



TO STUDY THE OF RESULTS OF PLATTING IN FRACTURE OF SHAFT OF HUMERUS IN ADULTS

Orthopaedics

Dr. Nagesh Desai

Dr Krunal
Chaudhari

ABSTRACT

Introduction: It is generally admitted that most shaft humerus fractures can be managed well with nonoperative methods. Whenever operative treatment is required, a choice has to be made between plate osteosynthesis and intramedullary nailing. The goal of operative treatment of shaft of humerus fracture is to reestablish length, alignment and rotation with stable fixation that allows early motion and early weight bearing on the fractured extremity. Plate osteosynthesis remains the gold standard of fixation for humerus fractures. Plating can be used for fractures with proximal and distal extension and for open fractures. **Methods:** We have done a prospective study of 30 patients with Fracture shaft Humerus stabilized with plating using antrolateral or posterior approach. These plates were available in 4.5 mm diameter and in lengths ranging from 08 to 16 hole. Plates used are simple DCP and locking plates. **Results:** Study shows more incidences of Humerus fractures in young patients as it is active age group in the society, more prone to vehicle accidents and falls. Most of the fracture of shaft humerus unites in 10-14 weeks and in minor cases more than 18 weeks were observed for union. Most common complication associated with operative method of fracture shaft humerus is non union. Joint involvement in form of shoulder or elbow stiffness can occur in small number of cases. There are two cases of infection noted in our study. **Interpretation and Conclusion** Majority of the fractures were transverse and comminuted at the middle 1/3rd level and most of them were closed fractures. Early post operative mobilization and rigid fixation of the fracture of shaft of humerus with plate, lowers the incidence of shoulder and elbow stiffness. Prolonged immobilization goes against the AO principal of obtaining early, active and pain free mobilization. Internal fixation of shaft humerus with plate avoids these complication and achieves higher union rates compared to conservative methods.

KEYWORDS

Humerus, Plate, shoulder, AO principle

INTRODUCTION

Fractures of the humerus account for roughly 3% to 5% of all fractures, generally they are the results of direct trauma. The treatment of these fractures have always been a much debated topic, as both the conservative and the surgical treatment offer advantages and disadvantages.

The goal of operative treatment of shaft of Humerus fracture is to reestablish length, alignment and rotation with stable fixation that allows early motion and early weight bearing on the fractured extremity. Various methods of treating proximal, middle and distal humeral shaft fractures have continued to evolve from closed methods, K wire, external fixation, antegrade and retrograde intramedullary nailing and conventional plating to minimally invasive osteosynthesis. Plate osteosynthesis remains the gold standard of fixation for humerus fractures. Plating can be used for fractures with proximal and distal extension and for open fractures.

The successful treatment of humeral shaft fracture may not end with bony union.

In the current emphasis on a holistic approach to patient's care, the treating Orthopaedic surgeon may be in an ideal position to intervene and improve a patient's life beyond what is traditionally recognized as the surgeon's role. As with most orthopaedic injuries, the successful treatment of a humeral shaft fracture demands knowledge of anatomy, surgical indications, techniques, patient's expectations and outcome.

MATERIAL AND METHOD

30 cases of humerus shaft fractures were studied. All the cases were diagnosed, treated and followed according to prescribed proforma. Once the patient was admitted, x-rays were taken (AP and lateral), humerus U slab was given for support and analgesics and anti-inflammatory drugs were given. All the associated injuries were treated accordingly. Line of treatment was decided according to the type of fracture, degree of displacement and general condition of patient. Data collected include age, length of hospital stay, use of antibiotics, pattern and site of the fractures, type of fixation, complications, and outcomes. Outcome measurements were determined using the ASES SCALE.

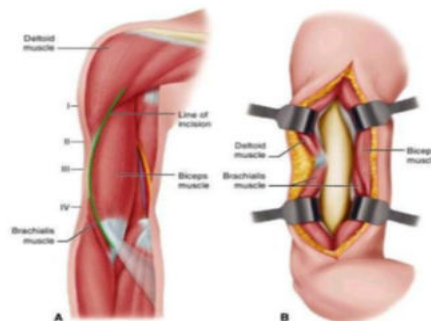
All fractures were operated upon to achieve anatomical reduction, rigid internal fixation by plating and early mobilization.

Two approaches used for plating.

