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Research Article
Functional outcome

Functional outcome of elastic nail fixation for Intertrochanteric fracture in medically high-risk elderly

Tirkey R[1], Vidyarthi A[2], Rajak CB[3*]

[1] R Tirkey, Netaji Subhash Chandra Bose Medical College, Jabalpur, Madhya Pradesh, India.
[2] A Vidyarthi, Netaji Subhash Chandra Bose Medical College, Jabalpur, Madhya Pradesh, India.
[3*] Chandra Babu Rajak, Department of Orthopaedics, Netaji Subhash Chandra Bose Medical College, Jabalpur, Madhya Pradesh, India.

Introduction: Intertrochanteric fractures in elderly population are major health problem. There are so many implants available to treat these fractures. We used enders nail for intertrochanteric fractures in medically compromised and high-risk patients.

Material and method: Twenty-seven patients of intertrochanteric fractures of femur were operated by condylocephalic ender's nail. We included elderly patient with age more than 60 year with high risk and medically compromised conditions. The clinical and radiographically assessment was done in all cases at 4-week, 6-week, 12 week and 6 months.

Results: Fracture healing was achieved in average 12.5 week (ranging from 10 week to 24 week). The mean Harris score was 82.

Conclusion: Our experience suggests that the chief indication of enders' nail fixation is in the treatment of intertrochanteric femur fracture in critically ill patient who cannot tolerate anaesthesia for an hour and more. Ender's nailing appears the least traumatic form of internal fixation.

Keywords: Intertrochanteric femur fractures, enders nailing, old patients

Corresponding Author	How to Cite this Article	To Browse
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Introduction

Intertrochanteric femur fractures are major public health problem because their frequency and the associated complications in older patient. In this already fragile population, the aim of treatment is to achieve prior functional level with low rate of complications and mortality. [1], [2] Various devices have been used which usually require an incision in the upper thigh involving considerable soft tissue dissection and significant blood loss. [3],[4] In 1970, Enders described a method of treatment for intertrochanteric femur fracture using flexible condylocephalic intramedullary nail. Advantage claimed in this operation is less technical, minimal blood loss and low morbidity and mortality. [8] [15] [10] In this article we described our experience with ender's nail in intertrochanteric fracture in medically compromised and high-risk patient in the Neta ji Subhash Chandra Bose medical College Jabalpur.

Materials and methods

This prospective study includes 27 intertrochanteric fractures in medically compromised high risk elderly patient. Out of 27, 18 were stable and 9 were unstable fractures as per Evans classification. We included elderly patient with age more than 60 year with high risk and medically compromised. Presence of co-morbidities like 4 patients were having both diabetes mellitus and hypertension both. 9 patients were having ischemic heart disease with hypertension and Diabetes. 7 patients were having Chronic obstructive pulmonary disease with hypertension out of 3 also having diabetes mellitus.4 patients were having chronic renal failure with liver cirrhosis. Out of 3 having hypertension and 1 were having diabetes mellitus. 2 patients were having cerebrovascular disease. and 5 patients were having bedsore. Out of 27, 11 were female and 16 were male. All patient were walking except one hemiparetic patient who needed support to walk. The clinical and radiographically assessment was done in all cases at 4-week, 6-week, 12 week and 6 months.

Operative procedure – Under effect of anaesthesia the patient is put on fracture table in supine position with legs well abducted to allow the medial aspect of the knee. After draping reduction was achieved under c- arm. A nail of size was assessed pre operatively in normal limb from mid inguinal point to grater trochanter up-to adductor tubercle. Nail width was preoperatively assessed with more than 80 percent of isthmus under zero magnification x-ray. At diaphysio-metaphysial junction medial and lateral aspect of distal femur 1 cm skin incision was taken followed by entry was made with curved awl and enders nail was inserted firstly medial side enders nail was hammered up to cancellous bone of head followed by lateral side enders nail was also hammered in cancellous bone of femoral head and enders nail eye were locked using enders locking pins. And limb was kept in boot and bar brace to prevent rotation. Quadriceps strengthening exercises, knee mobilization and ankle pump were encouraged from the post operative day 1 with back care and chest physiotherapy was also encouraged.

Non wight bearing was advised for 6 weeks (non wight bearing toe touch with walker was permitted according to patient self-confident in post operative 4 week). Partial weight bearing was initiated after post op 6 week. it was gradually progressive to full weight bearing as per tolerance and absence of radiological evidence of collapse. Successive reviews were done at 12 week and 6 months during which rotation in flexion and extension, limb length discrepancy and knee range of motion were assessed.

Results

Patients were assessed at 4 week, 12 weeks and 6 months, out of 27 all were left the hospital in 12 – 15 days. The mean Harris score was 82. Out of 4 lost to follow up. bone healing was achieved in average 12.5 week (ranging from 10 week to 24 week) .

