



## PROSPECTIVE STUDY OF A DIAPHYSEAL FRACTURES OF HUMERUS IN ADULTS TREATED WITH INTERLOCKING INTRAMEDULLARY NAIL

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### KEYWORDS :

#### INTRODUCTION

- Surat is city with a fast development in terms of travels and roadways and also in industrial growth. Surat is also well connected to other well developing cities of india. All this lead to increase in road traffic accident and so is increase all fractures including fracture of shaft of humerus.
- Humerus shaft fracture can occur at any level
- Operative methods which are most popular are intramedullary nailing and plating. Fixation with plates is associated with risk of nerve palsy, longer operative time, more blood loss and possibly increase the infections rate.
- Intramedullary nail act as a load sharing device and do not require extensive approach of fracture site opening so it preserves the fracture haematoma so early fracture consolidation and higher union rates.
- Although numerous report and comparative study provides inconsistent results there is increase interest in locked nail due to increase in technical advancement.
- So this study was done to evaluate the functional and radiological outcomes in humerus antegrade interlocking nailing.

#### OBJECTIVES

- To study the mechanisms of injury and fracture patterns of humerus diaphysis.
- To study the advantages and disadvantages of closed intramedullary nailing in humerus shaft fractures.
- To study the outcomes in post operative periods of humerus interlock nailing in terms of union rates, period of fracture consolidation, and functional outcomes.
- To study the complications in humerus nailing techniques.

#### METHODOLOGY

In our study 15 cases of acute humeral shaft fracture were treated with interlocking intramedullary nails and was conducted over a period of 2 years from Jan 2020 to dec 2021.

#### SOURCE OF DATA:

The source of data were inpatients at government civil hospital, Surat.

#### STUDY SUBJECTS:

Study subjects were adult patients with fracture of shaft humerus.

#### INCLUSION CRITERIA:

Patients were selected based upon following criteria:

- Age more than 18 years.
- Fractures of humeral shaft diaphysis.

#### EXCLUSION CRITERIA:

- Patients aged 18 years or below.
- Humeral shaft fractures of extreme proximal end – metaphyseal region.
- Patients with congenital deformity or pre trauma nerve palsy of involved limb.
- Patients with associated clavicle or scapula or elbow injury.

#### OBSERVATION AND RESULTS

- AGE DISTRIBUTION:

Our patients age ranges from 18 years to 55 years with an average of 37.06 years.

#### SEX DISTRIBUTION:

Majority of the patients 14 were Males and only 1 were Females

#### OCCUPATION:

Patients from following occupations were presenting our study

Occupation	No. of Patients
Housewife	1
Labourer	10
Businessman	1
Agriculturist	1
Clerk	0
Student	2

#### SIDE AFFECTED:

Right humerus was involved in 9 patients and left in 6 patients.

#### MODE OF INJURY:

Road traffic accident (RTA) was the commonest mode of injury. It accounts for 11 out of 15 patients. 4 patients presented with H/O fall.

#### LEVEL OF FRACTURE:

In 12 cases fracture was at middle third level, in 2 cases at distal 3rd level and in 1 cases it was at proximal 3rd level.

#### TYPE OF FRACTURE:

All the fractures were classified according to AO classification system.

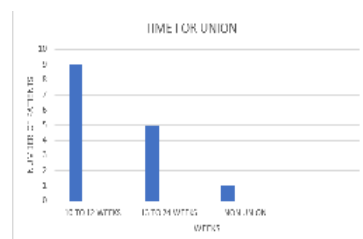
AO Type	No. of Patients	Percentage	
A	A2	6	40
	A3	2	13.3
B	B2	5	33.3
	B3	0	0
C	2	13.3	
C1			

#### TRAUMA-SURGERY TIME INTERVAL:

Most of the cases were operated with in a week after trauma. On an average time interval was 4.2 days.

#### FRACTURE UNION:

Period of fracture union ranged from 10 to 24 weeks, average period being 18 weeks.



**FUNCTIONALASSESSMENT:**

- Functional results were graded by the criteria of DASH SCORE - disability of shoulder arm and hand score, subjective complaints like pain was also taken in to account.
- The total functional outcome at the time of review took both joints (shoulder and elbow) into account.
- In our series out of 15 patients, 11(73.3 %) patients have dash score < 30 and 4 patients have score between 30 to 60(45.8 avg)

SCORE	NUMBER OF PATIENTS	PERCENTAGE
<30	11 (AVG SCORE 25)	73.3
30-60	4 (AVG SCORE 45.8)	26.6
>60	0	0



**POST OPERATIVE X RAYS**



**RANGE OF MOTION**



**CONCLUSION**

- Closed nailing is the least invasive surgical technique and has got the least chance of postoperative infection. It reduces the hospital stay.
- It reduces chance of neurovascular injury to patients.
- It provides good union rates and early rehabilitations.
- Risk of infection is negligible.
- Complications like non-union can be avoided by intraoperative compression and avoiding distraction at fracture site.
- Certain technical aspects like burying the proximal nail end at the entry portal are essential in avoiding impingement and to gain better shoulder function.

Complications	No. of Patients	Percentage
Non-union	1	6.66
Transient Iatrogenic Radial nerve palsy	0	0
Shoulder stiffness	4	26.6
Nail Impingement	0	0
Intra operative communitation at fracture site	0	0
Infection	-	-
Implant breakdown	1	6.66