



Assessment of the Outcome of Conservative Vs Operative management in Proximal Humerus fractures in elderly population.

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ABSTRACT: Introduction: Proximal humerus fractures are the 3rd most common fractures in elderly patients (age >65 years), just trailing the fractures of the hip and distal radius. Fractures of proximal humerus account for upto 6 percent of all the fractures in humans. In elderly patients with humerus fractures, nearly 75 percent are those of proximal humerus. The mechanisms underlying these fractures are mainly but not limited to fall from height, road traffic accidents, pre-existing osteoporosis and gunshot injuries. While managing such fractures, the surgeon is faced with the dilemma of decision between operative and non-operative methods.

Aims and Objectives: The study aims to assess the outcome of conservative and operative management in proximal humerus fracture in elderly population. Conservative methods avoid surgical stress, soft tissue injury, possible surgical and wound related complications. Surgical management benefits from better reduction of fracture, better stabilization, simultaneous repair of rotator cuff injuries, better confidence with mobilization post op and possibly earlier return to activity. This retrospective study assess and compares the outcome of these treatment modalities.

Methods and Material: The study involves 30 patients with fracture of proximal humerus according to Neer's classification with age between 60 and 80 years. Out of the 30 patients, 15 patients were managed by conservative method (reduction of the fracture and immobilization with slab) and other 15 patients were managed by operative method (locking compression plating). Check Xrays were done after the procedure and at the interval of 4 weeks. Follow up was done and were

compared according to the clinical and functional outcome (Neer's shoulder assessment scale).

Result: Out of 30 patients of fracture proximal humerus, 10 patients (33.33%) had overall excellent functional outcome, 3 patients (10.00%) were managed conservatively and 7 patients (23.33%) were managed by Open reduction and Internal fixation by PHILOS. So one third patients (10 out of 30) had excellent functional result by conservative and surgical methods. 14 patients (46.7%) had satisfactory outcome as per Neer's shoulder assessment score. Out of 14 patients, 4 (13.33%) were managed by conservative methods and 10 (33.33%) were managed by operative methods. 4 patients (13.33%) out of 30 had unsatisfactory outcome, 3 (10.00%) were managed conservatively and 1 (3.33%) was managed by surgical method. 2 patients (7%) were failure as per Neer's shoulder assessment score, both were managed by conservative methods.

Conclusion: Results suggests that in the Proximal humerus fractures in the elderly population, operative management is better in Neer type 3 and type 4 fractures than conservative management. Excellent and satisfactory outcomes are higher in operative management and failure rates are lower in Neer type 3 and type 4 fractures compared to conservative methods.

Keywords: proximal humerus, Neer's classification, U slab, LCP

I. INTRODUCTION

Proximal humerus fractures are the 3rd most common fractures in elderly patients (age >65 years), just trailing the fractures of the hip and distal radius. Fractures of proximal humerus account for upto 6 percent of all the fractures in



humans. In elderly patients with humerus fractures, nearly 75 percent are those of proximal humerus¹. The mechanisms underlying these fractures are mainly but not limited to fall from height, road traffic accidents, pre-existing osteoporosis and gunshot injuries. While managing such fractures, the surgeon is faced with the dilemma of decision between operative and non-operative methods. Outcome of treatment depends on the amount of comminution, degree of displacement, loss of blood supply to the head of humerus besides individual patient profile. For undisplaced and minimally displaced fractures, conservative methods are the preferred methods of management². In displaced fractures, the dilemma regarding choice of treatment appears to increase. Conservative methods avoid surgical stress, soft tissue injury, possible surgical and wound related complications³. Surgical management benefits from better

reduction of fracture, better stabilization, simultaneous repair of rotator cuff injuries, better confidence with mobilization post op and possibly earlier return to activity^{4,5}. This retrospective study aims to assess the functional results after both lines of treatment.

II. METHOD

In this study, we included 30 patients (age-60 to 80 years, male- 15, female-15) with fracture proximal humerus. Study duration was from February 2019 to March 2020. **Inclusion criteria-** 1.Age between 60 and 80 years 2.Proximal humerus fractures with or without dislocation. **Exclusion criteria-** 1. Age <60 and >80 years 2. Associated neurovascular injury 3.Compound fracture.

