

Retrospective Assessment of Supra Condylar Fractures of Humerous among Patients Visited to Department.

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ABSTRACT

Background: Supracondylar humerus fractures with intercondylar extension are uncommon injuries in adults. The present study was conducted to assess supracondylar fractures of humerus in patients. **Methods:** The present retrospective study was conducted on 70 cases of supracondylar fractures reported to the department of both genders. In all patients, reason of fracture and type were recorded. **Results:** Gartland type II was seen in 19 males and 14 females and Gartland type III in 21 males and 16 females. The difference was non-significant ($P > 0.05$). Common reason for fractures was road side accidents seen in 35, domestic violence in 25 and fall in 10. The difference was significant ($P < 0.05$). **Conclusion:** Supracondylar humerus fractures are common in adults. The most common reason was road side accidents.

Keywords: fractures, Humerous, Supracondylar.

INTRODUCTION

Supracondylar humerus fractures with intercondylar extension are uncommon injuries in adults and in children under the age of 7, present most difficult challenge of fracture of lower end of humerus. The complex shape of this joint (Elbow) and its associated vascular & nerve structures and the sparse soft tissue envelope combine to make these fractures difficult to treat.^[1] Supracondylar fractures may have significant complications including nerve injury, vascular injury, malunion and compartment syndrome. Acceptable results have been reported in a majority of patients treated by open reduction and internal fixation.^[2]

The clinical evaluation of a patient with a distal humeral fracture should include careful assessment of the ipsilateral shoulder and wrist, examination of the skin for open wounds, and a detailed neurovascular examination. A patient with an open humeral fracture most commonly has a posterior wound proximal to the elbow joint that was created by protrusion of the humeral shaft through the triceps muscle and posterior skin. Neurological assessment should include examination of the median, radial and ulnar nerves.^[3]

Open intra-articular fractures of the distal humerus are high-energy injuries which are often comminuted and associated with extensive soft-tissue damage. They are very difficult to treat. Anatomical reduction, rigid fixation and immediate mobilization give the best functional outcome. In view of the high reported rate of infection, however, delayed fixation may be recommended. In a previous study, it was found that infection occurred in 28% after fixation of open fractures of the distal humerus.^[4] Under the light of above mentioned data, we planned the present study to assess supracondylar fractures of humerus in patients.

MATERIALS AND METHODS

The present retrospective study was conducted in the department of Orthopaedics from Nov 2017 to Dec 2018 at Anugrah Narayan Magadh Medical College and Hospital, Gaya Bihar. It comprised of 70 cases of supracondylar fractures reported to the department of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee. General information such as name, age, gender etc. was recorded. In all patients, reason of fracture and type were recorded. Gartland II and III fractures in subjects at the time of injury; at least 18 months of follow-up; and functional outcomes was assessed. Results thus obtained were subjected to statistical

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analysis. P value less than 0.05 was considered significant.

RESULTS

[Table 1] shows that out of 70 patients, males were 40 and females were 30. [Table 2] shows that Gartland type II was seen in 19 males and 14 females and Gartland type III in 21 males and 16 females. The difference was non-significant ($P > 0.05$). [Figure 2] shows that common reason for fractures was road side accidents seen in 35, domestic violence in 25 and fall in 10. The difference was significant ($P < 0.05$).

Table 1: Distribution of patients

Total- 256		
Gender	Males	Females
Number	40	30

Table 2: Type of fractures

Types	Males	Females	P value
Gartland type II	19	14	0.10
Gartland type III	21	16	
Total	40	30	

