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## Occurrence of distal third shaft humerus fractures in adults

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### Abstract

This study has been done to know the causes of occurrence of closed distal third shaft of humerus fracture, in this study 20 patients of fresh fractures of distal shaft humerus studied between January 2015 to March 2016 in Mamta general and super specialty hospital, Khammam. Among these 70% males and 30% females, average age group is 4<sup>th</sup> decade and RTA was the chief cause of fractures accounting for 80% and right side accounts for 60%. This is comparable with other series like Fawi *et al.* reported average age 47.5 years, male preponderance, RTA was the chief cause and right side accounts for 52% and John T. capo *et al.* where average age is 39 years, 57.2% males.

**Keywords:** Closed fracture, distal third, humerus, adult

### Introduction

Diaphyseal fractures of the humerus account for 1–3% of all fractures among adults and 20% of all fractures of the humerus [1, 2, 3]. There is a bimodal distribution with respect to the patient's age and gender. Peaks of incidence were described primarily in male patients in the 21 to 30 age and a larger peak in older females 60 to 80 years old [4].

The most common causes of these fractures were falls in the elderly population and sports injuries or road traffic accidents in the younger patients. The patients with an open humeral shaft fractures have often sustained high-energy trauma and have an increased incidence of radial nerve palsy, fracture comminution, ipsilateral upper extremity fractures and systemic injuries. Humerus shaft extends from Pectoralis major insertion to supra condylar ridge. The Musculotendinous attachments of the humerus result in characteristic fracture displacement. Over the past two decades, the AO/OTA Classification has been the most accepted classification in the literature. It is reproducible and allows not only descriptive, but also treatment guidelines for each defined fracture type.

Extra articular fractures of distal humerus occur at an anatomical watershed between the humerus shaft and the intercondylar region. These are relatively rare injuries and have been in the limelight owing to a higher incidence of radial nerve injuries, as well as the dilemmas surrounding their management. These injuries are often displaced and have complex fracture pattern with associated comminution.

However, it is also known that anatomical reduction is often difficult to obtain because of Complex joint anatomy, substantial forces across the elbow region, diminished bone mineral quality and lack of primary stability results in increased complication rates and poor results.

### Objectives

To study the incidence of distal third shaft of humerus fractures with respect to age, sex, mechanism of injury, type of fracture pattern and side of injury.

### Material and Methodology

Prospective study includes 20 patients admitted in Mamta general and super Speciality hospital, Khammam for fracture of distal third shaft humerus from January 2015 to march 2016 were selected, there were 14 males (70%) and 6 females (30%), all patients were aged above 18 years, all the fractures in the series were post traumatic, and no pathological

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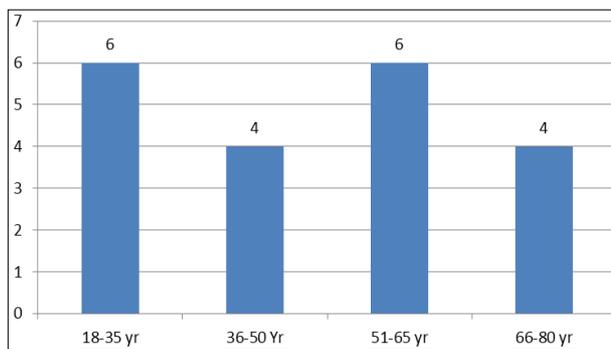
Fractures included in the study. Distal humerus fractures in patients aged less than 18 years, those fractures treated conservatively, compound fractures with Gustilo Anderson classification type 1 and 2, those fractures occurred more than 3 weeks and those with neurovascular disruption, and fractures with intra articular extension are excluded. And descriptive data of the patients like age, sex, fracture type, detailed history were obtained by interviewing the patients by clinical examination and necessary investigations were recorded in predesigned and pretested Performa.