Neer's classification of Proximal humerus fractures⁶

Fragments- Anatomic neck, Surgical neck, Greater tuberosity, Lesser tuberosity

1 part fracture	No displacement or angulation less than 45 degree or separation less than 1 cm
2 part fracture	Displacement of 1 fragment
3 part fracture	Displacement of 2 individual fragments from remaining humerus
4 part fracture	Displacement of all 4 fragments

Age	No. of patients	Conservative treatment		Operative treatment	
		Male	Female	Male	Female
60-65	10	3	2	2	2
66-70	8	2	2	3	3
71-75	8	2	2	1	3
76-80	4	1	1	1	0

Conservative management- Undisplaced or minimally displaced proximal humerus fracture were treated by immobilization with U slab in OPD. For displaced fractures, closed reduction under general anaesthesia followed by confirmation

under c-arm and immobilization with the help of U-slab and arm pouch sling was done. Check x-rays after the procedure and then at 4 weeks were done and physiotherapy started as per protocol.





Figure 1- X-ray of the 67year female patient showing displaced fracture proximal humerus and check x-rays after 1 and 4 weeks.



Figure 2- Flexion, Internal rotation and Abduction in the 67 years female patient.

Operative management- Displaced fractures and those which could not be treated by conservative methods were managed by operative methods (locking compression plating), and proper immobilization was done. Medication including

antibiotics, analgesics and supplements were given as per institutional protocol. Gentle mobilization was started on 3rd post-operative day. Check x-rays were done after the procedure and at the interval of 4weeks.

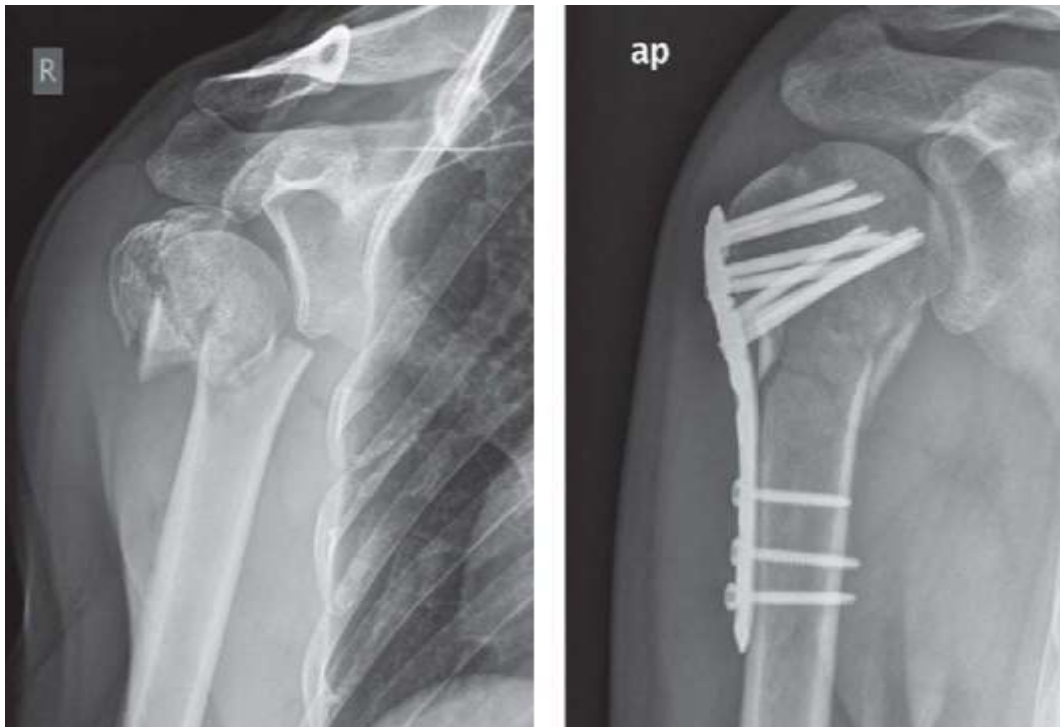


Figure 3- The pre- and post-operative X-ray of 73 years old male with proximal humerus fracture.



