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Original research article

A study on Clinical Profile of patients with humeral shaft fractures admitted at a Tertiary care hospital

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Abstract

Humeral shaft is one in which main fragment is distal to the surgical neck of the proximal humerus and proximal to the supracondylar ridge distally. Proximally the humerus is roughly cylindrical in cross section tapering to triangular shape distally. The shaft of the humerus has three borders: anterior, medial and lateral. The study was conducted on patients undergoing MIPO technique for humerus shaft fractures. The patients were followed up for 6 months period after taking informed consent and radiological and functional assessment was done. For retrospective analysis patients operated in past were included in the study. Their clinical and functional analysis at 6 months following the procedure were done on an outpatient basis. The mean age in the present study was 60.55 years SD + 12.45 years, the minimum age of the cases in the study was 27 and the maximum age was 84 years. 40.91% cases belonged to the age group 51 to 60 years. 31.82% had co morbidities, 18.18% had only diabetes mellitus, 4.55% each had IHD, both DM and HTN. As per the AO classification 31.82% had 12 A2, 50.00% had 12 A3 and 18.18% had 12 C2 fractures.

Keywords: Humeral Shaft Fractures, Clinical Profile, RTA

Introduction

The humerus is a long bone which has a cylindrical central part called the shaft and enlarged upper and lower ends. The anterior aspect of the upper end shows a prominent vertical groove called the intertubercular sulcus [1].

The head is rounded and has a smooth articular surface. It is directed medially and also backwards and upwards. The upper end also shows two prominences called the greater and lesser tubercles (or tuberosities). These two tubercles are separated by intertubercular sulcus (or the bicipital groove) [2].

There are two distinct regions of the upper end of the humerus that are referred to as the neck. The junction of the head with the rest of the upper end is called the anatomical neck, while the junction of the upper end with the shaft is called the surgical neck [3].

Humeral shaft is one in which main fragment is distal to the surgical neck of the proximal humerus and proximal to the supracondylar ridge distally. Proximally the humerus is roughly cylindrical in cross section tapering to triangular shape distally. The shaft of the humerus has three borders: anterior, medial and lateral. These are readily identified in the lower part of the bone [4].

Methodology

Study design: Ambispective Observational study

Method of collection of data:

Prospective analysis

Procedure: The study was conducted on patients undergoing MIPO technique for humerus shaft fractures. The patients were followed up for 6 months period after taking informed consent and radiological and functional assessment was done.

Radiological assessment was done by using X-ray of the humerus AP view and Lateral view at immediate postop period, 6 weeks and 12 weeks following the surgical procedure. Bridging callus at three cortices was considered as radiological union. Functional assessment was done by using Disability of Arm Shoulder Hand scoring and Mayo Elbow Performance Scoring which was done at 6 months following surgery.

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Retrospective analysis

For retrospective analysis patients operated in past were included in the study. Their clinical and functional analysis at 6 months following the procedure were done on an outpatient basis.

For retrospective subjects X-rays were collected from the hospital X-ray database. Functional assessment was done by using Disability of Arm Shoulder Hand scoring and Mayo Elbow Performance Scoring which was done at 6 months following surgery.

Inclusion criteria

- Adults with
- Diaphyseal fractures of the humerus
- Age more than 18 years

Exclusion criteria-

- Adults with
- Open fractures
- Humerus diaphyseal fractures with radial nerve injury
- Associated ipsilateral forearm fractures
- Age less than 18 years

Sample size: 22

Results

Table 1: Age

Age	Frequency	Percentage
Less than 21 years	0	0.00%
21-30 years	1	4.55%
31-40 years	1	4.55%
41-50 years	2	9.09%
51-60 years	9	40.91%
61-70 years	6	27.27%
71-80 years	0	0.00%
		0.00%
More than 80 years	3	13.64%

The mean age in the present study was 60.55 years SD + 12.45 years, the minimum age of the cases in the study was 27 and the maximum age was 84 years. 40.91% cases belonged to the age group 51 to 60 years.

Table 2: Sex

Gender	Frequency	Percentage
Female	7	31.82%
Male	15	68.18%

31.82% were females and 68.18% were males, the male to female ratio was 2.14:1.

Table 3: Dominant side

Dominant side	Frequency	Percentage
Right	21	95.45%
Left	1	4.55%

95.45% were right handed and 4.55% were left handed (p<0.001)

Table 4: Humerus shaft # side

Humerus Shaft # side	Frequency	Percentage
Right	10	45.45%
Left	12	54.55%

45.45% had right side humerus shaft fractures and 54.55% had left side humerus shaft fractures

Table 5: Mechanism of injury

Injury mechanism	Frequency	Percentage
RTA	10	45.45%
Self Fall	12	54.55%

45.45% were injured due to RTA and 54.55% were

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injured due to fall.

Table 6: Comorbidities

Comorbidities	Frequency	Percentage
Diabetes mellitus	4	18.18%
Hypertension	1	4.55%
Diabetes mellitus + hypertension	1	4.55%
Ischemic heart disease	1	4.55%
With comorbidities	7	31.82%
Without comorbidities	15	68.18%

31.82% had co morbidities, 18.18% had only diabetes mellitus, 4.55% each had IHD, both DM and HTN.

Table 7: Diagnosis

AO Classification	Frequency	Percentage
12 A3	11	50.00%
12 C2	4	18.18%
12 A2	7	31.82%

As per the AO classification 31.82% had 12 A2, 50.00% had 12 A3 and 18.18% had 12 C2 fractures.

Discussion

The mean age in the present study was 60.55 years SD + 12.45 years, the minimum age of the cases in the study was 27 and the maximum age was 84 years, 40.91% cases belonged to the age group 51 to 60 years.

Amit Saraf *et al*, [5] noted that mean age of the study cases was 39.71 SD ±13.18 years.

31.82% were females and 68.18% were males. The male to female ratio was 2.14:1.

Amit Saraf *et al*, [5] had 11(52.4%) males and 10(47.6%) females

95.45% were right handed and 4.55% were left handed ($p<0.001$)

45.45% had right side humerus fractures and 54.55% had left side humerus fractures

45.45% were injured due to RTA and 54.55% were injured due to fall.

All patients had anterior approach surgery.

31.82% had co morbidities, 18.18% had only diabetes mellitus, 4.55% each had IHD, both DM and HTN.

As per the AO classification 31.82% had 12 A2, 50.00% had 12 A3 and 18.18% 12 C2 fractures.

Amit Saraf *et al*, [5] had AO type (A) simple- 12A1-5 cases, 12A2- 4 cases, 12A3- 8 cases, (B) wedge- 12B2- 4 cases were taken.[6]

Conclusion

- The mean age in the present study was 60.55 years SD + 12.45 years, the minimum age of the cases in the study was 27 and the maximum age was 84 years. 40.91% cases belonged to the age group 51 to 60 years.
- 31.82% were females and 68.18% males, the male to female ratio was 2.14:1.
- 95.45% were right handed and 4.55% were left handed ($p<0.001$).
- 45.45% had right side humerus fractures 54.55% had left side humerus fractures.
- 45.45% were injured due to RTA and 54.55% were injured due to fall.

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