Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr ICV 2018= 82.06

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Assessment of cases of proximal humerus fracture managed with PHILOS plating- A clinical study

Ajai Kumar Priyadarshi[1], Purshottam Gandhi[2]

[1]Senior Consultant Orthopedic Surgery, [2]DNB Resident, Department of Orthopaedic Surgery, Dr Ram Manohar Lohia Combined Hospital Lucknow, Uttar Pradesh, India

ABSTRACT:

Background: Proximal humeral fractures are the second most common upper-extremity fracture and the third most common fracture, in old age patients who are more than sixty-five years of age. The present study was conducted to assess cases of proximal humerous end fracture managed with Philos plating. **Materials & methods:** The present study was conducted on 110 patients of proximal end humerous fracture of both genders. In all patients, constant score, shoulder range of movement and complications were recorded. **Results:** Constant score found to be excellent in 35, good in 56, moderate in 12 and poor in 7 patients. The difference was significant (P< 0.05). Shoulder range of movement were excellent in 58, moderate in 47 and poor in 5 patients. The difference was significant (P< 0.05). Complication in patients was axillary nerve palsy in 4 and impingement in 5 patients. **Conclusion:** Authors found Philos plating an appropriate treatment for proximal end humeral fractures.

Key words: Humerous, Philos plating, Outcome

Received: 13 August, 2019 Revised: 21 September, 2019 Accepted: 24 September, 2019

Corresponding author: Dr. Purshottam Gandhi, DNB Resident, Department of Orthopaedic Surgery, Dr Ram Manohar Lohia Combined Hospital Lucknow, Uttar Pradesh, India

This article may be cited as: Priyadarshi AK, Gandhi P. Assessment of cases of proximal humerus fracture managed with PHILOS plating- A clinical study. J Adv Med Dent Scie Res 2019;7(10):184-187.

INTRODUCTION

Proximal humeral fractures account for approximately 5% of all fractures. It is more common in old age females. Proximal humeral fractures are the second most common upper-extremity fracture and the third most common fracture, in old age patients who are more than sixty-five years of age. They are about 5% of all injuries to appendicular skeleton. In younger individuals, the cause of these fractures are basically high velocity trauma, whereas a simple fall may lead to fracture in older individuals because of osteopenia and osteoporosis.[1]

A major proportion of these fractures are stable, nondisplaced or minimally displaced and can be treated conservatively. 80-85% of undisplaced or minimally displaced fractures are treated conservatively. In approximately 20% of displaced fractures operative treatment may be beneficial.[2]

Techniques for treating complex proximal humeral fractures vary and include fixations using tension bands, percutaneous pins, bone suture, T-plates, intramedullary nails, double tubular plates, hemiarthroplasty, PlantTan humerus fixator plates, Polarus nails, and blade plates. Conservative treatment is usually associated with nonunion, malunion and avascular necrosis resulting in a painful dysfunction.[3] The surgical modalities used are transosseous suture fixation, closed reduction and percutaneous fixation, open reduction and internal fixation with conventional plates, locking plate fixation and hemiarthroplasty which have shown to have mixed results. Pre-countoured locking compression plates are fixed angled devices which prevent subsidence in the metaphyseal areas. These plates alleviate the risk of

malreduction and preserve the blood supply to the bone.[4] The present study was conducted to assess cases of proximal humerus fracture managed with PHILOS plating.

MATERIAL & METHOD

The present study was conducted in the department of Orthopaedics. It comprised of 110 patients of proximal end humerous fracture of both genders. The study was approved from institutional ethical committee. All patients were informed regarding the study and written consent was obtained.

Data such as name, age, gender etc. was recorded. A through clinical examination was done.

The Philos plate was applied at least 1 cm distal to the upper end of the greater tubercle and fixed to the humeral head with proximal locking screws before the distal screws were inserted into the humeral diaphysis. In all patients, constant score, shoulder range of movement and complications were recorded. Results obtained were tabulated and analyzed. P value<0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 110		
Gender	**Male**	**Female**
Number	65	45

Table I, graph I shows that there were 65 males and 45 females.

