

SURGICAL MANAGEMENT OF PROXIMAL HUMERUS FRACTURES BY PHILOS PLATTINGAnand Kumar¹, S. B. Kamareddy², Hanu Tej Adapureddi³**HOW TO CITE THIS ARTICLE:**

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ABSTRACT: Proximal humerus fractures are common and debilitating injuries and incidence of them are increasing especially in elderly. Treatment of unstable, displaced, and comminuted fractures of the proximal humerus remains challenging. Various operative procedures are carried out, recent trend in internal fixation has moved on to locking plates. The goal of the study is to test the efficacy and functional outcome of PHILOS plating in proximal humerus fractures. To evaluate the incidence of complication that may occur with PHILOS plating in proximal humerus fractures. **MATERIALS AND METHODS:** It is a prospective study conducted in our institute from 2013 to 2015. The study purpose to include patients with proximal humerus fractures. Clinical and radiological evaluation done. Fractures classified using Neer's classification. Patients will undergo Open reduction internal fixation with philos plating for the sustained fracture under general anesthesia. Post-operative physiotherapy followed according to protocol. Patients will be followed up at 6 weekly intervals until fracture union and, at once at 1yr after the surgery. A minimum of 20 cases studied without any sampling procedure. **RESULTS:** In our study most common age group was 51-60 yrs and male:female ratio 3:1 and 55% were 2 part fractures were treated by philos plating final functional outcome is assessed with NEER'S score. 5(25%) of 20 patients had excellent results, 10(50%) had satisfactory results and 5(25%) had unsatisfactory results. All cases of unsatisfactory results were had complication and elderly patients. None of patients in our study were failure. **CONCLUSION:** In conclusion, fracture of the proximal humerus is still a debatable and controversial subject in orthopaedics. The common mode of injury in these fractures is fall on shoulder in elderly and RTA in young population, open reduction and internal fixation with LOCKING COMPRESSION PLATES has given good results and it is the implant of choice now a days. The advantages of locking plates are: Stable internal fixation, early mobilization, Functional restoration of the tuberosity can be obtained. Secondary reduction loss uncommon. Accurate anatomical restoration of the articular surface and tuberosity appear to be more important for the better functional outcome. An adequate surgical technique will minimize complications and an aggressive rehabilitation regime (active physiotherapy) will ensure the best possible result.

KEYWORDS: Proximal Humerus Fractures, Philos Plating, Neer's Score.

INTRODUCTION: Proximal humerus fractures are common and debilitating injuries and incidence of them are increasing especially in elderly. They accounts for about 5% of all injuries to appendicular skeleton.¹ They are the third most common fractures in elderly population after hip and distal radius fractures. Increase in incidence is due to more geriatric population with osteoporosis in aged population and increasing incidence of higher velocity injuries, increasing incidence of road traffic accidents, natural disasters and industrial accidents, together with assault lead to multiple fractures and higher incidence of morbidity in young patients. In the past century, most of the proximal humeral fractures have been treated by non-operative methods.²

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About 80-85% of proximal humeral fractures treated non-operatively, resulting in good functional outcomes. Where as in the 15% to 20% of displaced proximal humerus fractures it is noted that significant displacement, especially in comminuted fractures were associated with poor functional outcome, hence moving to surgical fixation for better results.³

However Significant controversy continues regarding the best methods of treating displaced proximal humerus fractures.⁴ Over the last 3 decades, various modalities of fixations have evolved for the proximal humerus fractures (trans osseous suturing, percutaneous pinning, tension band wiring, plating, rush nailing, arthroplasty). Of this proximal humerus inter locking plate is the implant of choice now for treatment of displaced proximal humerus fractures since they provide rigid anatomical fixation and more angular stability hence it permits early mobilization and good functional limb. The purpose of this study was to evaluate the functional and clinical outcomes of philos plating as a primary treatment for displaced proximal humerus fractures.
























