

ORIGINAL RESEARCH

Clinical profile of patients with intertrochanteric fractures admitted at a tertiary care hospital

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ABSTRACT

Inter trochanteric fractures are fractures of proximal femur where in the main fracture line is along a line between greater trochanter and lesser trochanter. Usually, intertrochanteric fractures are due to a fall and the force involved is both direct and indirect. Direct injury is a direct blow or force acting over the trochanteric region either due to a fall on to the side or a fastmoving object or vehicle's impact over the area. A total of 49 cases of intertrochanteric fractures that were treated at Government hospital, Medical College were selected for the study. Study subjects were selected from those who attended orthopaedic outpatient department with history of fall/RTA and other modes of injury, with complaints of severe pain in the hip region and inability to walk after the injury. After confirming the diagnosis of intertrochanteric fracture by radiographs, the study subjects were explained about the fracture and the method of surgical treatment. The mode of injury was in majority due to fall totaling up to 37 patients (75.51%) and RTA accounting for 12 patients (24.49%). There were associated injuries in 6 of the patients (12.24%), where 3 patients (6.12%) had head injury, the rest each one had clavicle fracture, humerus fracture and rib fracture respectively. The classification used in this study was Boyd and Griffin classification of intertrochanteric fractures. 24 patients had type II fractures (48.98%), 18 patients had type I (36.73%) and 7 of them had type III fractures (14.28%).

Key words: Inter trochanteric fractures, boyd and griffin classification, clinical profile

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INTRODUCTION

An Intertrochanteric fracture of femur is defined as one in which the plane of fracture passes through the tip of greater trochanter obliquely downwards and inward to or through the lesser trochanter.¹

Inter trochanteric fractures are fractures of proximal femur where in the main fracture line is along a line between greater trochanter and lesser trochanter.

Usually, intertrochanteric fractures are due to a fall and the force involved is both direct and indirect. Direct injury is a direct blow or force acting over the trochanteric region either due to a fall on to the side or a fastmoving object or vehicle's impact over the area.² Indirect forces like valgus or varus strains at the trochanteric region or imbalance of muscular contraction might produce this fracture.

Cummings hypothesized that four factors are important in determining whether a particular fall will result in a hip fracture.³

The fall must be oriented so that the person lands on or near the hip. Protective reflexes must be inadequate to reduce the energy of the fall below the critical threshold.

Local shock absorbers such as muscles, fat around the hip must be inadequate and the bone strength at the hip must be insufficient.

Fractures of the proximal femur can result from either external trauma, intrinsic factors (muscle contraction) or cyclic/mechanical stress.⁴

The most important feature is pain in hip region after the injury. History reveals the mode of injury i.e., trivial trauma or road traffic accidents. Immediately after the injury the patient's inability to stand on his own, and severe pain around the hip joint is common presentation.⁵

On examination, the attitude of the injured limb will be, externally rotated, lateral border of foot touching the bed, shortening with flexion at hip and knee.

There will be swelling and there may be ecchymosis around hip region. Superficial tenderness over trochanteric region with painful hip movements are other features.

Roentgenograms are confirmatory, where in AP view of both hips with lateral view of the injured hip or taken.⁶

METHODOLOGY

A total of 49 cases of intertrochanteric fractures that were treated at Government hospital, Medical College were selected for the study.

Study subjects were selected from those who attended orthopaedic outpatient department with history of fall/RTA and other modes of injury, with complaints of severe pain in the hip region and inability to walk after the injury. After confirming the diagnosis of intertrochanteric fracture by radiographs, the study subjects were explained about the fracture and the method of surgical treatment. Those patients who gave consent for surgery were thoroughly examined for surgical fitness and detailed history with clinical examination was done as per a prewritten proforma.

The associated risks that were evaluated after thorough examination and investigation of study subjects were as follows. Chronic obstructive pulmonary disease in 6 patients, lower respiratory tract infection in 3 patients, diabetes mellitus in 7 patients and hypertension in 4 patients. Physicians

concerned treated all of them. Patients with hypertension and diabetes mellitus were mild to moderate cases and required oral medications for few days. Patients with lower respiratory tract infection were treated with antibiotics and those with chronic obstructive pulmonary disease were given appropriate treatment and nebulization.

RESULTS

A total of 49 patients were selected as study subjects from those who attended the outpatient department of orthopaedics. Of them 7 did not come for follow-up. Of the 49 patients, 21 patients (42.86%) had sustained intertrochanteric fractures on right side and 28 patients (57.14%) on left side. There were 43 male patients (87.75%) and 6 female patients (12.24%).

