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A Clinical Profile of Proximal Humerus Fracture

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Abstract

Introduction: In the young people, It occurs following high energy trauma. Low velocity injuries like simple fall, domestic injuries will cause fractures in elderly patients older than 50 years (9). The last and least common cause of proximal humerus fracture is due to pathological fractures. *Methodology:* This was a prospective study of 21 cases of proximal humerus fractures in adults treated by surgical fixation with proximal humerus locking plate. Patients aged above 20yrs and who gave their consent participated in the study. *Results:* In this study, 70% of study subjects were aged less than 50 years and 76% were males. Among 66.7% of patients right side was involved and RTA occurred in 76.39% of patients. *Conclusion:* Three part type of fracture was more common.

Keywords: Humerus; RTA; Clinical Profile.

Introduction

The mechanism of injury that causes fracture of proximal humerus is myriad. By for the most common is some form of vehicular accidents, especially automobile and motorcycle accidents. Most of these vehicular accidents result in fall without stretchedarm. Some of these causes direct blow to the shoulder joints. Osteoporotic bones are more vulnerable to these injuries. Other causes of direct blow injuries include fight in which one of the advisories in struck in the shoulder with stick orrod [1,2].

In the young people, It occurs following high energy trauma. Lowvelocity injuri es like simple fall, domestic injuries will cause fracturesinelderly patients older than 50 years [3]. The last and least common cause of proximal humerus fracture is due to pathological fractures.

Most of the fractures are the result of an indirect force such as a fall on out stretched arm rather than direct blow to shoulder [2,3]. The muscular pullo f adjacent tend on attachments o nhumeral fracture fragments determines the pattern of displacement.

Greater tuberosity fragment	→	Posterosuperiorly (by supraspinatus and infraspinatus)
Lesser tuberosity fragment	→	Medially (by Subscapularis)
Shaft	→	Anteriorly and Medially (by Pectoralis major)

In 3 part fractures, if the lesser tuberosity remains attached to the head, the articular surface face sposteriorly. On the otherhand if the greater tuberosity remains attached to the head,the articular surface faces anteriorly.

In general, two specific groups of patient can be identified based on bone quality. In group I, the patient is young, with either minimally displaced

fractures or more comminution. These individuals are generally better suited to rigid fixation due to good quality bone. In group II patients the bone is more osteoporotic due to advanced age and decreased bone density. They are most often displaced than impacted, and for this reason reduction and stable fixation can be a challenge due to the poor bone quality [1,4,5].

Methodology

Twenty one patients were randomly selected from among the admission to the accident ward in Department of Orthopaedics recruited into the study. This was aprospective study of 21 cases of proximal humerus fractures in adults treated by surgical fixation with proximal humerus locking plate. Patients aged above 20yrs and who gave their consent participated in the study.

The following patients were excluded:

- Co-morbidailments.
- Compound fractures.
- Two part fractures involves avulsion of greater and lesser tuberosity.
- Head splitting fractures (more than 40% of particular surface).
- Three and four part fractures with dislocation.

Results

The age group varied from 20 yrs to 70 yrs with mean age of 45 years. Incidence of fracture was observed maximum between 20-30 years age.

Table 1: Age distribution

Age group	Number of Cases	Percentage
20-30	7	33.3
30-40	5	23.8
40-50	3	14.29
50-60	5	23.8
60-70	1	4.76