MATERIALS AND METHODS : Patients with fractures of proximal humerus admitted Basweshwar hospital attached to MR MEDICAL COLLEGE, Gulbarga will be taken up for study after obtaining the consent.

This is a prospective study from July 2014 to 2015. The study purpose to include patients with proximal humerus fractures admitted and examined according to protocol, associated injuries noted. Clinical and Radiological evaluation done. Fractures classified using Neer's classification. Routine investigation carried out to get fitness for surgery. Patients will undergo Open reduction internal fixation with philos plating for the sustained fracture under general anaesthesia. Post-operative physiotherapy followed according to protocol, to evaluate the functional outcome.

An Informed written consent is taken, preoperative planning is done. Patients were assessed radiologically and functionally. Patients will be followed up at 6 weekly interval until fracture union and, at once at 1yr after the surgery. A detailed observation is recorded using standard protocols. A minimum of 20 cases were studied without any sampling procedure.

Inclusion Criteria: Patients age >18years, male and female patients, with two part, three part and four part fracture of proximal humerus (Neer's classification). Patients who are willing to participate in the study and fit for surgery.

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Undisplaced		Displaced Fractures				
	1 Part	2 Part	3 Part	4 Part	Articular Surface	
Anatomical Neck						
Surgical Neck						
Greater Tuberosity						
Greater Tuberosity or Lesser Tuberosity Surgical Neck						
Lesser Tuberosity						
Lesser Tuberosity Surgical Neck						
Anatomical Neck Greater Tuberosity Lesser Tuberosity Surgical Neck						

Exclusion Criteria: Children and adolescent patients <18yrs, associated humerus shaft fractures, acute infections, pathological fracture, fractures associated with neurovascular deficits.

DISCUSSION: We studied 20 adult patients of proximal humeral fracture of which most of the patients were brought to the causality or admitted through outpatient department basis, clinical history were elicited. Careful clinical examination of skeletal system and soft tissue injuries was recorded. Radiographs were done. Arm was immobilized in a "U'Slab and arm sling. Once patient's general condition stabilized and planned for operative fixation. All cases were approached by deltopectoral approach. Fractures was anatomically reduced and fixed with locking compression plates. Fixation rigidity was checked on table, post-operative check radiographs taken. Patients were mobilized in the arm pouch; all patients were encouraged pendulum exercises in the second week. Sutures were removed on the 10th post-operative day.



