



## PROSPECTIVE STUDY OF MANAGEMENT OF OPEN FRACTURES OF TIBIA USING UNREAMED INERLOCKING NAIL

### Orthopaedics

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### ABSTRACT

**BACKGROUND:** In India, Complex trauma cases caused by traffic accidents have increased progressively, because of the increasing number of motor vehicles on the roads. Fracture tibia are among the commonest fractures sustained in road traffic accidents due to subcutaneous nature of tibia. These fractures are often open and contaminated. Controversy still exists as to the appropriate method of stabilization of open fracture of tibia. The aim of study is prospective study of open fractures of Tibia using undreamed interlocking nail.

**MATERIAL AND METHODS:** Patients with open fractures of tibia, who are admitted in SMIMER Hospital were taken for study after obtaining their consent

**RESULTS AND CONCLUSIONS:** Unreamed intramedullary nailing done under image intensifier has proved to be a one time procedure leading to union in all the cases. It also shows high union rate and low infection rate hence we can conclude that use of undreamed interlock nail in management of open fractures of tibia recommended modality.

### KEYWORDS

TIBIA, OPEN FRACTURES, UNREAMED, INTERLOCKING NAIL.

#### BACKGROUND:

In india, complex trauma cases caused by traffic accidents have increased progressively, because of the increasing number of motor vehicles on the road. Fracture Tibia is amongst the commonest fractures sustained in road traffic accidents due to subcutaneous nature of tibia. These fractures are often open and contaminated. Due to the poor blood supply and poor soft tissue coverage these fractures are frequently complicated by delayed union, mal union, and infection, stiffness of joint and poor functional outcome.

Controversy still exist as to the appropriate method of stabilization of open fractures of tibia. In choosing the mode of treatment one has to consider the importance of degree of associated soft tissue injury along with the type of fractures. Various modes of treatment are practiced spanning from plaster immobilization to debridement and surgical stabilization.

When comparing the reamed IM Interlocking nail with the undreamed one there is hardly any difference in rates of non union, malunion, implant failure or compartment syndrome in cases with open tibia fractures. Intramedullary nailing under IITV guidance fulfils the objective of stable fracture fixation with minimal tissue damage and quicker rates of fracture unions. Thus considering all these studies, the undreamed IM nail is preferred for the management of compound fracture of tibia.

The present study has been undertaken to review the results of open fractures of tibia treated with undreamed Interlocking Intramedullary nailing.

#### MATERIALS AND METHODS:

36 Patients with open fractures of Tibia, who are admitted in SMIMER were taken for study after obtaining consent. Follow up of the case was done for a period of atleast 6 months. The study was conducted in Department of Orthopaedics, SMIMER surat between may to August 2017

#### INCLUSION CRITERIA:

1. The patient with injuries associated with open fractures of the tibia.
2. Age limit: 15 years to 70 years
3. Both males and Females

#### EXCLUSION CRITERIA:

1. Patients with head and chest injury
2. Patients with Pathological fractures
3. Patients with fractures lying proximal to tibial tuberosity
4. Patients with fractures within 5 cm of distal articular surface of tibia were excluded
5. Patients with Intra-articular extension

6. Patients with fractures tibia with significant bone loss.
7. Patients age less than 15 years.

study was 32.03 years while mean age for female population was 50.6 years.

#### OBSERVATIONS AND RESULTS:

GENDER	NUMBER OF PATIENTS	MEAN AGE
Male	31	32.03
	86.11	
Female	5	50.6
	13.89	
Total	36	34.61

Table 1 : Gender distribution

The total sample size of study population was 36 patients of which 31 were males and 5 were females. Mean age of male population in the study was 32.03 years while mean age for female population was 50.6 years.

