



DIAPHYSEAL FEMORAL FRACTURES; TREATMENT BY CLOSE V/S OPEN INTRAMEDULLARY INTERLOCKING NAIL

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ABSTRACT...Objectives: To assess the best results of diaphyseal femoral fractures treated by closed intramedullary interlocking nail and open intramedullary interlocking nail. **Study Design:** Cross sectional. **Period:** Jan 2009 to Jan 2011. **Setting:** LUH Jamshoro / Hyderabad. **Methods:** Total 40 fractures of shaft of femur in 40 patients were treated with IMILN. All patients have same post operative follow up. Early range of motion exercises of hip and knee joint was started, pain management and 3rd generation cephalosporin intravenous antibiotics given for 5 days followed by oral antibiotics. Patients discharged as early as possible when patient's condition allowed and removal of stitches after two weeks. Patient's assessment regarding wound condition, range of movement of proximal and distal joints and fractures assessment radiologically and clinically was done every month. **Results:** Majority of the cases were with the age groups of 37.5% between 21-30 years. RTA was found most common 70% of the cases. According to the AO classification oblique fractures were found most common 45%. On the assessment of final results in both close and open methods, 5% infection found in close method and 7.5% infection were in open method, less union time was found in closed group, deformity was equally found in both groups and healing time was also less found in closed group. **Conclusions:** It is concluded that closed intramedullary interlocking nailing method is the best procedure with excellent union for the femoral fracture.

Key words: Diaphyseal femoral fractures, closed intramedullary interlocking nail, open intramedullary interlocking nail.

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INTRODUCTION

Femur is the long and strong bone of the body. Fractures of the femur, like as different other injuries of joints and the bone, have become more common in Pakistan due to ever rising incidence in road traffic accident, fire arm bomb blast injuries and falls.¹ Non-operative procedures of the management like external fixation, plaster of Paris and skin traction were conducted out less regularly apart from very young cases or somewhere operative services are very short. Operative management like as plat, nail, and external fixation is regularly conducted for that's fractures in the world's several places.¹

Some surgeon suggested that intramedullary nailing having across complications like as nonunion, delayed union.^{2,3} Association of Orthopaedic Trauma (AOT)⁴ have separated shaft fractures of the femur in 3 common kinds as: 1.simple, 2.wedge, and 3.complex. Fracture of the

femur in many injured cases can become stable for the short time by an external fixation, and then with the intramedullary nailing.^{5,6} Nowadays the commonest procedure for nailing of femoral fracture occur by the cannulated nail.⁷

Intramedullary nailing has become the gold standard for the treatment of femoral shaft fractures.^{8,9} Main benefits of then intramedullary nailing comprises the minimally invasive operative procedure with less impairment of on the site of fracture and a great biomechanical constancy. Main complications rate of intramedullary nailing is very less, about five percente.¹⁰ For this reason, intramedullary nailing of fracture of the femoral is use in the majority for the cases with separated fractures of femoral shaft and for cases having multiple injuries.¹¹ An additional main feature of closed intramedullary interlocking nail having possibility for early ambulation for cases, which have less complications of prolonged bed stay.^{7,8}

The purpose of this study to assess the best procedure from both closed intramedullary interlocking nail and open intramedullary interlocking nail for the treatment of fracture of femur shaft.

DATA COLLECTION PROCEDURE

This cross sectional and observational study was carried out at LUH Jamshoro/ Hyderabad. Total 40 fractures of shaft of femur in 40 patients were treated with IMILN. Nails with open method without C-Arm were done in 19 patients and under image control by close method used in 21 patients. AO classification of close fractures used for grading the injury, 03 patients developed infection in which nail removed and IEF was applied. All patients have same post operative follow up. Early range of motion exercises of hip and knee joint was started, pain management and 3rd generation cephalosporin intravenous antibiotics given for 5 days followed by oral antibiotics. Patients discharged as early as possible when patient’s condition allowed and removal of stitches after two weeks. Patient’s assessment regarding wound condition, range of movement of proximal and distal joints and fractures assessment radio logically and clinically done every month. Fracture considered to be united when clinically there was no pain on weight bearing, no tenderness at fracture side and radio logically when visible callus appeared on X-Ray film. All patients followed up for 10 months, the results analyzed by SPSS 11.01.

RESULTS

Total 40 cases were included in the study with femoral shaft fracture, male were found in the majority 87.5% as well as 12.5% female were included with femoral shaft fracture. Majority of the cases were with the age groups of 37.5% between 21-30 years and 30% between 31-40%. (Table-I).

70% cases had right site injury and 30% were with left site, according to the mode of fracture RTA was most common 70% of the cases while fall and gunshot cases were with the percentage of 25% and 5% respectively. (Table-I).

Characteristics	No. of patients	Percentage
Gender		
Male	35	87.5%
Female	05	12.5%
Age groups		
>20	07	17.5%
21-30	15	37.5%
31-40	12	30.0%
41-50	05	12.5%
< 50	01	2.5%
Site of fracture		
Right	28	70.0%
Left	12	30.0%
Mode of Fracture		
RTA	28	70.0%
Due to Fall	10	25.0%
Gunshot	02	5.0%

Table-I. Baseline characteristics of the patients n=40

According to the AO classification oblique fractures were found most common 45%, transverse were 2nd most common fractures 25%, while 20% comminuted fractures and spiral were noted 10%. (Figure 1).

