



# Functional Outcome of Shaft of Humerus Fractures Managed Surgically by Dynamic Compression Plating Technique

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## **Author's contribution**

*The sole author designed, analyzed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

The study analyzed 20 cases of fracture shaft of hummers treated with Dynamic Compression Plate. There was a male preponderance in our study 17 (85%). Almost Also 13% of patients treated by functional bracing end up with cosmetically unacceptable angulation of >15%, whereas all operative procedures achieve good alignment of the fractured bone was observed. The rate of union in Plate osteosynthesis is 93% and the time of union is 16 - 20 weeks, and more than 90% united in 18 weeks and 7% went for non union.

**Keywords:** Osteosynthesis; dynamic compression plate.

## **1. INTRODUCTION**

Fractures of humeral shaft have traditionally been regarded benign, with high percentage of primary healing with conservative methods, using either a hanging arm cast or a functional

brace. Plating is better option but it involves a lot of dissection process, meticulous radial nerve protection. To over come this disadvantage ,nailing was an appropriate method but still interlocking with long bone was not yet reported and so later humeral shaft fractures than

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dynamic compression plating was used. Hence the purpose of this study is to understand the outcome of the dynamic compression plating technique for the fracture shaft of humerus.

## 2. MATERIALS AND METHODS

A prospective study will be done on patients with shaft of humerus fractures in Sree Balaji Medical College and Hospital, Chromepet, Chennai. Method of collection of Data (including sampling procedures if any)

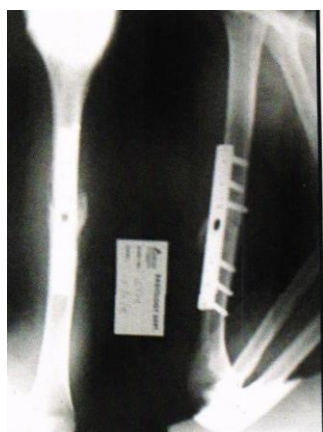
- a) Detailed history about the trauma and mode of injury.
- b) Clinical examination.
- c) Investigations including X-rays of the humerus- anteroposterior and lateral views.
- d) A minimum of 20 cases will be studied without any sampling procedure.

## 3. RESULTS

The majority of patients 17(85%) were males and only 3(15%) were females. Right side was involved in 11(55%) patients and left side in 9(45%) patients. The commonest mode of injury for fracture shaft of humerus in this series is road traffic accident accounting for 60 % of all cases. Most of the fracture in our series were present at mid / 3rd of the humerus and constituted 55%. In our study of 20 patients shoulder function was excellent in 17(85%) patients, moderate in 2(10%) patients and poor in 1(5%) patient. Elbow function was excellent in 18(90%) patients and moderate in 2(10%) patients. The overall functional results were excellent in 85% patients, moderate in 10% patients and poor in 5% patients. One patient had Transient Radial nerve palsy after surgery which improved within 3 patients. Two patients had shoulder joint



a) pre-OP



b) 3 weeks post OP



C) Union at 13 Weeks

Fig. 1.

cock up splint and electrical stimulation of wrist extensors. Late complications were encountered stiffness probably because the patient had undergone native treatment with massage and attempted reductions and surgery was performed one month after 1 injury both of them recovered after physiotherapy. 12 (60%) patients said that may had no pain and 5 (25%) patients had only mild pain, 2 (10%) patients had pain after unusual activity and pain at rest in 1 (5%) patients. No patient had disabling pain. Twelve (60%) of the patients had good functional results, 8 (40%) had fair functional results and no patients had poor functional result. Eighteen (90%) patients had normal muscle strength in all the muscle groups evaluated and one patient had good muscle strength and one patient had fair muscle strength. : Active forward elevation was defined as the angle between the humerus and upper part of thorax in the sagittal plane. External rotation was measured with arm at patient side. Internal rotation was measured as the posterior segment that could be reached by the thumb with the elbow in a flexed position. From the study, of the twenty cases 16 (80%) patients had excellent result, 3 (15%) satisfactory, and 1 (5%) unsatisfactory results. There was no failures in our study. In our study internal fixation using dynamic compression plating techniques achieved union in nineteen of twenty fractures (95%). These results are comparable with those obtained by R Vander Griend et al open reduction and internal fixation using AO plating techniques (97%) [1-10].

#### 4. DISCUSSION

There was a male preponderance in our study 17 (85%). This compares well with Rose SH, Melton et al study of 586 humeral fractures there was a male preponderance. Also 13% of patients treated by functional bracing end up with cosmetically unacceptable *angulation* of >15%, whereas all operative procedures achieve good alignment of the fractured bone. *Non union* (13%) also occurs fairly commonly in conservative methods. Long time of immobilization due to conservative methods of treatment, increases the rate of complications. *Bell et al* had similar results ie., union in 37 of 39 fractures. *Tingstad et al.* [11] had union in 78 of 83 fractures.

#### 5. CONCLUSION

The rate of union in Plate osteosynthesis is 93% and the time of union is 16 - 20 weeks, and more

than 90% united in 18 weeks and 7% went for non union.

#### CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline patient's consent and ethical approval has been collected and preserved by the authors.

#### COMPETING INTERESTS

Author has declared that no competing interests exist.

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