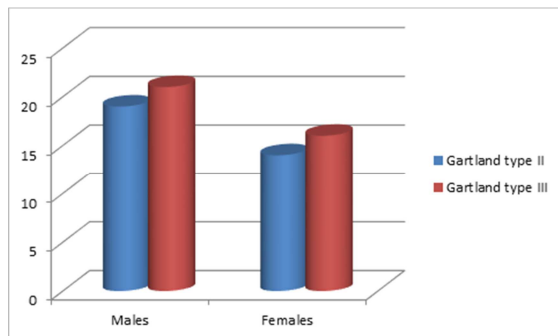


Figure 1: Type of fractures

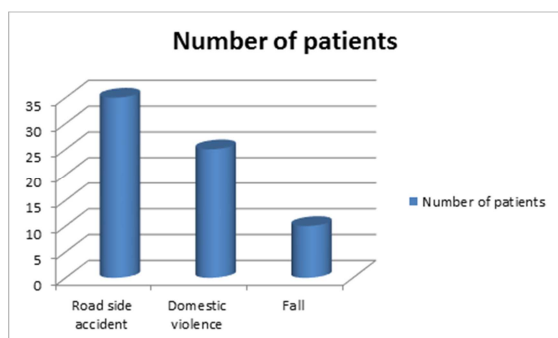


Figure 2: Reason for fractures

DISCUSSION

Displacement has first been classified by Gartland. Treatment of these fractures is closely related to displacement. Usually non-displaced fractures are treated conservatively in plaster. Displaced fractures should be reduced and if necessary fixed with wires before immobilization in plaster. Parallel pinning as well as cross pinning has been

advocated. Functional and cosmetic outcome is closely related to the successful reduction of the fracture.^[6]

Restoration of painless and satisfactory elbow function after a fracture of the distal humerus requires anatomic reconstruction of the articular surface, the overall restitution geometry of distal humerus, and stable fixation of the fractured fragments to allow early and full rehabilitation. Depending upon the frequency of comminution and displacement, open reduction and internal fixation with 1/3 tubular plate, reconstruction plate, Kirschner wire and double tension band wiring can be done individually or in combination.^[7] The present study was conducted to retrospectively assess the supracondylar fractures of humerus in patients.

In present study, out of 70 patients, males were 40 and females were 30. Kundel et al⁸ found that in this study of 20 cases, there were 11 males and 9 females with average age of 43.4 years and an average follow up of 11 months. 10 cases each were due to direct fall and road traffic accident, with predominance of left side (11). Out of 20 cases 5 (25%) were of RR type II, 12(60%) were of RR III and 3 (15%) were of RR IV. Good results seen in 8 cases, fair results in 9 cases and poor results in 3 cases. There were 2(10%) cases each of superficial infection, implant failure, ulnar neuropathy and one (5%) case of non-union and they were treated accordingly.

[Table 2] shows that Gartland type II was seen in 19 males and 14 females and Gartland type III in 21 males and 16 females. The difference was non-significant ($P > 0.05$). Graph II shows that common reason for fractures was road side accidents seen in 35, domestic violence in 25 and fall in 10. The difference was significant ($P < 0.05$). Korner J et al⁹ found that out of one hundred and twelve children were included in this study, of whom 61 (54.46%) were younger than seven years of age while 51 (45.5%) were aged seven years or older. Children aged seven or older had a greater incidence of associated neurological deficit at presentation ($p=0.046$). Of the six patients with nerve injury in the older age group, one patient (16.7%) had a radial nerve injury, two patients (33.3%) had ulnar nerve injuries while another two patients (33.3%) had median nerve injuries. There was one patient (16.7%) with both median and ulnar nerve injuries. Comminuted fractures were also more common in the older children ($p=0.004$). No significant differences were demonstrated between the groups with regard to age, gender and mechanism of injury, laterality, incidence of open fracture, vascular injuries and operative time.

There are several features that should be sought on radiographs which should be correlated with the clinical examination findings. Dedicated AP and true lateral radiographs of the elbow, with the

addition of oblique views should be used for evaluation. Oblique views may be used to assess the medial and lateral columns. Occasionally, contralateral elbow radiographs can help if there is any uncertainty in diagnosis. Assessment of the elbow radiograph should commence with the anterior humeral line, which is a line drawn down from the anterior cortex of the humerus.^[10] Isa AD et al retrospectively evaluated functional outcomes of pediatric supracondylar elbow fractures (SCEF) using the Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire. They retrospectively reviewed the outcomes of patients who presented to our tertiary care pediatric emergency department with SCEF. The DASH questionnaire was administered in 2012. They performed a multiple linear regression analysis to determine the significance of these clinical parameters as they related to the DASH score for functional outcome. Their results demonstrate that good functional outcomes can be expected with pediatric SCEF based on the DASH questionnaire, regardless of age at injury, sex, weight, right/left extremity or surgical/nonsurgical intervention, provided satisfactory reduction is achieved and maintained.^[11]

CONCLUSION

Under the light of above obtained results, the authors concluded that supracondylar humerous fractures are common in adults. The most common reason was road side accidents.

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