

SUPRA CONDYLAR FRACTURE OF THE HUMERUS IN CHILDREN;

Changed treatment protocol in management

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ABSTRACT... Supra condylar fractures in children are a serious injury with a significant morbidity. **Setting:** CMH Multan. Patients present very late, often after being mishandled by traditional bone-setters, with lifelong consequences. All children up to the age of 12 years with supra condylar humeral fractures presenting to our hospital were included in the study. Careful history and examination was carried out and necessary x-rays were taken. Time since injury, all treatments administered, complications and any other data was recorded. **Period:** From 1999 to 2004. 304 cases were included in the study. Only 12% patients presented within 24 hours. 87.5% children presented from 72 hours to 3 weeks post injury. The reasons recorded were lack of access to proper medical help, illiteracy, poverty and manipulation by traditional bone setters. Based on Gartland's Classification¹ 61% patients had un-displaced and 39% had displaced fractures. 61% were Type I fractures, 19% Type II and 20% Type III fractures. Due to late presentation these patients had more complications including myositis ossificans, neurological complications and contractures due to tight bandages by traditional health bone setters. Patients with displaced supracondylar fractures, who present early, usually require manipulation and fixation by percutaneous pinning 2,3,4. In our study, because of very late presentation they could not be treated by closed reduction and 18 %cases with type III fractures were treated by Open Reduction and Internal Fixation. Since they presented very late and had complications like Radial nerve palsy, Median nerve palsy, Ulnar nerve palsy⁵, ischemia, Brachial artery compression, Compartment syndrome, Volkmann's ischemic contracture the treatment protocol had to be changed. Post operative complications in a few patients included Pin tract infection and Elbow stiffness. In most cases full range of movement could not be achieved, however functional movement was satisfactory. These resulted in less patient satisfaction and lifelong consequences. To conclude our study shows that due to very late presentation of supracondylar fractures of the humerus in children different management protocols have to be made, tailored to individual needs of the patient.

Key words: late presentation, mishandling, difficult surgery, increased morbidity,, poor prognosis, less patient satisfaction, lifelong consequences.

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INTRODUCTION

Supracondylar Fractures in children are a serious injury with a significant morbidity if incorrectly treated or if, as in our study, treatment occurred late. Displaced Supracondylar Humeral Fractures in children are preferably treated by closed reduction and percutaneous pinning as well as emergent treatment to minimize risk of complications, where conversion to an open reduction will be needed^{5,6}.

We reviewed the results of 304 supracondylar fractures over a five year period presenting in CMH Multan. Normally a child suffering an elbow injury would present to a clinician on the same day .We noticed that only 12.5% of patients presented within 24 hours of injury and 87.5% presented over 72 hours post injury.

We used the Gartland Classification to Stage the severity of Supracondylar fractures¹.

All patients with a proven Supracondylar Fracture were included in our study. The diagnosis was on clinical grounds as well as X-Rays. Elbow injuries with Swelling and Pain at the time of presentation but with no radiological evidence of a fracture were excluded from the study.

The patient presented through the emergency room or was first seen in the Consultant Fracture Clinic being referred from a peripheral hospital or a medical centre (MI Room) or as is also the norm the patient referred himself.