Figure 4- Pre- and post-operative Xray of a 70 year female having proximal humerus fracture managed with locking compression plating.



Figure 5- Abduction, Internal rotation and External rotation in the 73 year old male patient.

III. RESULT

Out of 30 patients of fracture proximal humerus, 10 patients (33.33%) had overall excellent functional outcome, 3 patients (10.00%) were managed conservatively and 7 patients (23.33%) were managed by Open reduction and Internal fixation by PHILOS.

So one third patients (10 out of 30) had excellent functional result by conservative and surgical methods.

14 patients (46.7%) had satisfactory outcome as per Neer shoulder assessment score.

Out of 14 patients, 4 (13.33%) were managed by conservative methods and 10 (33.33%) were managed by operative methods.

4 patients (13.33%) out of 30 had unsatisfactory outcome, 3 (10.00%) were managed conservatively and 1 (3.33%) was managed by surgical method.

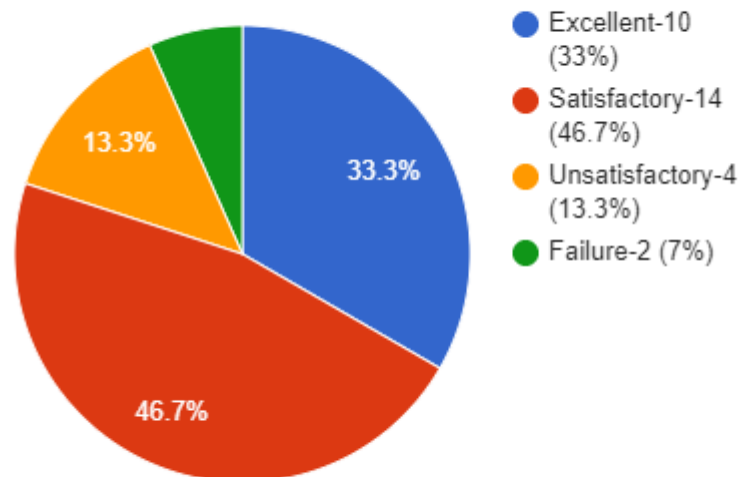
2 patients (7%) were failure as per Neer shoulder assessment score, both were managed by conservative methods.

Post-operative stitch line infection occurred in 1 (3.33%) patient managed with operative modality. Failure in conservative treatment was due to malunion.

NeerShoulder Assessment Score	No. of patients	Conservative management	Operative management
Excellent	10 (33.33%)	3 (10.0%)	7 (23.33%)
Satisfactory	14 (46.7%)	4 (13.33%)	10 (33.33%)
Unsatisfactory	4 (13.33%)	3 (10.0%)	1 (3.33%)
Failure	2 (7%)	2 (7.0%)	0 (0%)



Functional Outcome (Neer's shoulder assessment score)



IV. DISCUSSION

The treatment modality for the proximal humerus fracture in elderly population is debatable^{7,8,9}. For undisplaced and minimally displaced fractures, conservative methods are the preferred modality of treatment. Conservative methods avoid surgical stress, soft tissue injury, possible surgical and wound related complications. Surgical management benefits from better reduction of fracture, better stabilization, simultaneous repair of rotator cuff injuries, better confidence with mobilization post op and possibly earlier return to activity¹⁰. Based on the outcome results, operative management should be preferred over conservative methods as excellent and satisfactory results are higher and failure rates are lower in operative methods than conservative methods.

V. CONCLUSION

Results suggests that in the Proximal humerus fractures in the elderly population, operative management is better in Neer type 3 and type 4 fractures than conservative management¹¹. Excellent and satisfactory outcomes are higher in operative management and failure rates are lower in Neer type 3 and type 4 fractures compared to conservative methods.

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