

ORIGINAL RESEARCH

Proximal femoral nail in intertrochanteric femur fracture patients

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ABSTRACT

Background: Severe hip or thigh pain, difficulty or incapacity to bear weight on the affected leg, swelling, bruising, and leg deformity or shortening are all possible symptoms of an intertrochanteric femur fracture. The present study evaluated use of proximal femoral nail in intertrochanteric femur fracture patients.

Materials & Methods: 70 patients of intertrochanteric femur fracture of both genders were treated with proximal femoral nail. Parameters such as mode of injury, side, fracture subtype, complications and outcome were recorded.

Results: Out of 70 patients, males were 40 and females were 30. The mode of injury was RTA in 46, fall in 20 and others in 4. Side was right in 28 and left in 42. OTA fracture type was 31 A1 in 30, 31A2 in 23 and 31 A3 in 17 cases. Complications were inadequate reduction in 2, failure to insert distal screw in 1 case, Z- effect in 3 and varus deformity in 1 patient. The difference was non- significant ($P > 0.05$). Outcome was excellent in 56, good in 12, fair in 1 and poor in 1 case. The difference was significant ($P < 0.05$).

Conclusion: Patients who had proximal femoral nailing for intertrochanteric femur fracture demonstrated acceptable functional results.

Key words: Hip fracture, proximal femoral nailing, Intertrochanteric femur

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INTRODUCTION

A hip fracture known as an intertrochanteric femur fracture takes place in the area of the femur bone between the greater and lesser trochanters.¹ The greater and lesser trochanters are bony prominences on the top section of the femur, which is the long bone in the thigh. Intertrochanteric femur fractures are frequently caused by high-energy trauma, such as falls from great heights or car accidents, although they can also happen in older people with osteoporotic bones. The elderly are more prone to these fractures.² Severe hip or thigh pain, difficulty or incapacity to bear weight on the affected leg, swelling, bruising, and leg deformity or shortening are all possible symptoms of an intertrochanteric femur fracture. Additionally, the hip joint's limited range of motion may be experienced by the patient.³ The use of implants like the dynamic hip screw or the dynamic condylar screw for extramedullary fixation of these fractures has the potential drawbacks of extended exposure, increased blood loss, issues with fracture union, and implant failure. Since this implant is implanted following closed reduction utilizing a less invasive approach, intramedullary fixation is more biological.⁴ Because it

is located intramedullarily, the proximal femoral nail has a smaller lever arm. With indirect fracture reduction, intramedullary devices are inserted through a closed operation, maintaining the vascularity of the fracture zone with minimal disturbance to the fracture hematoma. At the fracture site, reaming causes periosteal response and produces debris that can be used as autogenous graft material.^{5,6} The present study evaluated use of proximal femoral nail in intertrochanteric femur fracture patients.

MATERIALS & METHODS

The present study consisted of 70 patients of intertrochanteric femur fracture of both genders. All patients gave their written consent for the participation in the study. Data such as name, age, gender etc. was recorded. All patients with intertrochanteric femur fracture were treated with proximal femoral nail. Parameters such as mode of injury, side, fracture subtype and outcome were recorded. Data thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table: I Distribution of patients

Total- 70		
Gender	Males	Females
Number	40	30

Table: I shows that out of 70 patients, males were 40 and females were 30.

Table: II Assessment of parameters

Parameters	Variables	Number	P value
Mode of injury	Fall	20	0.01
	RTA	46	
	Others	4	
Side	Left	42	0.02
	Right	28	
Type of fracture	31 A1	30	0.18
	31 A2	23	
	31 A3	17	

Table: II shows that mode of injury was RTA in 46, fall in 20 and others in 4. Side was right in 28 and left in 42. OTA fracture type was 31 A1 in 30, 31A2 in 23 and 31 A3 in 17 cases.

