Post-op X-ray left thigh showing intra-medullary nail in situ with two proximal and two distal screws.

**REFERENCES:**

1. Ehlinger M, Ducrot G, Adam P, Bonnomet F. Distal femur fractures. Surgical techniques and a review of the literature. *Orthopaedics & Traumatology: Surgery & Research*. 2013 May 1;99(3):353-60.
2. Ehlinger M, Ducrot G, Adam P, Bonnomet F. Distal femur fractures. Surgical techniques and a review of the literature. *Orthopaedics & Traumatology: Surgery & Research*. 2013 May 1;99(3):353-60.
3. S.B. Anteker, R.L. Burden, M.J. Voor, C.S. Roberts. Mechanical study of the safe distance between distal femoral fractures site and distal locking screws in antegrade intramedullary nailing. *J Orthop Trauma*, 19 (2005), pp. 693-697
4. S.C. Huang, C.C. Lin, J. Lin. Increasing nail-cortical contact to increase fixation stability and decreased implantation in antegrade locked nailing of distal femoral fractures: a biomechanical study. *J Trauma*, 66 (2009), pp. 436-442
5. Kenneth A. Egol, Kenneth J. Koval, Joseph D. Zuckerman. *Handbook of fractures*, pp 375