

Research Article**Union in Femur Shaft Fracture in Children after
Closed Intramedullary Elastic Nailing****Ahmad Abdul Manan, Anam Aslam
and Muhammad Rashid Abbas**Nishtar Hospital Multan
Services Hospital Lahore
Teaching Hospital DHQ Dera Ghazi Khan**ABSTRACT:****Objective;** To determine the union in femur shaft fracture in children after closed intramedullary elastic nailing.**Methodology:** This was a descriptive case series study conducted at Department of Orthopedics, Lahore General Hospital, Lahore during January to June 2017. In the present study the cases of either gender with age less than 12 years with femur shaft fracture assessed by X rays of simple type within last one week were included. The cases with non traumatic fracture and open wound were excluded. These cases then underwent elastic intramedullary elastic nailing according to the femur length and size. Then these cases were assessed weekly for clinical examination and on X ray. The cases with callus formation were labelled as yes in terms of union.**Results:** In the present study, 40 cases of femur shaft fracture included. Out of these 40, there were 26 (65%) males and 14 (35%) females. The mean age at presentation was 8.36 ± 3.45 years. The union after intra medullary nails was observed in 36 (90%) out of 40 cases (figure 01). The union was better seen in males where it was seen in 24 (92.31%) out of 26 cases with $p = 0.38$. Union was also better in cases that had fracture within last 48 hours where it was seen in 21 (95.45%) out of 22 cases with a near significant p value of 0.11.**Conclusion:** Union with intra medullary nailing is nearly 100% and its nearly significantly better in cases that presented within 48 hours of fracture.**Key words.** Femur, Shaft fracture, Intra medullary nail, union**INTRODUCTION:**

The incidence of road traffic incidence is increasing day by day with increase in the number of vehicle. Fractures are common complications of the trauma and add to overall morbidity and mortality directly or through different complications. Long bone fractures especially the femur are amongst the commonest fractures. About 2/3rd cases of the total femur fracture in young children suffer shaft fracture. The incidence of femur shaft fracture in children in 20 cases per 100000.¹

The presentation of fracture is not that classical in children as there is different degree of calcification and fusion of bone epi and diaphysis; still X rays are considered as the gold standard investigation. The management depends upon the type, severity, duration and

extent of dislocation after fracture to guide towards the management plan. Surgery might or might not be done in every cases; and decisions are made on individual basis depending upon the clinical scenarios.²

Spica cast and close reduction are the major modalities used in very young population but has certain side effects and can lead to shortening of leg and either non or malunion in such cases.

The other conventional methods include traction for a good period of of time before surgical intervention. It can prevent leg shortening but on the other hand it can delay the healing process.²⁻³

Hence, various modalities have been tried considering social, medical, financial and

physical factors to look for best modality with minimal side effects and better efficacy rates. These include solid and flexible closed intramedullary nails, screws, plates and external fixation.⁴ There is increased risk of infection with pins and plates and risk of fracture with external fixation. Elastic intramedullary nails are recently being used and have shown good clinical outcome with minimal side effects. They have shown their good efficacy results in the form of union in more than 80 to nearly 100% of cases.⁵⁻⁶

Objective: To determine the union in femur shaft fracture in children after closed intramedullary elastic nailing.

Study Design: Descriptive Case Series.

Study Setting: Department of Orthopedics, Lahore General Hospital, Lahore

Duration of Study: January 2017 to June 2017

Sampling Technique: Non-probability, consecutive sampling.

Methods; In the present study the cases of either gender with age less than 12 years with femur shaft fracture assessed by X rays of simple type within last one week were included. The cases with non traumatic fracture and open

wound were excluded. These cases then underwent elastic intramedullary elastic nailing according to the femur length and size. Then these cases were assessed weekly for clinical examination and on X ray. The cases with callus formation were labelled as yes in terms of union.

Statistical analysis;

The data was analysed using SPSS version 23. Data was stratified against confounding variables and post stratification chi square test was applied taking p value ≤0.05 as significant.

RESULTS;

In the present study, 40 cases of femur shaft fracture included. Out of these 40, there were 26 (65%) males and 14 (35%) females. The mean age at presentation was 8.36±3.45 years as shown in table 1. The union after intra medullary nails was observed in 36 (90%) out of 40 cases (figure 01). The union was better seen in males where it was seen in 24 (92.31%) out of 26 cases with p= 0.38. Union was also better in cases that had fracture within last 48 hours where it was seen in 21 (95.45%) out of 22 cases with a near significant p value of 0.11 as shown in table 02.

Figure No. 01. Union

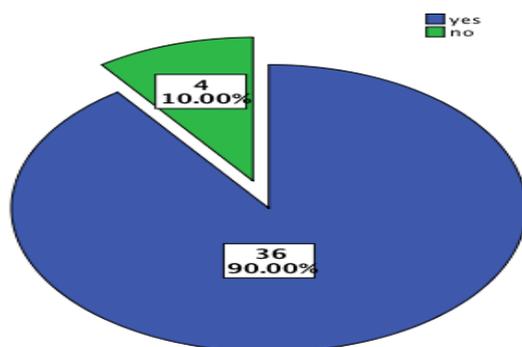


Table No. 1. Union vs Gender

Gender	Union		Total	p value
	Yes	No		
Male	24 (92.31%)	2 (7.69%)	26 (100%)	0.38
Female	12 (85.71%)	2 (14.29%)	14 (100%)	
Total	36 (90%)	4 (10%)	40 (100%)	

Table No. 2. Union vs duration of fracture

Duration of fracture	Union		Total	p value
	Yes	No		
48 hrs	21 (95.45%)	1 (4.55%)	22 (100%)	0.11
>48 hrs	15 (83.33%)	3 (16.67%)	18 (100%)	
Total	36 (90%)	4 (10%)	40 (100%)	

DISCUSSION;

Femur shaft fracture is not uncommon in children and its incidence is increasing due to increasing number of vehicle related accidents. Shaft is more prone to fractures and its healing may be impaired due to its weight bearing nature. Various modalities have been tried and elastic intramedullary nails are getting popularity.

The efficacy of intramedullary nailing was observed in 36 (90%) out of 40 cases. This was similar to the previous studies in the past. According to a study done by Lohiya et al, the union was observed in 83% of their cases in a study done on 73 cases. The remaining 17% of cases had malunion or non union. The cases with angulation more than 15 degrees was considered as non union in their study.⁷ The union was seen in almost all 100% of 212 cases of femur shaft fracture treated with elastic intramedullary nailing.⁸ In their study they used union on the basis of callus formation irrespective of the angulation.

Union was seen better in cases that had fracture within last 48 hours where it was seen in 21 (95.45%) out of 22 cases with a near significant p value of 0.11. The results were also similar to previous studies. But they did not use the same values of 48 hours; rather they revealed that the cases that presented earlier, had better outcome in the form of union.⁹⁻¹¹ The reason of better union in early presentation can be explained by the fact that in early cases proper placement of the bone and better compliance can lead to better healing. Secondly the infection is likely if the intervention is delayed. Furthermore, early intervention also led to better perfusion and also

lesser chances of malunion which is difficult later on to manipulate.

Conclusion;

Union with intra medullary nailing is nearly 100% and its nearly significantly better in cases that presented within 48 hours of fracture.

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