Table: III Assessment of complications

Complications	Number	P value
inadequate reduction	2	0.94
failure to insert distal screw	1	
Z- effect	3	
varus deformity	1	

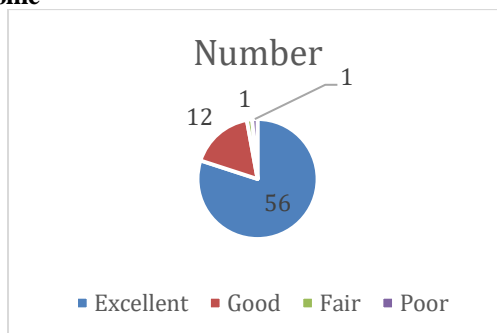
Table: III shows that complications were inadequate reduction in 2, failure to insert distal screw in 1 case, Z-effect in 3 and varus deformity in 1 patient. The difference was non-significant ($P > 0.05$).

Table: IV Assessment of Outcome

Outcome	Number	P value
Excellent	56	0.01
Good	12	
Fair	1	
Poor	1	

Table: IV, graph I shows that outcome was excellent in 56, good in 12, fair in 1 and poor in 1 case. The difference was significant ($P < 0.05$).

Graph: I Assessment of Outcome



DISCUSSION

Intertrochanteric femoral fractures have become more common over the past few decades, and this trend is likely to persist in the near future due to the growing elderly population and rise in osteoporosis cases.⁷ Intertrochanteric fracture incidence varies from nation to nation.⁸ Early mobilization is required as the main therapeutic objective in order to prevent subsequent

problems.^{9,10} Intertrochanteric fractures have been treated using a variety of surgical techniques and implants. Treatment options include gamma nail, intramedullary fixation with a dynamic hip screw, and intramedullary fixation with a proximal femoral nail (PFN).^{11,12} The present study evaluated use of proximal femoral nail in intertrochanteric femur fracture patients. We found that out of 70 patients,

males were 40 and females were 30. A therapy for trochanteric fractures in 25 senior individuals called proximal femoral nail antirotation II (PFN-A2) was investigated by Rai et al.¹³ The typical operation lasted 85.6 minutes. All 25 patients displayed radiological union. In our investigation, the mean fracture union time was 13.8 weeks. At three months and six months, our study's average Harris Hip Score came out to be 74.3 and 85.08, respectively. The p-value for this improved result was very significant. In this investigation, two individuals (8.0% of the patients) had secondary varus deformities linked to PFN-A2. Surgery site infection (SSI) occurred in just one patient (4%) overall. We observed that the mode of injury was RTA in 46, fall in 20 and others in 4. Side was right in 28 and left in 42. OTA fracture type was 31 A1 in 30, 31A2 in 23 and 31 A3 in 17 cases. 40 individuals with intertrochanteric femur fractures were evaluated by Malik et al.¹⁴ According to the Modified Evan- Jensen classification, fractures are classified as stable or unstable fractures. The majority of the patients (65%) were male and ranged in age from 61 to 80 years, with a mean age of 71.58 12.37 years. The majority of the patients underwent operations that lasted longer than an hour. At 1 month, the Harris Hip Score was 71.10 5.52, and at 3 months, it was 80.13 7.97. The mean Harris Hip Score increased from one month to three months in a statistically meaningful way. At one month, the average Harris Hip Score was 71.10 5.52. The mean Harris Hip Score increased statistically significantly from three to six months. We found that complications were inadequate reduction in 2, failure to insert distal screw in 1 case, Z- effect in 3 and varus deformity in 1 patient. Outcome was excellent in 56, good in 12, fair in 1 and poor in 1 case. Jonnes et al.¹⁵ compared the functional and radiological outcome of PFN with DHS in treatment of Type II intertrochanteric fractures. Patients with DHS had increased intraoperative blood loss, longer duration of surgery and required longer time for mobilization while patients who underwent PFN had lower intraoperative blood loss, shorter duration of surgery and allowed early mobilization. The average limb shortening in DHS group was 9.33 mm as compared with PFN group which was only 4.72 mm. The patients treated with PFN started early ambulation as they had better Harris Hip Score in the early post-op period. At the end of 12th month, there was not much difference in the functional outcome between the two groups.

CONCLUSION

Authors found that patients who had proximal femoral nailing for intertrochanteric femur fracture demonstrated acceptable functional results.

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