



Comparison of The Results and Outcomes of The Different Modalities (Closed V/S Open) of The Treatment of The Proximal Humerus Fractures

KEYWORDS

proximal humerus, orif, percutaneous method, varus collapse, constant score

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ABSTRACT *INTRODUCTION: Proximal humerus fractures are very common fractures occurring in the skeleton. They account for approximately 4 – 5% of the fracture attendance at the hospital. The preferred treatment depends on various factors including the patient's age, bone quality, the patterns of fracture and the patients' expectations and physical demands. In this study, we have studied the results of different modalities of operative treatment, their advantages & disadvantages, complications & outcomes in terms of functional and radiological results.*

MATERIAL & METHODS:

This study was carried out in CIVIL HOSPITAL, AHMEDABAD between May 2012 to April 2013, we have studied forty four patients of proximal humerus fractures.

OBSERVATION AND RESULTS:

The study consists of 44 cases of proximal humerus fractures in adult patients treated surgically. The data analysis of these patients received as, the material for the study was analyzed to the following findings. Mean constant score [2] in percutaneous method is 73 (SD=20.54) and ORIF method is 80.26 (SD=14.23). (p value <0.05). Total 12 (29.54%) fractures showed varus collapse at final follow up. Among them 7 (33.33%) of the patients were operated by percutaneous method and 5 (26.87%) of the patients were operated by open method showed varus collapse.

CONCLUSION:

Principle of fixation is reconstruction of the articular surface, including the restoration of the anatomy, stable fixation, with minimal injury to the soft tissues preserving the vascular supply should be applied.

INTRODUCTION:

Proximal humerus fractures are very common fractures occurring in the skeleton. They account for approximately 4 – 5% of the fracture attendance at the hospital^[1]. The female and male ratio is 2:1^[2]. These fractures can be extremely disabling and their management often demands experienced surgical skills. Because of increasing incidence of vehicular accidents, complicated fracture patterns in proximal humerus are becoming increasingly common. The preferred treatment depends on various factors including the patient's age, bone quality, the patterns of fracture and the patients' expectations and physical demands. In this study, we have studied the results of different modalities of operative treatment, their advantages & disadvantages, complications & outcomes in terms of functional and radiological results.

AIMS AND OBJECTIVES:

To study different modalities of the fixations in proximal humerus fractures.

To assess and compare the final outcomes

MATERIAL & METHODS:

This study was carried out in CIVIL HOSPITAL, AHMEDABAD between May 2012 to April 2013, we have studied forty four patients of proximal humerus fractures,

All the adult patients with fracture of proximal humerus with complex variety [Neer's classification^[3,14,15,16]: grade 3 & grade 4] were included in the study.

The Exclusion criteria were medically unfit patients, patients with open physis, the fractures with proximal extension, open fractures, neurovascular injuries and Neer's grade 1 and 2 fractures

After primary management, all the patients having proximal humerus fractures were assessed clinically and radiologically. Radiographic evaluation of the shoulder was done by Anteroposterior (AP) view & Axillary view of the shoulder. Fractures were classified according to the Neer's classification.

Following factors were taken into consideration while deciding the modality of treatment to be used.

Age of the patient

Bone quality e.g. Osteoporosis^[8,9,13,17]

Fracture patterns according to Neer's classification including head split fracture and dislocation^[4], valgus impaction and metaphyseal extension

After operative management, appropriate rehabilitation was started according to the modality used. In the Closed group (K wire) patients were kept immobilize for 6 wks period and then started with gradual mobilization with shoulder pendulum exercises and subsequently gradual active and passive ROM exercises were started. In the ORIF group patients were mobilized from the post op day one with shoulder pendulum exercise and gradually active and passive ROM exercises were started. Patients were regularly followed up at 1 month, 3 months, 6 months intervals. Final follow up was done at 1 year in the terms of functional (Constant Shoulder Score) and radiological outcome (Union status of the fracture).