**Observation and Results**

A total of 20 patients with fresh distal third shaft of humerus fractures were studied from January 2015 to march 2016. All these patients were available for follow up at the time of study. Following factors were observed and tabulated as follows.

**Table 1:** Age wise distribution of study participants

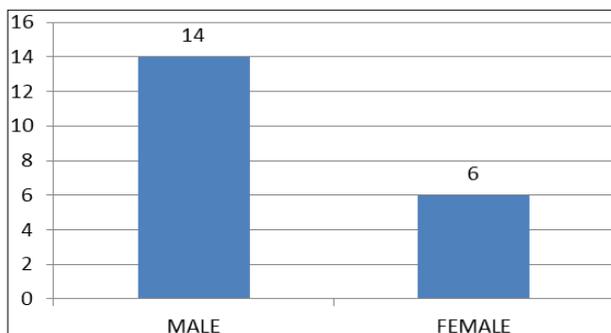
Age group	Number of cases	Percentage
18-35	6	30%
36-50	4	20%
51-65	6	30%
66-80	4	20%
Total	20	100%



**Graph 1:** In the present study majority of cases are in 18-35 years and 51-65 years age group.

**Table 2:** Sex wise distribution of study participants

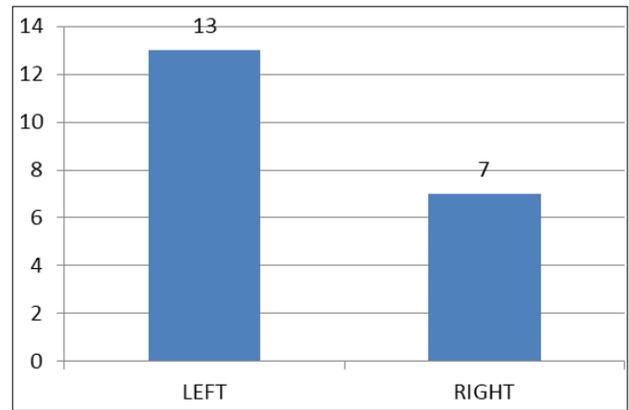
Sex	Number of cases	Percentage
Male	14	70%
Female	6	30%
Total	20	100%



**Graph 2:** In the present study 70% were male patients

**Table 3:** Incidence according to side

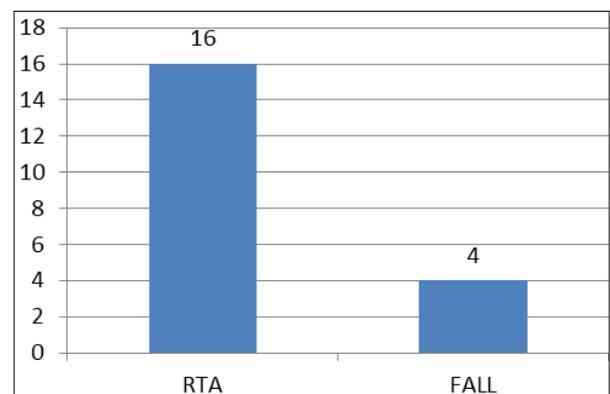
Side	Number of Cases	Percentage
Left	13	65%
Right	7	35%
Total	20	100%



**Graph 3:** In the present study left upper limb was involved in 65% of cases and right side was involved in 35 % cases.

**Table 4:** Mode of injury wise distribution of study participants.

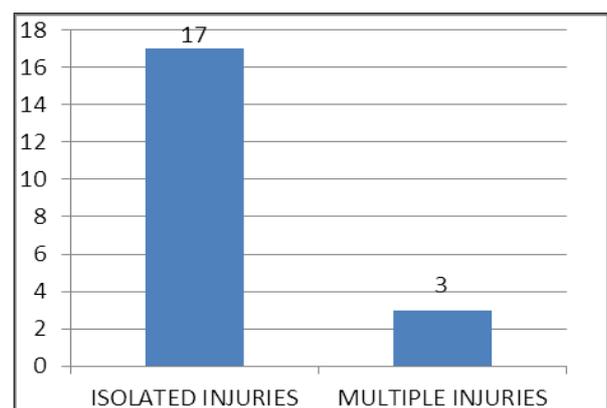
Mode of Injury	Number of Cases	Percentage
RTA	16	80%
Fall	4	20%
Total	20	100%



