

A study on fracture of femur shaft treatment with intramedullary interlocking nailing

¹Dr Sumeet Verma, Medical Officer, Department of Orthopaedics, Regional Hospital, Bilaspur, Himachal Pradesh.

²Dr Rakesh Thakur, Medical Officer, Department of Paediatrics, Civil Hospital Barsar, Hamirpur, Himachal Pradesh.

Corresponding Author: Dr Rakesh Thakur, Medical Officer, Department of Paediatrics, Civil Hospital Barsar, Hamirpur, Himachal Pradesh.

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Abstract

Background: Present study conducted to study the principles of intramedullary interlocking nailing and to assess the outcome of the patient.

Methods: The study consists of 50 cases of fracture shaft of the femur treated by closed intramedullary nailing with interlocking intramedullary nail. Of the 50 fractures we followed up, 41 were closed fractures, 9 were open fractures.

Results: The delayed union rate in our series was 8.00%. There were no non-unions.

Conclusions: It is concluded that closed intramedullary interlocking nailing method given good result in treatment of shaft fractures of femur.

Keywords: Intramedullary nailing, Femur, Diaphysis fractures, Interlocking

Introduction

At the beginning of intramedullary nail era, the conventional intramedullary nails by closed methods, gained wide popularity in transverse fracture of the middle 1/3rd of the femur due to no disturbances of periosteal blood supply, fracture hematoma, and rapid healing of fracture with lesser risks of complications like infection, non-union and shortening. But still it had

its draw backs in references to comminuted fractures of the femurs as in not providing rotational stability and axial length. Thus making other methods in treatment of comminuted fractures such as skeletal traction, spica cast, functional cast bracing, roler traction, open reduction and plate osteosynthesis more effective even though these methods had their own drawbacks such; prolonged hospitalization, non-union, malunion, shortening, extensive surgical dissection with considerable blood loss, definite risks of infection and implant failure. Therefore several investigators after trial and error developed and implemented interlocking intramedullary nails. This method provided immediate leg length and rotational stability to the fracture and allowed the patient to be mobilized without risks of shortening. And this being a closed technique the risks of infection, delayed union and non-union and were minimized hence making this to be a far superior technique as compared to the rest and proclaiming it as the best technique in this revolving era of inventions and discoveries. The present study was conducted to study the principles of intramedullary interlocking nailing, to assess the functional outcome of the patient with reference to, early mobilization, rate of fracture

union and Complications and to study the follow up and restoration of function of the limb.¹⁻³

Material and methods

The present study comprises of 50 cases of fracture shaft of the femur in adults about >20 years old. All the fractures, which were included in the study were traumatic in origin, most of them are due to road traffic accidents.

Out of the 50 cases, all were fresh fractures. Most of the patients were seen within 24 hours (22 cases), some were seen between 24-48 hours (15 cases) and remaining 3 case after 48 hours. Patients in this study varied from 20 to 70 years of age, of these 43 cases were males and 7 cases were female.

As soon as the patients were admitted he/she had undergone standard initial evaluation prior to surgery. A detailed history was taken with special reference to mode of injury, severity of trauma and duration. Statistical analysis of the result Mean and standard deviation were calculated for age, subjective assessment, clinical assessment, functional assessment and radiographic assessment, 't' test was used to compare the statistical significance, 'p' value less than 0.05 was considered as statistically significant.

Results

Table 1: General characteristics

Mean age	41.36±11.36 Yrs	
Male: Female	43: 7	
Right side: left side	41: 9	
Open fracture: Closed fracture	40: 10	
Outcome	Excellent	26
	Good	14
	Fair	5
	Poor	5

Delayed union	4
Shortening of the limb	8

The study consists of 50 cases of fracture shaft of the femur treated by closed intramedullary nailing with interlocking intramedullary nail. Of the 50 fractures we followed up, 41 were closed fractures, 9 were open fractures.

Discussion:

Several recent large series have shown closed IM nailing as the treatment of choice for closed middle on third fracture of the femur. But unfortunately, they could not maintain the length and rotational control in complex fractures. Interlocking nails have greatly expanded the indications for closed IM nailing of femur fractures.

The average age in the present series was found to be 41.36±11.36 years. In the study, most of the patients were males. The male to female ratio was the higher percentage of males than females reflect the fact that under Indian circumstances males were more exposed to trauma.

In the study, the involvement of the right side was more than the left side in the, which is in well accordance with Donald Wiss series.⁴

The commonest site was middle third of the femur. Which is well in accordance with Thoresen (56%).⁵ In our series, of the 41 fractures treated by closed intramedullary nailing, majority were closed fractures, while the remaining were open fractures. This is well in accordance with Winquist.⁶

The delayed union rate in our series was 8.00%. There were no non-unions. The incidence of delayed union in our series is comparable with Winquist.⁶ In our study, shortening of the limb was seen in 6 cases (20%). This high union rate in our series in comparable with the

studies of Winquist series.⁶ There was no implant failure in our series. This was probably due to partial weight bearing started only after radiological evidence of callus at the fracture site. The high union rate in our study can be attributed to the preservation of fracture hematoma, using closed technique, early surgical intervention, early mobilization and early weight bearing. The present study it is concluded that closed intramedullary nailing is superior to any other modalities of treatment in fracture shaft of the femur in adults.

Conclusion

It is concluded that closed intramedullary interlocking nailing method given good result in treatment of shaft fractures of femur

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