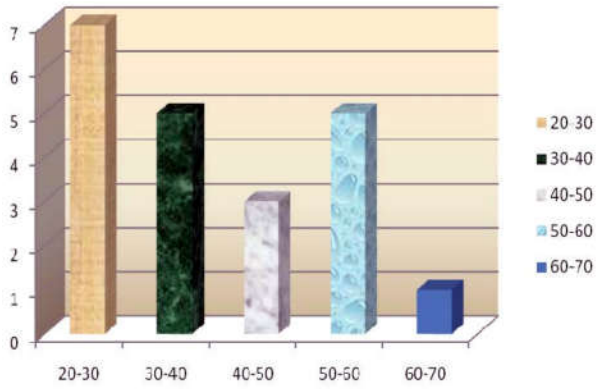

Fig. 1: Age distribution

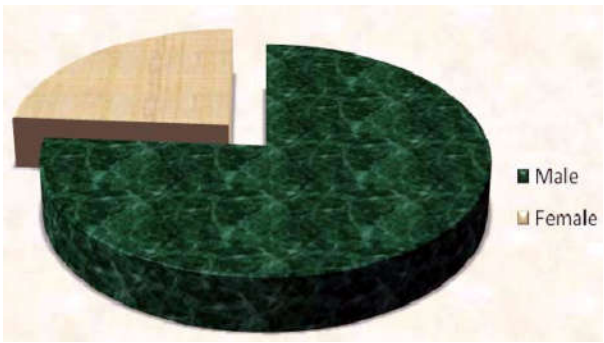

Fig. 2: Sex distribution

Table 2: Sex distribution

Sex	No. of Cases	Percentage
Male	16	76.19
Female	5	23.81

Right Side was Common in our Study

Table 3: Side of injury

Side	No. of Cases	Percentage
Right	14	66.67
Left	7	33.33

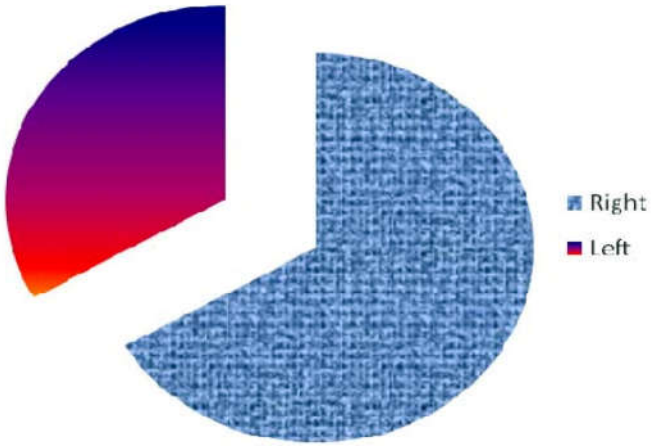

Fig. 3: Side of injury

Commonest Mode of Injury had been RTA

Table 4: Mode of injury

Mode of injury	No. of Cases	Percentage
RTA	16	76.19
Assault	3	14.28
Fall Injury	2	9.52

Table 5: Classification of fractures

Neer's type	No. of Cases	Percentage
Two part (Surgical neck)	4	19.04
Three part	12	57.14
Four part	5	23.81

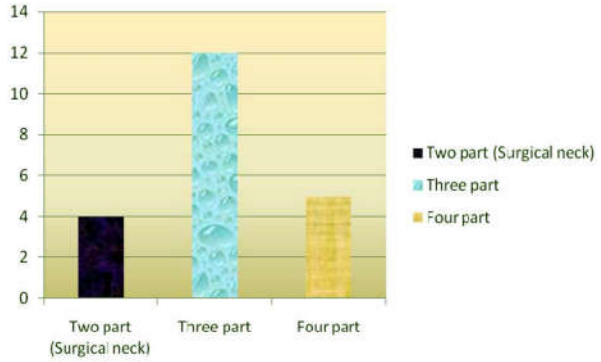

Fig. 4: Classification of fracture

Discussion

The first documentation of treatment of a proximal humeral fracture was "published" in 460 BC11 by Hippocrates, who described a method of weight traction to aid bone healing. The final result is unknown.

Little was written about this subject until the latter part of the 19th century when some papers discussed closed reduction followed by a period of immobilization and later, range of motion exercises. This seemed to be an adequate treatment for non-displaced fractures, but the outcome was bad for displaced fractures.

The first surgical treatment of a fracture dislocation of the proximal humerus reported in the literature was performed in 1884 by Lambotte in Belgium and Lane in Great Britain [6]. The humeral head was removed and the patient was ready for dismissal 13 days later when he had an attack of diarrhoea from which he died 1 week later.

The first osteosynthesis was performed in 1890. The surgeon "replaced" the head in the glenoid cavity and "pegged" the fracture. The patient survived and primary fracture healing was achieved with a fair clinical result [6].

In 1934, Codman developed a classification that divided the proximal humerus into 4 parts, based on epiphyseal lines. In 1970, Neer's classification expanded on4 part concept and included anatomic, biomechanical, and treatment principles.

During the first decades of the 20th century the surgical technique was further developed. Several different implants were used such as wires, screws and suture materials. The treatment was accompanied by a high rate of infections, mal-unions, a vascular necrosis (AVN) and osteoarthritis (OA), which reduced the general enthusiasm.

In the early 1950s, when antibiotics had become available, methods of intramedullary nailing were developed [7,8]. The next step was taken at the end of

1960s when the AO Group in Switzerland developed devices including plates for internal fixation. They advocated open reduction and stable internal fixation to allow early mobilization. Initially, good results were presented, but the results were difficult to reproduce, especially in elderly patients. One reason for this was the tendency for loosening of the hardware in osteoporotic bone. As a reaction to this, earlier techniques, such as minimal osteosynthesis and non-operative treatment, regained their popularity.

During the past decade, locking plates with angular stable screws or pegs, with the potential to better preserve the reduction, especially in osteoporotic bone, have been developed. Their popularity has been tremendous and they have almost become the golden standard when orthopedic surgeons choose an implant for internal fixation.

Conclusion

- Commonest mode of injury had beenR TA
- Right side was common in our study

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