

ORIGINAL RESEARCH

Role of PHILOS in Proximal Humerus Fractures

Kodidala Nagarjuna¹, Puppala Vinmaie², V. Nageswara Rao³, N. Ramesh Kumar⁴, R Shahnawaz Hussain⁵

¹Final Year PG, Department of Orthopaedics, GSL Medical College & General Hospital, Rajahmundry, Andhra Pradesh, India.

^{2,4,5}MS Orthopaedics, Assistant Professor, Department of Orthopaedics, GSL Medical College & General Hospital, Rajahmundry, Andhra Pradesh, India.

³DNB Orthopaedics, Professor and HOD, Department of Orthopaedics, GSL Medical College & General Hospital, Rajahmundry, Andhra Pradesh, India.

Corresponding Author:

Dr. R Shahnawaz Hussain,

MS Orthopaedics, Assistant Professor, Department of Orthopaedics, GSL Medical College & General Hospital,

Rajahmundry, Andhra Pradesh, India.

E mail – rajavalishan@gmail.com

Received: 17 November, 2022

Accepted: 29 December, 2022

ABSTRACT

Background: Proximal humerus fractures are common and debilitating injuries and the incidence of them are increasing especially in the elderly. Treatment of unstable, displaced, and comminuted proximal humerus fractures remain challenging. Significant controversy continues regarding the best methods of treating displaced proximal humerus fractures. The treatment goal is to achieve a painless shoulder with a fully functional outcome. Regarding the treatment of proximal humerus fractures, controversies still exist about whether to do conservative or operative management. Various operative procedures are carried out like percutaneous pinning, tension band wiring, plating, and rush nailing. A recent method of internal fixation is with locking plates. PHILOS plates provide rigid fixation and more angular stability compared to other methods of operative treatment of proximal humerus fractures and help in early mobilization and physiotherapy which leads to achieving a painless shoulder with a good functional outcome.

Materials and Methods: Patients with fractures of the proximal humerus admitted to our centre between August 2020 to July 2021 will be taken up for study after obtaining consent. Clinical evaluation was done by the Constant Murley score. Fractures are classified using Neer's classification. A minimum of 24 cases are studied.

Results: In conclusion locking Compression plate is an advantageous implant in proximal humeral fractures due to angular stability, particularly in comminuted fractures and in Osteoporotic bones in elderly patients, thus allowing early mobilization.

Keywords: Philos Plating, Proximal Humerus Fracture, Shoulder.

INTRODUCTION

Proximal humerus fractures account for about 4 to 5% of all fractures. They are the third most common fractures in the elderly population after hip and distal radius fractures. The incidence of these fractures increases by 13.7% per year. The increase in incidence is due to a more geriatric population with osteoporotic bone. Proximal humerus fractures are the result of an indirect force such as a fall onto the outstretched arm rather than a direct blow to the shoulder. The origin of a proximal humerus fracture is due to a combination of factors, which include relatively osteoporotic bone (in the elderly), direct contact against the adjacent acromion and glenoid rim, and forceful pull of the rotator cuff muscles and extrinsic muscles such as the pectoralis major¹. The treatment goal is to achieve a painless shoulder with a fully functional outcome. Regarding the treatment of proximal humerus fractures, controversies still exist about whether to do conservative or operative management. Various operative procedures are carried out like percutaneous pinning, tension band wiring, plating, and rush nailing. A recent method of internal fixation is with locking plates. PHILOS plates provide rigid fixation and more angular stability compared to other methods of operative treatment of proximal humerus fractures and help in early mobilization and physiotherapy which leads to achieving a painless shoulder with a good functional outcome.

OBJECTIVES

To evaluate the functional outcome of PHILOS plating in proximal humerus fractures among adults.

MATERIALS AND METHODS

A hospital-based non-randomized trial (NRT) was conducted among 24 adults (18-60 years) who presented with proximal humerus fracture to the department of Orthopaedics at GSL Medical College, Rajahmundry for a period of 1 year (August 2020 to July 2021)

Inclusion Criteria

1. Age group: > 18years
2. Two part, three part and four part fracture of the proximal humerus (Neer's classification)
3. Patients who are willing to participate in the study
4. Patients fit for surgery.

Exclusion Criteria

1. Associated humerus shaft fractures
2. Acute infections
3. Pathological fractures
4. Fractures associated with neurovascular deficits
5. Patients not willing for treatment.

Data Collection

All the patients who presented to Orthopaedic Department with proximal humerus fracture with inclusion criteria were considered for the study. A study of 24 cases of Proximal humerus fractures managed with a PHILOS plate were included.

