

To Compare the Functional Outcome of Internal Fixation in Femoral Shaft Fracture: An Institutional Based Study

Anand Kumar Goyal¹, Girish C Dang^{1*}

¹Assistant Professor, Department of Orthopaedics,
Glocal Medical College Super Specialty Hospital and Research Centre, Saharanpur, Uttar Pradesh, India.

ABSTRACT

Background: The present study was undertaken for comparing the functional outcome of internal fixation in femoral shaft fracture.

Materials & Methods: A total of 40 subjects who reported with femoral shaft fractures were enrolled. All the subjects were divided into a Group A and a Group B with 20 patients in each group. Among the patients of Group A, treatment was done with internal fixation of locking compression plate. In the Group B, treatment was done with internal fixation of intramedullary nail. All the procedures were carried out in general anesthesia. Follow-up was done. Intraoperative and postoperative findings were recorded and compared. All the results were recorded and analysed by SPSS software.

Results: Mean intraoperative blood loss among the patients of group B was 82.7 ml and was significantly shorter in comparison to patients of group A (110.8 ml). Mean fracture healing time among the patients of group B was 61.3 days and was significantly shorter in comparison to patients of group A (75.6 days). Functional outcome was good to excellent in

group B in 15 patients while it was good to excellent in 14 patients of group A.

Conclusion: Internal fixation with plating yielded better results.

Key words: Functional, Internal Fixation.

*Correspondence to:

Dr. Girish C Dang,
Assistant Professor,
Department of Orthopaedics,
Glocal Medical College Super Specialty Hospital and
Research Centre,
Saharanpur, Uttar Pradesh, India.

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INTRODUCTION

Fractures of femoral shaft are among the most common fractures that orthopedic surgeons encounter. Advances in mechanization and acceleration of travel have been accompanied by an increase in the number and severity of fractures. Since the femur is the largest bone of the body and one of the principal load-bearing bones in the lower extremity, femoral shaft fractures are associated with considerable mortality and morbidity whether they are caused by high- or low-energy trauma. Femoral shaft fractures resulting from high-energy trauma are often associated with concomitant injury of internal organs.¹⁻³ The standard treatment for femoral shaft fractures is intramedullary nailing and is associated with less than a 1% rate of infection or nonunion. However, there are indications for plating. Relative indications include an associated femoral neck fracture, an associated acetabular fracture, a vascular injury, an associated spinal fracture, young age (i.e. adolescent), and multisystem trauma. Published series of traditional plate fixation of the femur note rates of up to 69% primary bone grafting, 28% infection, 23% nonunion, and 22% secondary surgical procedures.⁴⁻⁶ Hence; the present

study was undertaken for comparing the functional outcome of internal fixation in femoral shaft fracture.

MATERIALS & METHODS

Present study was undertaken in the Department of Orthopaedics, Glocal Medical College Super Specialty Hospital and Research Centre, Saharanpur, Uttar Pradesh (India) for assessing the functional outcome of internal fixation in femoral shaft fracture. A total of 40 subjects who reported with femoral shaft fractures were enrolled. Radiographic examination of the patients was done. Patients with open fractures were excluded from the present study. All the subjects were divided into a Group A and a Group B with 20 patients in each group. Among the patients of Group A, treatment was done with internal fixation of locking compression plate. In the Group B, treatment was done with internal fixation of intramedullary nail. All the procedures were carried out in general anesthesia. Follow-up was done. Intraoperative and postoperative findings were recorded and compared. All the results were recorded and analysed by SPSS software.

RESULTS

Mean age of the patients of group A and group B was 46.8 years and 44.2 years respectively. 80 percent of the patients of the group A were males while 70 percent of the patients of group B were males. Mean operative time among the patients of group B was 92.4 minutes and was significantly shorter in comparison to patients of group A (138.6 minutes). Mean intraoperative blood

loss among the patients of group B was 82.7 ml and was significantly shorter in comparison to patients of group A (110.8 ml). Mean fracture healing time among the patients of group B was 61.3 days and was significantly shorter in comparison to patients of group A (75.6 days). Functional outcome was good to excellent in group B in 15 patients while it was good to excellent in 14 patients of group A.