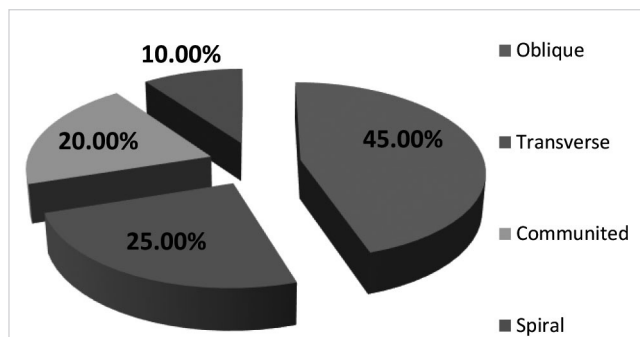


Fig-1. AO classification of fracture N=40

From all of the cases 30 cases were operated between 3 to 5 days and 10 cases patients were operated between 6 to 10 days. (Table-II).

No. of patients	Operative time
30	Between 3-5 days
10	Between 6-10 days

Table-II. Time duration between admission & operation

On the assessment of final results in both close and open methods, 5% infection found in close method and 7.5% infection were in open method, less union time was found in closed group, deformity was equally found in both groups and

healing time was also less found in closed group. (Table-III).

No. of patients	Close Method	Open Method
	No. of pt/(%)	No. of pt/(%)
Infection	02(5.0%)	03(7.5%)
Union time	Less	Great
Deformity	01(2.5%)	01(2.5%)
Malunion	02(5.0%)	01(2.5%)
Nonunion	00	00
Healing time	10-15 wks	14-26 wks

Table-III. Results association to close v/s open intramedullary interl. nail

DISCUSSION

Fracture of femur in adult patients presents special problems. Surgeons of ortho frequently come across fractures of femoral fractures, since that's fractures of femur mostly having frequently result due high energy trauma, and having high rate of complications probably.¹⁴ Nowadays interlocking nailing is designated for these fractures due to excellent of union rate, less complications and great advantages of early stabilization that's reduces the rate of patient's morbidity and mortality.¹⁴ In this study both methods of intramedullary interlocking nailing were compared in diaphyseal fracture. In the study of Qureshi ZA, et al¹⁴ found male in the majority with male/female ratio 5.25:1. Johnson and Greenberg³ and Winqvist and Hansen¹⁵ reported male to female ratio was 4.5:1. Afsar SS, et al¹⁶ mentioned in their study male in the majority, with mean age of 33.70+14.53 years. Qureshi ZA,¹⁴ also suggested mean age 27.4 years. Similarly in this male were found in the majority 87.5% as compare 12.5% female.

Young people are mostly many active work performer, that's reason young people having high energy traumas, that's can lead to femoral diaphyseal fractures and this also reported in the a study 40.9% cases with below the age of 25 years and 52% patients were in 25-50 years age group.¹⁶ It is the very active period of life; for that's reason young people having more trauma and accidents. In our study majority of the cases were found with the age groups of 37.5% between 21 to 30 years.

Afsar SS, et al¹⁶ reported 79.5% had road traffic accident, 6.8% sustained fractures due to fall from a height and 13.6%. In the finding of this study RTA was most common 70% of the cases while fall and gunshot cases were with the percentage of 25% and

5% respectively.

E. Carlos et al,¹⁷ mentioned in their series transverse fractures most common 24.3%, Oblique 17.6%, Spiral 29.7%, Butterfly 21.6%, Comminuted 2.7% and Segmental 4.1%. In this study according to the AO classification oblique fractures were found most common 45%, transverse were 2nd most common fractures 25%, while 20% comminuted fractures and spiral were noted 10%.

In a systematic overview and meta-analysis by Bhandari, 7% nonunion rate was reported.¹⁸ In a report of Gharehdaghi M et al report nonunion rate was about 4.41%.¹⁹ But in this study nonunion was not appeared, this may that all the cases were performed by senior orthopaedic surgeons. The prevalence of infections in Tuzuner's report was 2.38%.²⁰ In research of Gharehdaghi M et al,¹⁹ 1.47% infection in 136 cases was noted. In the Jeny report in 744 femoral shaft fractures with 13.4% open fracture the infection prevalence was 3.2%.²¹ On the assessment of final results in both close and open methods, 5% infection found in close method and 7.5% infection were in open method, less union time was found in closed group, deformity was equally found in both groups and healing time was also less found in closed group. Nitin Kimmatkar et al²² also found less union time in the closed group.

CONCLUSIONS

It is concluded from our study that closed intramedullary interlocking nailing method is associated with less complications, short hospitalization and excellent union outcome for the femoral shaft fracture.

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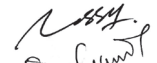



“Pretty words are not always true,
and true words are not always pretty.”

Unknown



AUTHORSHIP AND CONTRIBUTION DECLARATION

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