1. Anterolateral approach
2. Posterior approach

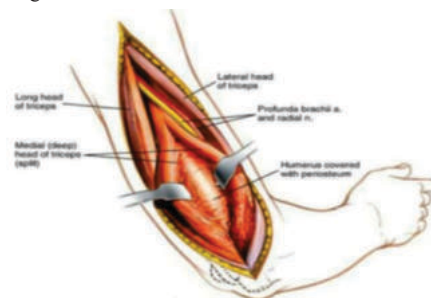
1. Anterolateral approach- 26 patients in our study was operated using this approach

Patient position & surgical procedure- patient was given supine position and anterolateral approach taken and fracture exposed. After reduction appropriate implant according to the fracture and patient chosen and fixed under IITV guidance.



2. Posterior approach – 4 patients in our study operated with posterior approach

Patient position & surgical procedure – patient was given lateral position and posterior approach taken. Fracture exposed after identification of radial nerve and appropriate plate chosen and fixed under IITV guidance.



Operative Procedures-

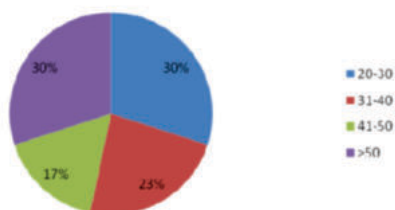
OBSERVATION AND DISCUSSION-

1. Age distribution

Age	No of patients	Percentage
20-30	9	30
30-40	7	23.33
40-50	5	16.66
>50	9	30
Total	30	

Study shows more incidences of Humerus fractures in young male patients as it is active age group in the society, more prone to vehicle accidents and falls (Fig 1 & 2) .

AGE (IN YEARS)

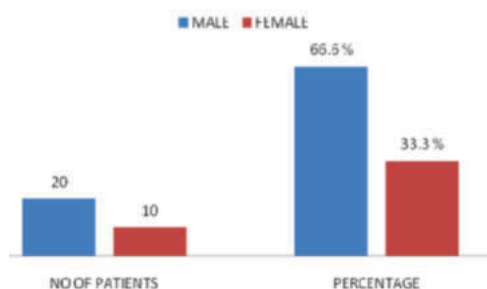


(Fig 1.)

2. Gender distribution:

Gender	No of patients	Percentage
Male	20	66.66
Female	10	33.33

GENDER

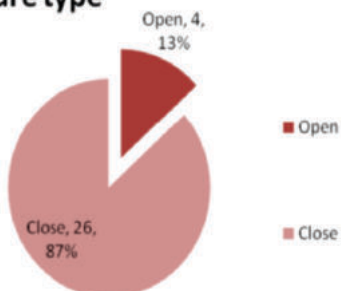


(Fig 2.)

3. Distribution according to Type of Fracture:

Fracture type	No of patients	Percentage
Close	26	87
Open	04	13
Total	30	

Fracture type



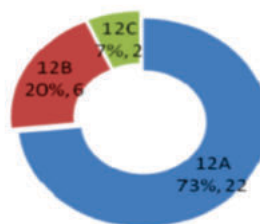
(Fig 3.)

Study shows more close injuries than the open one. (Fig 3)

4. According to AO Classification Distribution

AO type	No of patients	Percentage
Type A	22	73
Type B	06	20
Type C	02	07
Total	30	

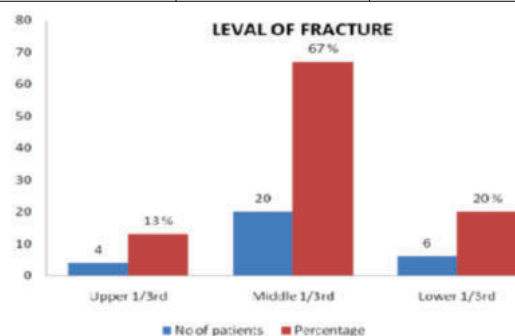
Distribution accordingly to AO Classification



(Fig 4)

5. Distribution according to level of Fracture

Level of fracture	No of patients	Percentage
Upper 1/3rd	4	13
Middle 1/3rd	20	67
Lower 1/3rd	6	20
Total	30	



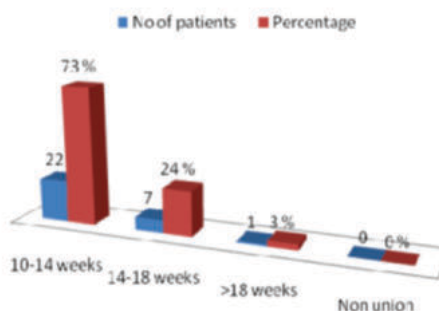
(Fig 5)

Study shows more no of fracture are AO type A and in middle one third shaft fracture. (fig 4 & 5)

6. Distribution according to time taken for union

Time taken for union	No of patients	Percentage
10-14 weeks	22	73
14-18 weeks	07	24
>18 weeks	00	03
Nonunion	00	00
Total	30	