Table 1: Demographic data

Variables	Group A	Group B
Mean Age (years)	46.8	44.2
Males (%)	80	70
Females (%)	20	30

Table 2: Comparison of intraoperative and postoperative variables

Variables	Group A	Group B	p- value
Operative time (min)	138.6	92.4	0.00 (Significant)
Intraoperative blood loss (ml)	110.8	82.7	0.01 (Significant)

Table 3: Comparison of fracture healing time

Variables	Group A	Group B	p- value
Mean (days)	75.6	61.3	0.00 (Significant)
SD	12.9	10.5	

Table 4: Comparison of outcome

Outcome	Group A (n)	Group B (n)
Good to excellent	14	15
Moderate	3	4
Poor	3	1

DISCUSSION

The treatment of femoral shaft fractures has evolved from the historical nonoperative management to the most recent methods of intramedullary nail fixation. Interlocking nails have greatly expanded the indications for closed intramedullary nailing of femoral fractures. Early mobilization following fractures of the femoral shaft has been shown to have a significant advantage in terms of both joint mobility and economic impact, which are very well attained by the use of interlocking nails.⁶⁻¹⁰ Hence; the present study was undertaken for comparing the functional outcome of internal fixation in femoral shaft fracture.

In the present study, Mean age of the patients of group A and group B was 46.8 years and 44.2 years respectively. 80 percent of the patients of the group A were males while 70 percent of the patients of group B were males. Mean operative time among the patients of group B was 92.4 minutes and was significantly shorter in comparison to patients of group A (138.6 minutes). Mean intraoperative blood loss among the patients of group B was 82.7 ml and was significantly shorter in comparison to patients of group A (110.8 ml). Peskun C et al compare the functional outcome of

patients with ipsilateral intertrochanteric and femoral shaft fractures treated with a reconstruction nail versus a sliding hip screw and retrograde nail. Twenty-six patients with ipsilateral intertrochanteric and femoral shaft fractures treated with a reconstruction nail (n = 13) or with a sliding hip screw and retrograde nail (n = 13). Internal fixation with a reconstruction nail or a sliding hip screw and retrograde nail was done. Functional outcome was measured using the Short Form-36 (SF-36), Short Musculoskeletal Functional Assessment (SMFA), and Lower Extremity Functional Scale (LEFS). The average time to follow-up was 49.6 months. Functional outcome was significantly better in the sliding hip screw with retrograde nail group for the role emotional (P = 0.001) and mental component scores (P = 0.016) of the SF-36. This group also scored better on the LEFS, although not reaching statistical significance (P = 0.099). For most outcome measures, no significant differences in functional outcome scores were observed between the 2 treatment groups.¹⁰

In the present study, mean fracture healing time among the patients of group B was 61.3 days and was significantly shorter in comparison to patients of group A (75.6 days). Functional

outcome was good to excellent in group B in 15 patients while it was good to excellent in 14 patients of group A. Paterno MV et al described the case report of early rehabilitation following surgical fixation of a femoral shaft fracture. They described the outcome of a patient following fixation of a midshaft femur fracture and an evaluation-based, immediate-weight-bearing approach to rehabilitation. The patient was a 28-year-old male manual laborer whose left femur was fractured in a head-on motor vehicle accident. The patient was treated with internal fixation of the left femur by use of an antegrade intramedullary nail. Following surgery, impairments in range of motion, knee extensor and hip abductor strength, and gait were observed. Intervention focused on immediate weight bearing and early progression of strengthening to address the observed impairments. All of the patient's impairments improved, and he was able to return to work as a manual laborer within 6 months. Immediate weight bearing with early strengthening activities following surgical correction of a midshaft femur fracture may result in early resolution of impairments and functional limitations and decreased disability.¹¹

CONCLUSION

Present study concludes that internal fixation with plating yielded better results.

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