PROCEDURE

Initial Assessment

Patients were assessed clinically, and a thorough clinical examination was carried out. This was followed by routine investigations as well as an x-ray of the shoulder. Once the diagnosis was made, pre-anaesthetic evaluation was done, and patients were surgically fixed with PHILOS plating. Assessment of functional outcome was done by using the Constant Murley score.

Surgical Technique

The deltopectoral approach or anterolateral approach was used. In the deltopectoral approach, the deltoid and pectoral major muscles were separated. The cephalic vein was identified retracted either laterally with the deltoid or medially with the pectoralis major. Internervous plane between deltoid and biceps tendon. In the anterolateral approach, deltoid fascia and anterior deltoid raphe between anterior middle heads of the deltoid were identified and the deltoid raphe is split in the line of fibres. Care was taken to prevent damage to the axillary nerve.

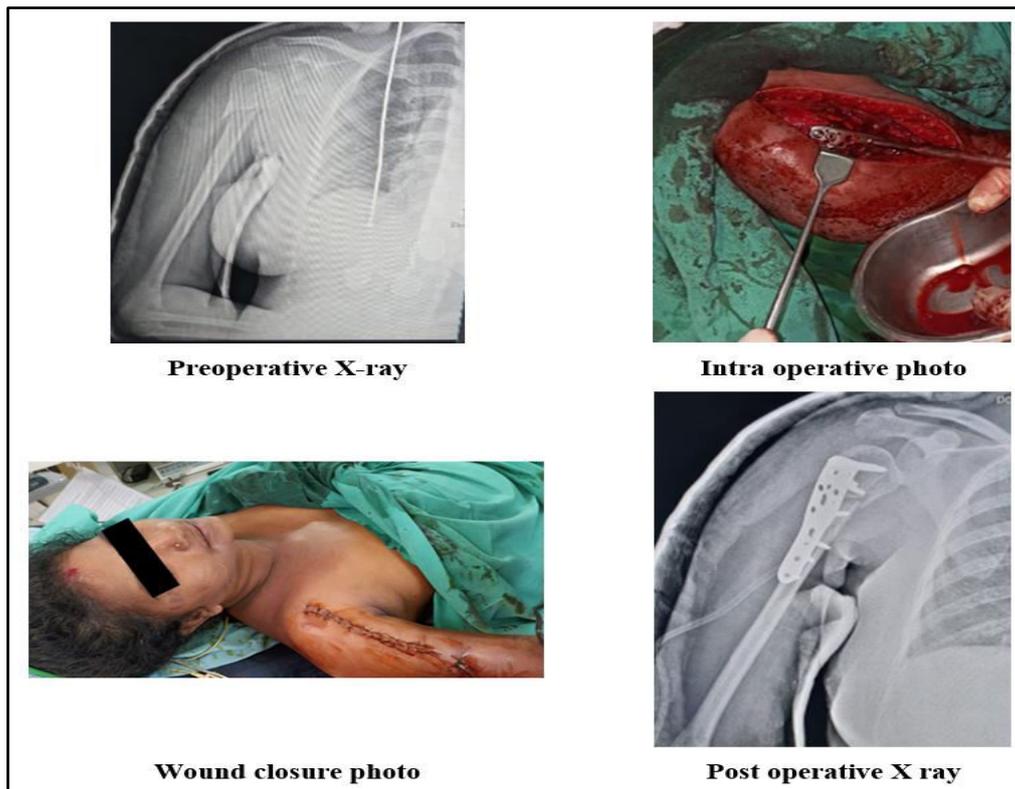
Once the fracture site was exposed, the fracture was reduced provisionally with K wires and checked in fluoroscopy. And final fixation was done with a locking plate, and the position is confirmed in fluoroscopy.^{2,3}

Post-operatively limb is immobilized in an arm pouch; mobilization was started in the second week with pendulum exercises as per the patient's tolerance. Immediate post-op X-Rays were done with routine A-P and scapular view to assessing the reduction of fracture and stability of fixation. Most of the suture removal was done on the 10th day. Patients were discharged with an arm pouch and advised to continue pendulum exercises.

Statistical Analysis

Data extraction and analysis were done using Microsoft Excel 2019 and SPSS version 2.0. Results were expressed as a percentage for categorical variables.