Table II Assessment of constant score

Scoring	Number	P value
Excellent	35	0.01
Good	56	
Moderate	12	
Poor	7	

Table II, graph I shows that constant score found to be excellent in 35, good in 56, moderate in 12 and poor in 7 patients. The difference was significant (P< 0.05).

Graph I Assessment of constant score

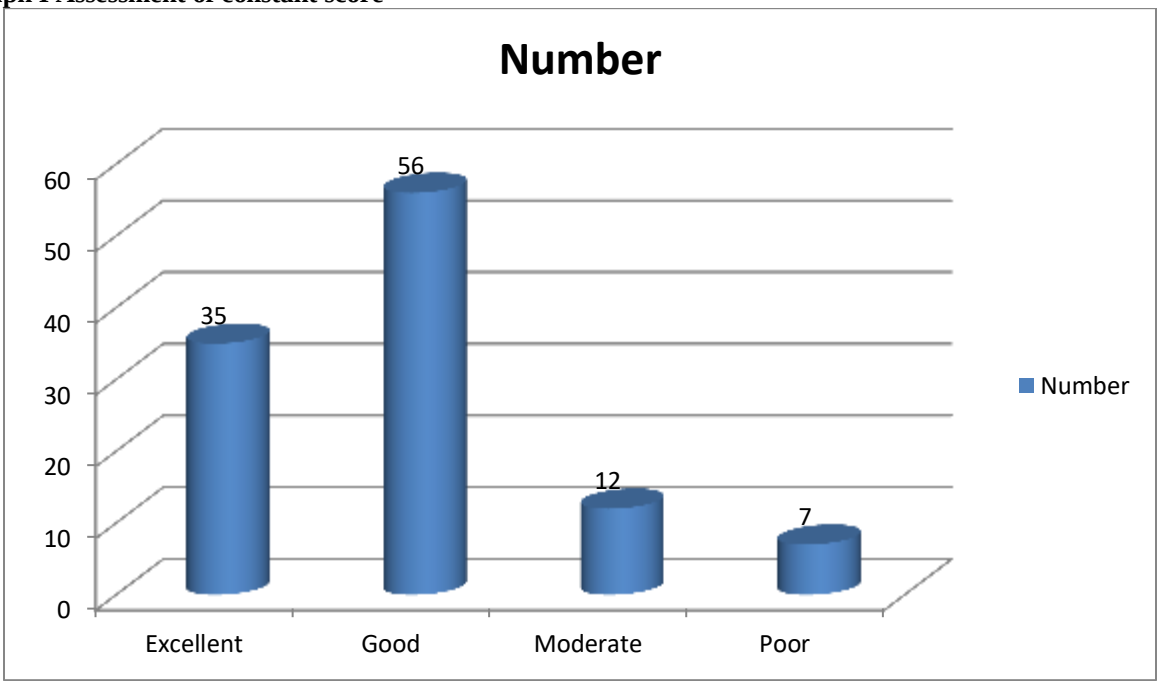
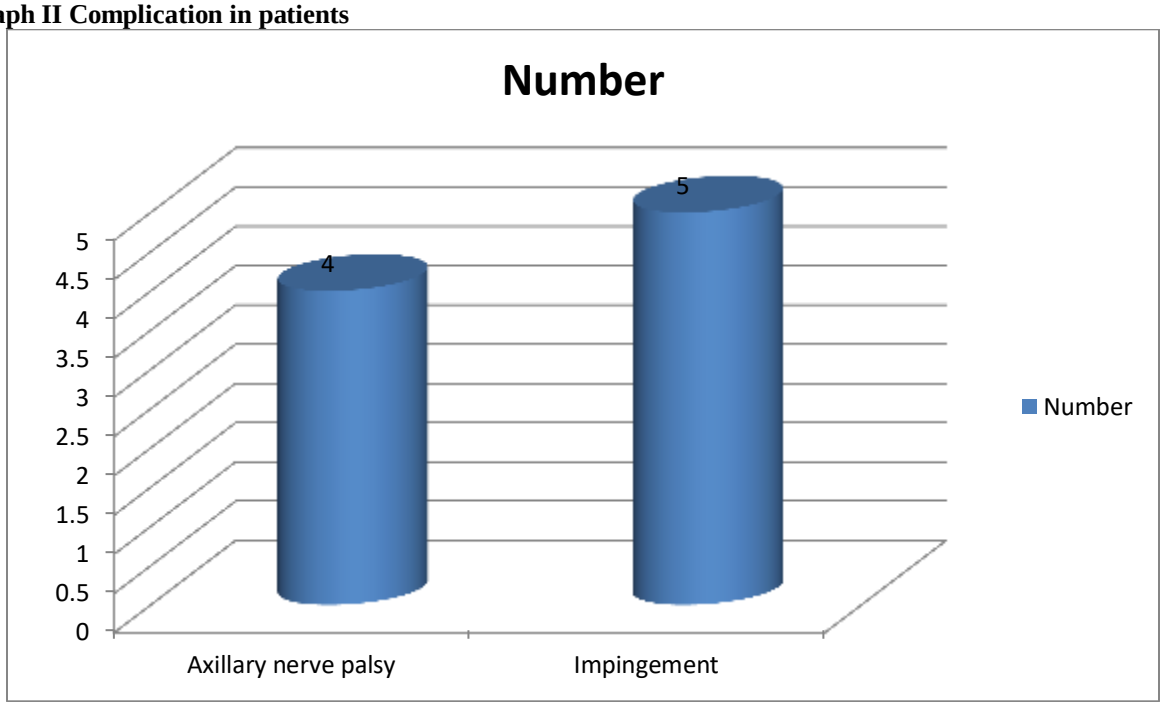