OBSERVATION AND RESULTS:

The study consists of 44 cases of proximal humerus fractures in adult patients treated surgically. The data analysis of these patients received as, the material for the study was analyzed to the following finding –

Neer Type 3 fractures were the most common type in our study, 31(70.45%) fractures were of type 3 and rest 13 (29.54%) were type 4.

Only 8 (18.18%) fracture had metaphyseal extension [11] in proximal fragment, among them 3 patients (37.5%) were treated with percutaneous method[10] and 5 patients (62.5%) were treated with ORIF.

Total 6 (13.63%) fractures were dislocated on presentation and all were treated with ORIF.

Among total 7(15.90%) head split fractures, 4(57.2%) were treated by ORIF and 3(42.8%) by hemiarthroplasty [8,9,13,17].

Among total 31 Neer type 3 fractures, 10 (32.25%) fractures were treated with open method includes plating and hemireplacement. All Neer type 4, 13(29.54%) fractures were treated with open reduction and internal fixation. Percutaneous method was used only for Neer type 3 fractures.

Total of 64.28% fractures showed radiological union between 8 -12 weeks of average period.

1 (4.76%) of patients, operated by percutaneous method showed poor results and 3 (15.79%) patients operated by open method showed poor result. 4 patients were operated by hemireplacement were not included. Among ORIF group 1 patient had plate angulations, 1 patient had good functional outcome with poor angle group and 1 patient had poor outcome. In close group 1 patient with poor angle showed fair result.

HEAD SHAFT ANGLE ON F UP	PER CUT.		ORIF		TOTAL	
	NO.	%	NO.	%	NO.	%
GOOD 130°-150°	13	61.90	10	52.63	23	57.5
FAIR 115°-130° 150°-175°	7	33.33	6	31.58	13	32.5
POOR <115° >175°	1	4.76	3	15.79	4	10.0
Total	21	100	19	100	40	100

Total 12 (29.54%) fractures showed varus collapse at final follow up. Among them 7 (33.33%) of the patients were operated by percutaneous method and 5 (26.87%) of the

patients were operated by open method showed varus collapse.

Total 16 patients showed restriction of range of motion. Among them 9(42.85 %) fractures in close method and 7 (39.13%) fractures in open method showed restriction of range of motion.

Total 10 patients showed affection of daily life. Among them 6(28.57%) patients of close method and 4(17.39%) patients of open method of treatment showed affection of active daily life as compared to the remaining shoulder measured by Constant Shoulder Score.

Average range of motion is better in ORIF group in terms of degree of various movements. (p value <0.05)

Mean constant score [2] in percutaneous method is 73 (SD=20.54) and ORIF method is 80.26 (SD=14.23). (p value <0.05)

GRADING	PER CUT.		ORIF		TOTAL	
	NO.	%	NO.	%	NO.	%
EXCELLENT	3	14.28	7	30.43	10	22.72
GOOD	8	38.09	8	34.78	16	36.36
FAIR	3	14.28	4	17.39	7	15.90
POOR	7	33.33	4	17.39	11	25
TOTAL	21	100	23	100	44	100

>30 Poor 21-30 Fairr 11-20 Goodr <11 Excellent

CONCLUSION:

Now a day's incidence of proximal humerus fracture is increased, more commonly in younger age group patients with more complex fractures. We have included 44 cases of complex proximal fracture in our study.

Principle of fixation is reconstruction of the articular surface, including the restoration of the anatomy, stable fixation, with minimal injury to the soft tissues preserving the vascular supply should be applied.

An adequate surgical technique will minimize complications and an aggressive rehabilitation regime will ensure the best possible result.

Minimally displaced 3 part fracture gives better result with percutaneous methods.

Fracture with head split and/or dislocation are better treated with ORIF and locking plates.

Nonreconstructable fractures give better result with hemiarthroplasty.

Radiological features (Head shaft angle) do not always correlate with outcome of the patient.

Majority of poor results are due to complex fracture pattern, poor surgical techniques and lack of early physiotherapy & longer follow up is required to accurately assess the results.

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