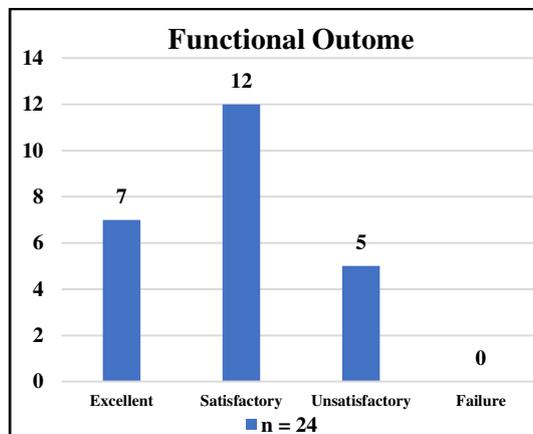
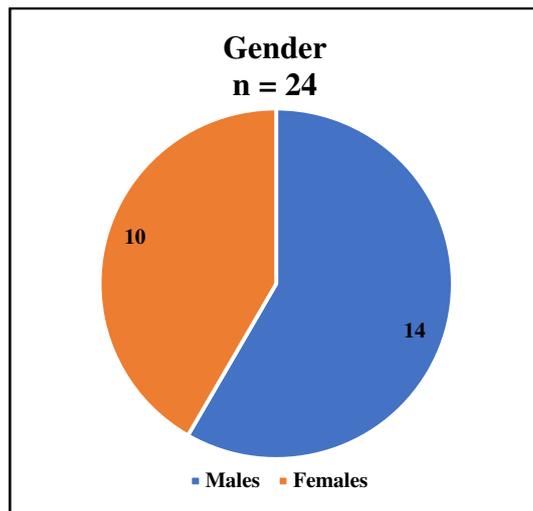
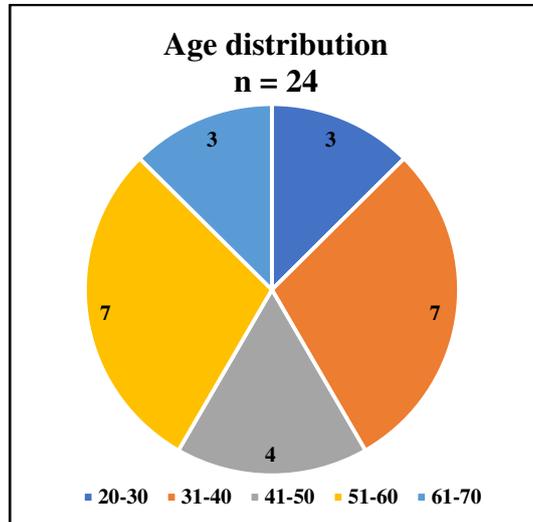
Continuous variables were expressed as mean and standard deviation. Paired t-test was applied to compare the mean scores at every follow-up. A P value of <0.05 is considered statistically significant.



RESULTS AND DISCUSSION

A total of 24 patients with proximal humerus fractures treated with PHILOS plating were evaluated. About 29.15% of patients belong to 31-40 years and 51-60 years each, 16.7% of patients were in 41-50 years and 12.5% each in 20-30 years and 61-70 years. Males contributed 30% while females contributed 70%.

The mean age of the study subjects in this study was 45 years. The mean age of the patients in a study by Kenneth A Egol et al⁴ is 61 years, while in a study by Gerbev C et al⁵, the mean age was 44.9 years. In the present study, the majority of 16 (66.6%) of the subjects were aged 31 – 40 years and 51-60 years. The right side was predominantly involved with 15 (62.5%) subjects and 9 (37.5%) on the left side.



Results of the present trial as mentioned in above table based on Constant Murley scores showed better functional outcomes of the patient at last follow up (6th month) in our study.

7 patients had excellent functional outcome, 12 patients had satisfactory outcome and 5 patients had unsatisfactory outcome.

CONCLUSIONS

The findings of this study show that PHILOS plating is an effective mode of treatment for patients with proximal humerus fractures. Though many modalities of treatment are available, Philos locking plates offer more advantages than conventional plates, especially when dealing with displaced fractures, comminuted fractures and osteoporotic bones in elderly patients. Early rehabilitation of patients gives better functional results.

REFERENCES

1. Jon J.P. Warner, John G. Costouros and Christian Gerger "Fractures of proximal humerus" In Rookwood and Green fracture in adults 6th edition Lippincott William and Wilkins 1161-1209pp.
2. Stanley Hoppenfield Piet deBoer; Surgical exposures in Orthopaedics The anatomic approach 3rd Ed Lippincott William Wilkins.
3. P. Hoffmeyer: The operative management of displaced fractures of the proximal humerus JBJS (Br) 2002 May Vol 84-B No 4 Pg 469-80.
4. Kenneth A. Egol, Crispin Cong, Michael Walsh et al, Early complication of proximal humerus fractures treated with locked plates, J orthop trauma 2008; 22:159-164.
5. Gerber C, Worner CM, Vienne P. Internal fixation of complex fractures of the proximal humerus. J Bone Joint Surg (Br), 2004 Aug; 86(60):P 848- 855.