Time taken for union

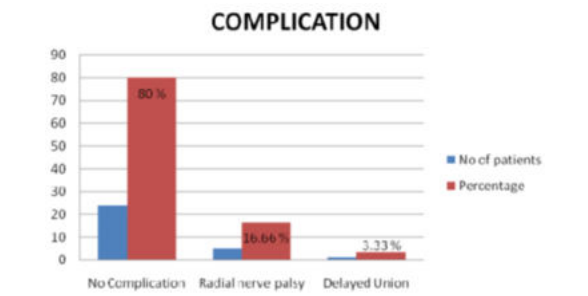


(Fig 6)

Most of the fracture of shaft humerus unites in 10-14 weeks and only in one case more than 18 weeks were observed for union (Fig 6)

7. Complication

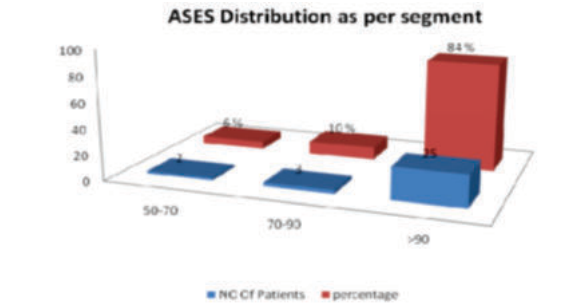
Complication	No of patients	percentage
No complication	24	80
Radial nerve palsy	05	16.66
Delayed union	01	3.33
Non union		



(Fig 7)
In our study 5 patients had radial nerve palsy and one patient developed delayed union. (Fig 7)

8. Distribution according to ASES Score

ASES Score	No of patients	percentage
50-70	2	6
70-90	3	9
>90	25	84
Total	30	



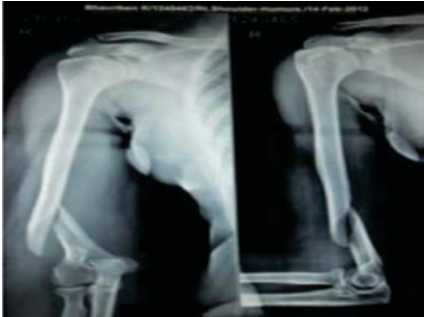
(Fig 8)
Average ASES Score is 90.43. Most of the patients having ASES Score more than 90 (25) indicating excellent results. (Fig 8)

Clinical cases

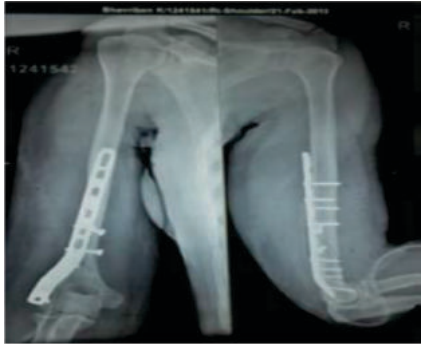
Case 1.

Case no. 1

Name : ***** (40 yr female) fall at home
Final range of Movement: *Full*
Clinical Outcome: *Excellent*



Pre op x ray



Post op xray



Final X ray



Clinical pic 1



Clinical pic 2



Clinical pic 3

Case 2-

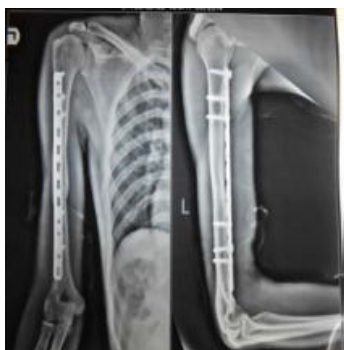
Name: ***** (20 yr male) fall at home
Final range of Movement: *Full*
Clinical Outcome: *Excellent*



Pre op xray



Post op xray



Final xray



Clinical pic 1



Clinical pic 2

SUMMARY AND CONCLUSION

The mode of injury is usually a direct trauma following road traffic accidents. As the fracture might associated with complication like radial nerve palsy, so detailed neurovascular examination is must.

Majority of the fractures were transverse and comminuted at the middle 1/3rd level and most of them were closed fractures. Early post operative mobilization and rigid fixation of the fracture of shaft of humerus with plate, lowers the incidence of shoulder and elbow stiffness.

Prolonged immobilization goes against the AO principal of obtaining early, active and pain free mobilization. Internal fixation of shaft humerus with plate avoids these complication and achieves higher union rates compared to conservative methods.

Plating of humerus produces comparatively better results than antegrade humerus interlocking nail.

Proper pre operative planning, minimal soft tissue dissection, adherence to AO principales, strict asepsis, proper post operative rehabilitation and patient education are more important to achieve excellent results.

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