**Graph 4:** In the present study 80% Patients sustained injuries due to road traffic accidents and 20% cases by fall.

**Table 5:** AO classification of fracture wise distribution of study participants.

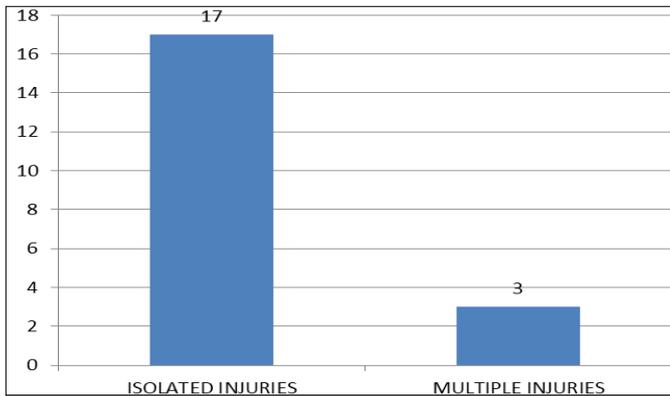
Type	Number of cases	Percentage
12-A1	1	5%
12-A2	3	15%
12-B1	7	35%
12-B2	5	25%
12-B3	2	10%
12-C1	2	10%
TOTAL	20	100%



**Graph 5:** In this present study majority of cases were of 12-b1 type.

**Table 6:** Associated injuries wise distribution of study participants

Injuries	Number of cases	Percentage
Isolated injuries	17	85%
Multiple injuries	3	15%
Total	20	100%

**Graph 6:** In the present study 85% cases were isolated distal third humerus fracture and 15% cases had multiple injuries.

### Discussion

Distal third humerus shaft representing 3% - 5% fractures of all fractures and about 10% are open fractures. Bimodal age distribution with a peak in the third decade is seen in males and peak in the seventh decade is seen in females. They are commonly multi-fragmented; occur in osteopenic bone with peri articular and complex joint anatomy. Twenty cases of fresh distal third shaft fractures of humerus were studied from January 2015 to march 2016 forms the basis of the present study.

In Our study the mean of age group belonged to 4<sup>th</sup> decade. This is comparable with that of Fawi *et al.* [17] 2014 studies reported average age group 47.5 years, But the study conducted by John T Capo *et al.* [14] 2013 the average age group was 3<sup>rd</sup> decade. Regarding the sex incidence there were (14)70% male patients and (6)30% female patients. In our study majority of patients were males, as they are more prone to road traffic accidents, Male gender was affected more. Our study was comparable with the study of John T Capo *et al.* [14] 2013, which shows increased prevalence towards the Male gender. Road Traffic Accidents were the main mode of injury accounting for (16) 80% of cases and fall while walking in (4) 20% cases. In the present study, 7 fractures occurred on the right side and 13 fractures occurred on the left side. In our study the majority of injuries were on the non dominant left arm. Our study was comparable with Fawi *et al.* [17] 2014 series showed that out of 23 cases in their study, 12 cases were of dominant arm right sided and 11 cases were left sided injuries.

### Conclusions

The present study was done in Mamta general and super speciality Hospital, Khammam from January 2015 to march 2017.

6 patients were (30%) in the age group of 18-35 yrs & 51-65 yrs each.

14(70%) were Male patients.

13(65%) Left side involved patients.

16(80%) patients sustained injury due to road traffic accident.

12 B1 Type was most common pattern.

18(90%) were closed fractures.

3(15%) were associated with multiple injuries

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