Table III Shoulder range of movement

Scoring	Number	P value
Excellent	58	0.05
Moderate	47	
Poor	5	

Table III shows that shoulder range of movement were excellent in 58, moderate in 47 and poor in 5 patients. The difference was significant (P< 0.05).

Graph II Complication in patients



Graph II shows that complication in patients was axillary nerve palsy in 4 and impingement in 5 patients.

DISCUSSION

Proximal humerus fractures can be one of the most devastating entities to treat.[5] These fractures usually show a bimodal age distribution with high energy velocity injuries in younger population to trivial trauma in older age groups. Although, undisplaced fractures can be treated non-operatively with favourable outcome, fractures with intra-articular extension and severe comminution necessitate surgical fixation.[6]

These fractures are difficult to manage conservatively owing to their anatomical location which renders bracing, ineffective. Surgical options like percutaneous K wires are associated with less soft tissue damage, less blood loss and neurovascular injury. But these techniques do not ensure stable anatomical reduction and hinders early mobilization and fracture healing. Moreover, complications like pin tract infection and delayed mobilization, further curtails the indications for this procedure.[7] The present study was conducted to assess cases of proximal humerous end fracture managed with Philos plating.

In present study, there were 65 males and 45 females. The constant score found to be excellent in 35, good in 56, moderate in 12 and poor in 7 patients.

Cuenca et al[8] in their study assessed functional outcomes of 31 men and 27 women aged 36 to 73 (mean, 61) years who underwent Philos plate fixation for proximal humeral fractures. Indications for surgery were 3-part (n=33) or 4-part (n=25) closed proximal humeral fractures with angulation of more than 45 degrees or displacement of more than 1 cm. Patients were followed up for 12 to 18 (mean, 15) months. All fractures healed satisfactorily, except in one patient with a valgus 4-part fracture who had malunion. No wound infections, vascular injuries, avascular necrosis, or loss of fixation ensued. Two patients with axillary nerve palsy recovered spontaneously within 3 months. Functional outcome was excellent in 13 patients, good in 36, moderate in 8, and poor in 1. The mean Constant score was 80 (range, 40–100).