AGE GROUP	GENDER		TOTAL
	MALE	FEMALE	
<20	1	0	1
21-30	16	1	17
31-40	9	0	9
41-50	4	1	5
51-60	0	1	1
61-70	1	2	3
Total	31	5	36

Table 2 : Age Distribution

In the study the commonest age group is from 21-30

MODE OF INJURY	GENDER		TOTAL
	MALE	FEMALE	
Road traffic accident	30	4	3
Fall of heavy object on limb	1	1	2
Total	31	5	36

Table 3 : Mode of Injury

TYPE OF FRACTURE	GENDER		TOTAL
	MALE	FEMALE	
Type I	1	0	1
Type II	20	3	23
Type IIIA	8	2	10
Type IIIB	2	0	2
Type IIIC	0	0	0
Total	31	5	36

Table 4: Type of fracture According to GA classification

SIDE INVOLVED	GENDER		TOTAL
	MALE	FEMALE	
Right	15	0	15
Left	16	5	21
Total	31	5	36

Table 5: Side Involved in study population

PARTIAL WEIGHT BEARING	NUMBER OF PATIENTS	FULL WEIGHT BEARING	NUMBER OF PATIENTS
2-4 weeks	5	6-12 weeks	27
4-6 weeks	25	13-16 weeks	8
>6weeks	6	>16 weeks	1
Total	36	Total	36

Table 6: Time of Weight bearing in Study population

MODIFIED KARLSTROM OLERUD SCORE	GENDER		TOTAL
	MALE	FEMALE	
Excellent 36 points	0	0	0
Good 35-33 points	5	0	5
Acceptable 32-30 points	19	3	22
Moderate 29-27 points	5	0	5
Poor 26-24 points	2	2	4
Total	31	5	36

Table 7: Modified Karlstrom olerud's evaluation score at 6 weeks

MODIFIED KARLSTROM OLERUD SCORE	GENDER		TOTAL
	MALE	FEMALE	
Excellent 36 points	0	0	0
Good 35-33 points	22	2	24
Acceptable 32-30 points	8	2	10
Moderate 29-27 points	1	1	2
Poor 26-24 points	0	0	0
Total	31	5	36

Table 8 : Modified Karlstrom olerud's evaluation score at 3 months

MODIFIED KARLSTROM AND OLERUD SCORE	GENDER		TOTAL
	MALE	FEMALE	
EXCELLENT 36 POINTS	2	1	3
GOOD 35-33 POINTS	25	1	26
ACCEPTABLE 32-30 POINTS	4	2	6
MODERATE 29-27 POINTS	0	0	0
POOR 26-24 POINTS	0	1	1
TOTAL	31	5	36

Table 9 : Modified Karlstrom olerud's evaluation score at 6 months

### DISCUSSION:

In the present study of 36 patients with open fracture of tibia were operated and were followed up for a period of 6 months. The implant used in all cases was a stainless steel solid nail inserted via trans patellar tendon approach.

In the present study the age of the patients ranged from 19-70 years. The commonest age group was 21-30 years having of the total patients, with males being more affected than females. The least affected group was <20 and 61-70.

Out of 36 pts there was a male predominance as compared to females. In the current study commonest mode of injury was road traffic accident which affected 34 out of 36 patients.

In the current study commonest fracture type is Gustilo Anderson type II with 23 out of 36 patients of which 20 are males. In the current study left side is more common than right.

Out of 36 cases in the current study, complications were seen in 3 cases. Infection was the commonest complication which was seen in 2 patients. Implant breakage was seen in 2 patients.

In current study of 36 patients at follow up of 3 weeks good results were obtained in 5 and acceptable results in 22 patients. Moderate results were seen in 5 patients poor results were seen in 4 patients.

At follow up of 3 months 24 patients showed good result and acceptable results were seen in 10 patients. During final follow up of 6 months out of 36 pts showed excellent results and 26 patients showed good result.

### CONCLUSION:

The present study was undertaken to investigate the outcome of unreamed interlock nailing of open fractures of tibia, done with help image intensifier. 36 cases of open tibial fractures were fixed with intermedullary nail. The cases were followed up for almost a period of 6 months. Unreamed intramedullary nail done under image intensifier has proved to be a one time procedure leading to union in all cases. Earlier weight bearing leading to earlier fracture union with less morbidity is possible because of this procedure. It also shows high union rate and low infection rate.

Hence we conclude that use of unreamed interlocking nailing in management of open fractures of tibia and is recommended modality.

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