MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.36478/makrjms.2024.7.190.192

OPEN ACCESS

Key Words
Metacarpal, phalangeal fractures, clinical profile

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Received: 18 April 2024
Accepted: 9 June 2024
Published: 12 June 2024

Citation: C.S. Rohith, Prathyush K. Sarangi, Manoj Bhagirathi Mallikarjunaswamy, Megha Naikal and Siddharam Biradar, 2024. Metacarpal and Phalangeal Fractures: Clinical Profile. Res. J. Med. Sci., 18: 190-192, doi: 10.36478/makrjms.2024.7.190.192

Metacarpal and Phalangeal Fractures: Clinical Profile

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Abstract
Today most fractures are managed successfully by non-operative modalities as most fractures are functionally stable before and after closed reduction and are well managed with protective splint and early mobilization. General systematic and local examination were done to assess other associated injuries and open wounds followed by radiological evaluation in AP and oblique views. Once the diagnosis is confirmed and patient notified about the fracture and need for surgery. His consent is taken and pre op planning done. Single metacarpal involvement being the most common accounting for 76% of the cases. Transverse fracture pattern being most common accounting for 46%.

INTRODUCTION

Metacarpal and phalangeal fractures are most common fractures of upper extremity. 70% of these fractures commonly occur between the ages of 10-45 yrs. Early in 20th century these fractures were all managed non-operatively. Operative fixation of hand fractures was limited for the past 4 decades. Today most fractures are managed successfully by non-operative modalities as most fractures are functionally stable before and after closed reduction and are well managed with protective splint and early mobilization[1, 2].

These are rare intra-articular fractures and these fractures are usually comminuted. They are more common in index metacarpal because of relatively immobile carpometacarpal joint. These are usually associated with complex dorsal metacarpophalangeal dislocation[3].

Radiological evaluation is done with AP, lateral and oblique view. Special view called Brewerton view is used to asses fracture geometry. Brewerton view is taken with metacarpophalangeal joint flexed to 65 degrees and dorsum of fingers lying flat on x ray plate and x ray tube angled to 15 degrees in ulnar to radial direction. This view gives better appreciation of articular contour[4].

Metacarpal Neck Fractures, also known as Boxers fracture. But it is a misnomer since it is rarely seen in professional boxers and is more commonly seen in people who hit against solid objects.

MATERIALS AND METHODS

Inclusion Criteria:

- Metacarpal and phalangeal fractures of either hand.
- Age >18 years.
- Physical fitness for surgery.
- **Sex:** Both male and female.
- Patients willing to participate in the study.

Exclusion Criteria:

- Age <18 years.
- Type 3 compound wounds.
- Patient not willing or medically unfit for surgery.
- Patients presenting with fractures after 2 weeks of the trauma.

On admission, demographic data was recorded and a thorough history was taken to assess mode of injury and associated co-morbidities.

General systematic and local examination were done to assess other associated injuries and open wounds followed by radiological evaluation in AP and oblique views.

Once the diagnosis is confirmed and patient notified about the fracture and need for surgery. His consent is taken and pre op planning done.

RESULTS AND DISCUSSIONS

Age group varied from 20 years to 65 years with mean age of 35 years.

Incidence of fracture was observed maximum between 20-29 years.

Among the 30 cases, males were predominant with a total of 23 cases.

In our study right handed injuries were more compared to left handed injuries.

Commonest mode of injury being Road Traffic Accident (RTA) accounting for 73%.

Fractures of the shaft accounted for 86% of cases. Single metacarpal involvement being the most common accounting for 76% of the ceses.

Transverse fracture pattern being most common accounting for 46%.

Table 1: Age distribution

Age group	Male	Female	Total
20-29 YRS	10	1	11
30-39 YRS	5	4	9
40-49 YRS	5	0	5
50-59 YRS	1	2	3
60-70 YRS	2	0	2
Total	23	7	30

Table 2: Sex distribution

Sex distribution	No. of cases
Male	23
Female	7

Table 3: Side of injury

Sex	Left	Right	Bilateral	Total
Male	7	16	0	23
Female	4	3	0	7
Total	11	19	0	30

Table 4: Mode of injury

Mode of injury	No. of Cases
Road traffic accident	22
Self-fall	8

Table 5: Classification of fractures

Fracture location	No. of Cases
Head	-
Neck	3
Shaft	26
Base	1

Table 6: No. of metacarpal involved

No. of metacarpals involved	No. of cases
1	23
2	5
3	1
4	1
5	0

Table 7: Fracture pattern

Type of fracture	No. of Cases
Transverse	14
Comminuted	11
Oblique	5

Most of the metacarpal fractures are stable before or after closed reduction and are managed successfully

by conservative method of protective splinting followed by early mobilization[5,6]. Only a small percentage of metacarpal fractures are unstable and in these patients the functional results following closed treatment are unsatisfactory. These are the cases indicated for open reduction and internal fixation which are usually less than 5% of hand fractures[7]. James[8] reported that closed method used in treatment of unstable fractures had loss of function in 77% of fingers.

Open reduction and internal fixation with K wire is one of the treatment modalities in these unstable fractures but they provide less rigid fixation and are rotationally unstable, there is increased association of pin tract infection and problems due to protruding ends of K-wire are significant. Interosseous wiring with K-wire although provides rigid fixation equivalent to plating are useful only in transverse diaphyseal fractures.

CONCLUSION

Among the 30 cases, males were predominant with a total of 23 cases. Fractures of the shaft accounted for 86% of cases. Transverse fracture pattern being most common accounting for 46%.

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