We found that shoulder range of movement were excellent in 58, moderate in 47 and poor in 5 patients.

Complication in patients was axillary nerve palsy in 4 and impingement in 5 patients. Kristiansen et al[9] assessed the functional outcome of PHILOS plate fixation in proximal humerus fractures. The outcome was assessed based on Constant-Murley score. Results: Results were analysed according to Constant-Murley score. Excellent results were achieved in 3 (20%), good results in 7 (46.66%), fair results in 3 (20%) and poor result in 2 (13.33%) of the cases. Avascular necrosis (AVN) and non-union was observed in one patient.

Liver et al[10] in their study assessed the functional outcome of proximal humerus fractures treated with Proximal Humerus Internal Locking System (PHILOS) plating. Fifty three consecutive patients were treated with PHILOS plating. The inclusion criteria were skeletally matured patients with closed fracture proximal humerus with displacement >1 cm and varus angulation of $>45^0$. Severely comminuted fractures, open fractures and valgus impacted fractures were excluded from the study. The outcome was assessed using Neer's scoring system. The average age was 54.3±5.8 years. As per the Neers classification system, there were 6 (11.32%) 1-part, 19 (35.85%) 2-part, 17 (32.085) and 11 (20.75%) 3 and 4-part fracture respectively. Average surgical duration was 94±10.2 minutes. Radiological union was seen at 12±4.6 weeks. There were 2 (3.77%) cases of varus collapse. Three (5.66%) cases had screw back out, which was later revised and had a favourable outcome. As per the Neer's scoring system, 7 (13.21%) cases had excellent results, 37 (69.81%) had satisfactory, 6 (11.32%) had unsatisfactory while 3 (05.66%) cases had poor outcomes.

CONCLUSION

Authors found Philos plating a appropriate treatment for proximal end humeral fractures.

REFERENCES

1. Young TB, Wallace WA. Conservative treatment of fractures and fracture-dislocations of the upper end of the humerus J J Bone Joint Surg Br. 1985; 67(3):373-7.
2. Rose SH, Melton LJ 3rd, Morrey BF, Ilstrup DM, Riggs BL. Epidemiological features of humeral fractures Clin Orthop. 1982; 168:24-30.
3. Sahu RL. Philos Locking plates in proximal humerus fractures literature review. Internet J Health. 2010; 11:1.
4. Aaron D, Shatsky J, Paredes JC. Proximal humeral fractures: internal fixation. J Bone Joint Surg Am. 2012; 94(24):2280-8.
5. Murray IR, Amin AK, White TO, Robinson CM. Proximal humeral fractures: current concepts in classification, treatment and outcomes. J Bone Joint Surg Br. 2011; 93(1):1-11.
6. Frangen TM, Müller EJ, Dudda M, Arens S, Muhr G, K€alicke T. Proximal humeral fractures in geriatric patients. Is the angle-stable plate osteosynthesis really a breakthrough? Acta Orthop Belg. 2007; 73:571-9.
7. Björkenheim JM, Pajarinen J, Savolainen V. Internal fixation of proximal humeral fractures with locking compression plate: A retrospective evaluation of 72 patients followed for a minimum of 1 year. Acta Orthop Scand. 2004; 75:741-5.
8. Cuenca, Merk BR. Two-part surgical neck fractures of the proximal part of the humerus: A biomechanical evaluation of two fixation techniques. J Bone Joint Surg Am. 2006; 88:2258-64. 9. Kristiansen B, Christensen SW. Plate fixation of proximal humeral fractures. Acta Orthop Scand. 1986; 57:320-3.
9. Lever JP, Aksenov SA, Zdero R, Ahn H, McKee MD, Schemitsch EH. Biomechanical analysis of plate osteosynthesis systems for proximal humerus fractures. J Orthop Trauma. 2008; 22:23 9.