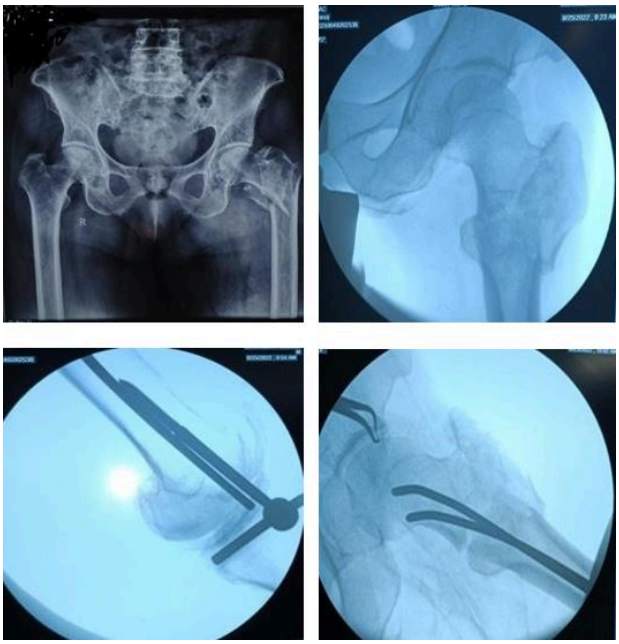

Figure 1: A, B, C and D, Pre op x-ray and intra operative image intensifier pictures

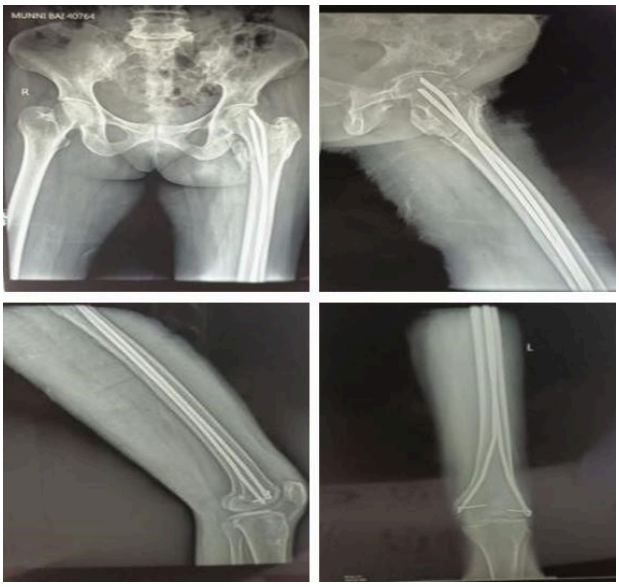

Figure 2: A, B, C and D, 4 week follow up X-ray showing healing of fracture without displacement.

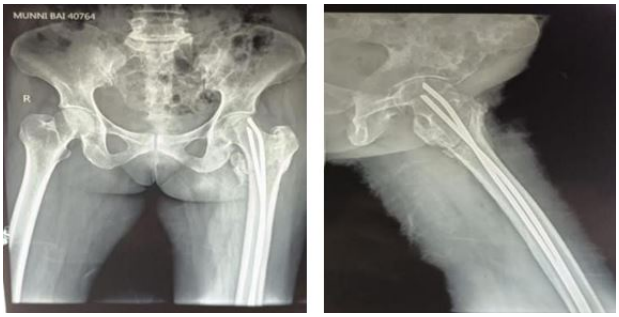

Figure 3: A and B At 6-month follow up, bone union achieved without displacement and shortening

Complications

Complications of enders nailing in 27 patients

Complications	No	Percentage
External rotation (15%)	4	17.3 %
Shortening (avg 1.5 cm)	5	21%
Varus deformity	2	8.6%
Migration proximal	1	4.3 %
Migration Distal	1	4.3%
Infection	Nil	0 %
Total with complication	12	56.3%

Table 1: Complications of the surgery

Discussion

The series of cases emphasised again the advantage of enders nailing in intertrochanteric fracture, the operative procedure is simple, short and associated with minimal soft tissue and blood loss, as a results morbidity and mortality are lower than the other methods. Biomechanically placement of enders' nails more medial than other devices that's why fatigue failure was rare. Due to flexibility of nail lead to micromovement at fracture site accounts for the absence of delayed union and non-union. [11], [13] [19] Knee pain accounts for 1/3rd of patient but it resolves spontaneously or after removal of implant. [16]

Conclusion

Our experience suggests that the chief indication of enders' nail fixation is in the treatment of critically ill patient who cannot tolerate anaesthesia for an hour and more. Even of proximal femoral nail and Dynamic hip screw with small incision causes bleeding and stress on physiology. enders nailing is the least traumatic form of internal fixation.

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