The mode of injury was in majority due to fall totaling up to 37 patients (75.51%) and RTA accounting for 12 patients (24.49%). There were associated injuries in 6 of the patients (12.24%), where 3 patients (6.12%) had head injury, the rest each one had clavicle fracture, humerus fracture and rib fracture respectively.

The classification used in this study was Boyd and Griffin classification of intertrochanteric fractures. 24 patients had type II fractures (48.98%), 18 patients had type I (36.73%) and, 7 of them had type III fractures (14.28%).

Table 1: Age Distribution (Total No. of Cases-49)

Age Group	No. of Cases	Percentage (%)
0-20	-	-
21-40	6	12.24%
41-60	30	61.22%
61-80	13	26.53%

Table 2: Sex Distribution (Total No. of Cases-49)

Sex	No. of Cases	Percentage (%)
Male	43	87.75%
Female	6	12.14%

Table 3: Mode of Injury (Total No. of Cases-49)

Mode of Injury	No. of Cases	Percentage (%)
Road Traffic Accidents	12	24.49%
Slip & Fall or Fall from Height	37	75.15%

Table 4: Side Distribution (Total No. of Cases-49)

Side	No. of Cases	Percentage (%)
Right	21	42.86%
Left	28	57.14%

Table 5: Type of Fracture: Fracture were classified according to Boyd and Griffin classification of intertrochanteric fracture

Type of Fracture	No. of Cases	Percentage (%)
Type I	18	36.73%
Type II	24	48.98%
Type III	7	14.28%
Type IV	-	-

DISCUSSION

In our study of 42 patients, 31 patients had no pain or deformity, no shortening of the limb, they attained their pre-fracture status of daily activities and could walk for long distances without pain at the fracture site. They were able to squat and sit cross-legged without restriction. X-rays taken after an average period of 14 weeks showed no evidence coxa vara and fracture had united. These patients were graded as having good results.

9 patients, who were graded as fair, had shown union of fracture after an average period of 16 weeks radiologically. They had mild pain on walking long distances, which was relieved by taking rest. They had limited restriction of their daily activities. The limb on the fractured side was shortened by less than 2 cms. Range of motion at the hip was 70%. There was no evidence of deformity, radiographically.⁷

2 patients had poor results and were wheelchair bound by the end of an average period of 8 months. One of them had cutout after 2 months of operation. The implant was removed, and patient was managed conservatively. After 6 months of follow-up, X-ray showed a nonunion. This patient was not able to bear weight on the limb and was complaining of mild pain and abnormal movements at the hip region.⁸

CONCLUSION

The classification used in this study was Boyd and Griffin classification of intertrochanteric fractures. 24 patients had type II fractures (48.98%), 18 patients had type I (36.73%) and, 7 of them had type III fractures (14.28%).

REFERENCES

1. Kyle, R.F., Cabanela, M.E., Russell, T.A., Swiontkowski, M.F., Winkquist, R.A., Zuckerman, J.D., Schmidt, A.H., Koval, K.J.: Fractures of the proximal part of the femur. Instr Course Lect., 1995; 44:227–253.
2. Baumgaertner, M.R., Curtin, S.L., Lindskog, D.M., Keggi, J.M.: The value of the tip-apex distance in predicting failure of fixation of peritrochanteric fractures of the hip. J. Bone Joint Surg. Am., 1995; 77: 1058-1064.
3. Medoff, R.J., Maes, K.: A new device for the fixation of unstable pertrochanteric fractures of the hip. J Bone Joint Surg Am., 1991; 73:1192-1199.
4. Adams, C.I., Robinson, C.M., Court-Brown, C.M., McQueen, M.M.: Prospective randomized controlled trial of an intramedullary nail versus dynamic screw and plate for intertrochanteric fractures of the femur. J Orthop Trauma. 2001;15:394–400.
5. Ahrengart, L., Tornkvist, H., Fornander, P., Thorngren, K.G., Pasanen, L., Wahlstrom, P., Honkonen, S., Lindgren, U.: A randomized study of the compression hip screw and Gamma nail in 426 fractures. Clin Orthop. 2002;401:209–22.
6. Tronzo, R.G.: Hip nails for all occasions. Orthop. Clin. North Am., 5:479-491, 1974.
7. Jacobs, R.R., Armstrong, H.J., Whitaker, J.H., Pazell, J.: Treatment of intertrochanteric hip fractures with a

compression hip screw and a nail plate. J. Trauma, 16:599-603, 1976.

8. Jenson, J.S.: Mechanical strength of sliding screw-plate hip implants. Acta. Orthop. Scand., 51:625-632, 1980.