Fig. 1



Fig. 2

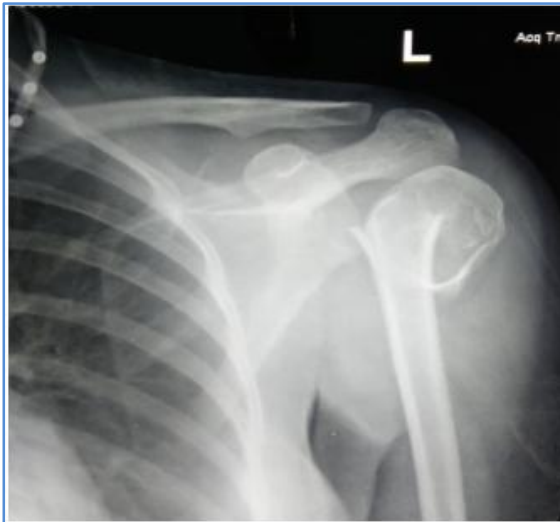


Fig. 3

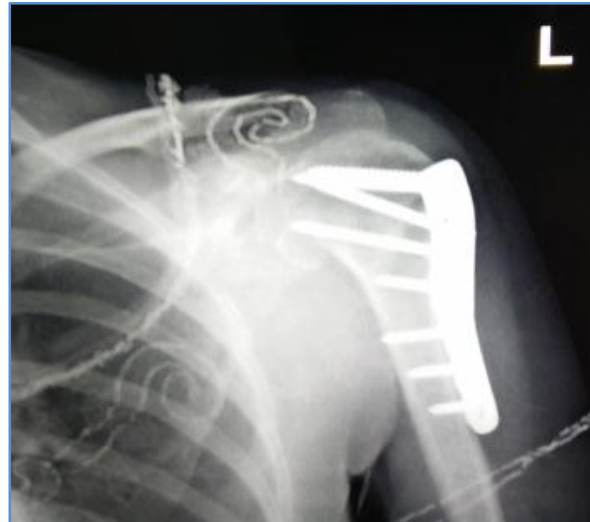


Fig. 4

All patients followed regularly and the following observations are made. In our series of twenty patients 3 are in the age group of 21-30(15%) 7 are in the age group of 31-40(35%), 3 are in the age group of 40-50(15%) 5 are in the age group of 51-60 (25%) and two are in the age group of 61-70(10%). The youngest patient is 25years and oldest is 70 years, the average age is 45 years. 14(70%) are male patients and 6(30%) are female patients. The ratio of Male to Female is M: F=2.3:1.

The incidence is more in males is due to most cases in our study are young patients sustained fracture due to RTA The most common mode of injury observed in our series was road traffic accident. It accounted for 11 patients (55%).The next common cause was history of fall accounting for 8 patients (40%) and one patient had a history of assault (5%).In our study series the most

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common type of fracture observed was 2 part fracture accounting for 11 of 20 patients (55%). The next common being 3 part fracture accounting for 7 of 20 patients (35%). In one patient it is 4 part fracture (5%). The fracture dislocation was observed in one patient (5%).

In our present study fracture occurred on right side in 12(60%) patients and on left side in 8(40%) patients. In our study, we observed that the average time taken for fracture to unite is 12 weeks. In 8 of 20 patients it is 10weeks, among 6 patients it took 12 weeks, in 4 patients 14 weeks took to unite and in another 2 patients 16 weeks taken. During the follow up period 3 patients had shoulder stiffness (15%), 2 patient had plate impingement (10%). One (5%) patient had varus malunion which was 4 part fracture, one (5%) patient developed superficial wound infection, which is healed uneventfully with Antibiotics. There were no incidences of non-union and osteonecrosis of the proximal humerus in our study.

COMPLICATION	NO OF CASES
SHOULDER STIFFNESS	3
PLATE IMPINGEMENT	2
VARUS MALUNION	1
POST OP INFECTION	1

The final results are evaluated by using NEER'S Score. In our study the minimum score was 70 and maximum of 94. The average score is 82.6.

RESULTS: In our study final functional outcome is assessed with NEER'S score. 5(25%) of 20 patients had excellent results, 10(50%) had satisfactory results and 5(25%) had unsatisfactory results. All cases of unsatisfactory results were had complication and elderly patients. None of patients in our study were failure. These results are consistent with other studies too.

STUDY	Excellent	Satisfactory	Unsatisfactory	Failure
AA MARTINEZ et al ¹³	13(22.4%)	36(62%)	08(13.8%)	1(1.7%)
RICHARD J HAWKINS	08(53.3%)	06(40%)	00	01(6.7%)
STUDY SERIES	05(25%)	10(50%)	5(25%)	00

CONCLUSION: In conclusion, fracture of the proximal humerus is still a debatable and controversial subject in orthopaedics. Clinical evaluation, obtaining proper radiological views, age of the patient and activity levels holds the key for realistic approach and proper surgical management of these complex fractures. The common mode of injury in these fractures is fall on shoulder in elderly and RTA in young population, anatomical reduction is an essential and determines the outcome in surgical treatment of these fractures, open reduction and internal fixation with LOCKING COMPRESSION PLATES has given good results and it is the implant of choice now a days.

The advantages of LCP are: Stable internal fixation, early mobilization, Functional restoration of the tuberosity can be combined indirect reduction of the articular fragments using image intensifier, Secondary reduction loss uncommon. Accurate anatomical restoration of the articular surface and

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tuberosities appear to be more important for the better functional outcome. An adequate surgical technique will minimize complications and an aggressive rehabilitation regime (active physiotherapy) will ensure the best possible result.

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