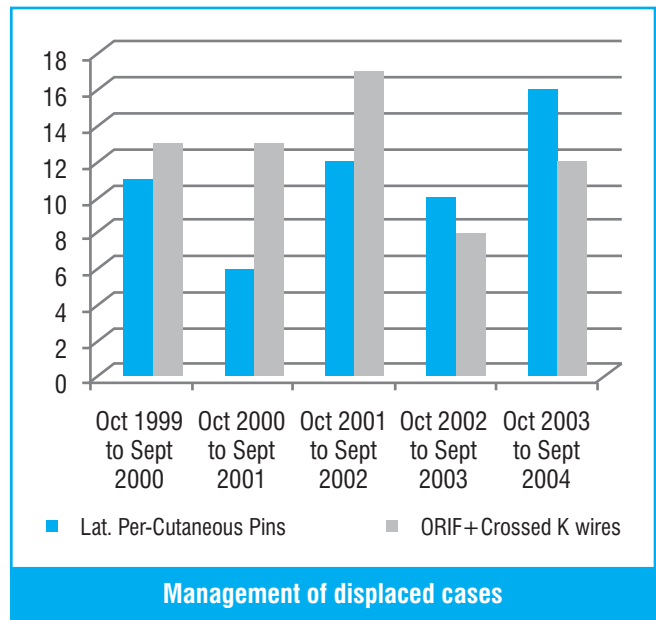
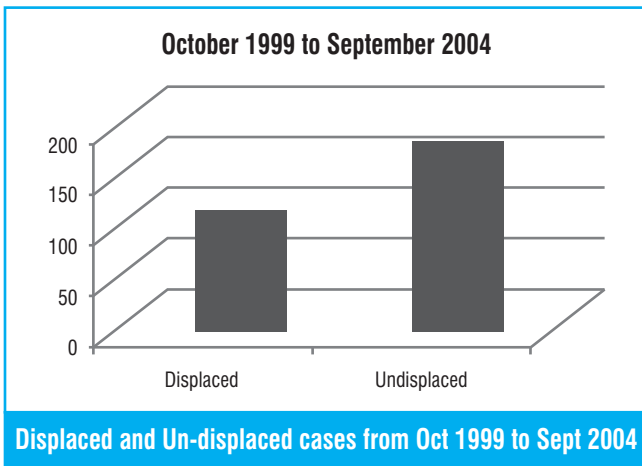
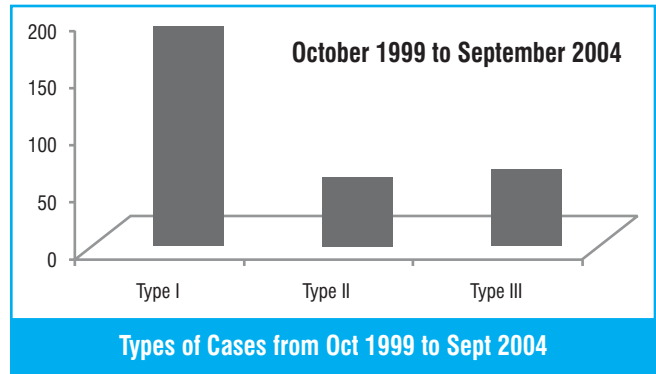
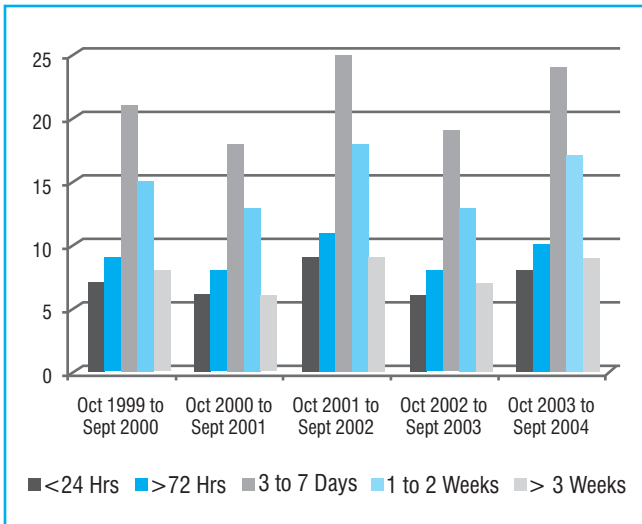


Figure 1: An eight years old boy, presented ten days after injury; treated with crossed K-wire fixation through medial approach⁷.

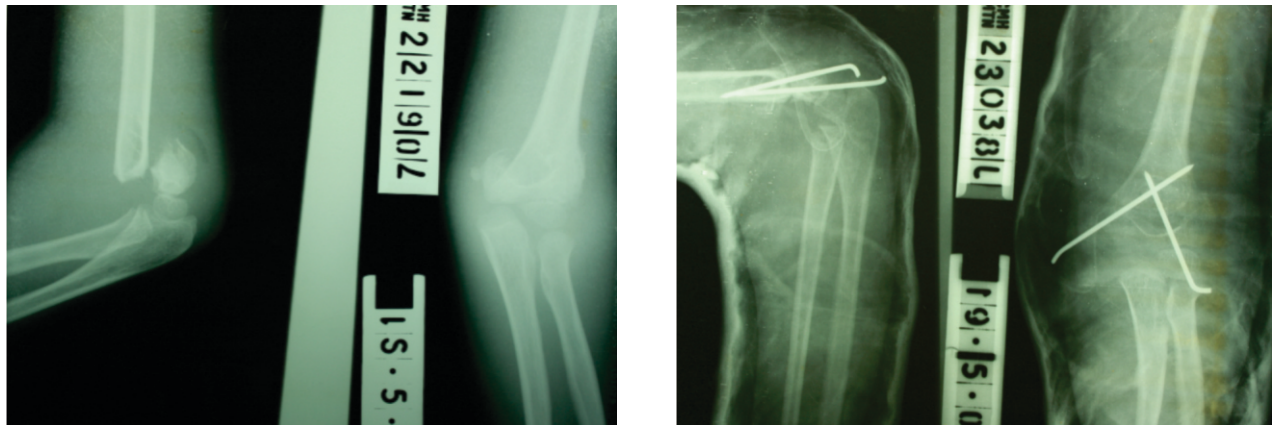


Figure 2: Patient presented with gross edema as can be seen in pre-OP X-Rays, manipulated by a Quack. Treated with crossed K-wire fixation through medial approach.

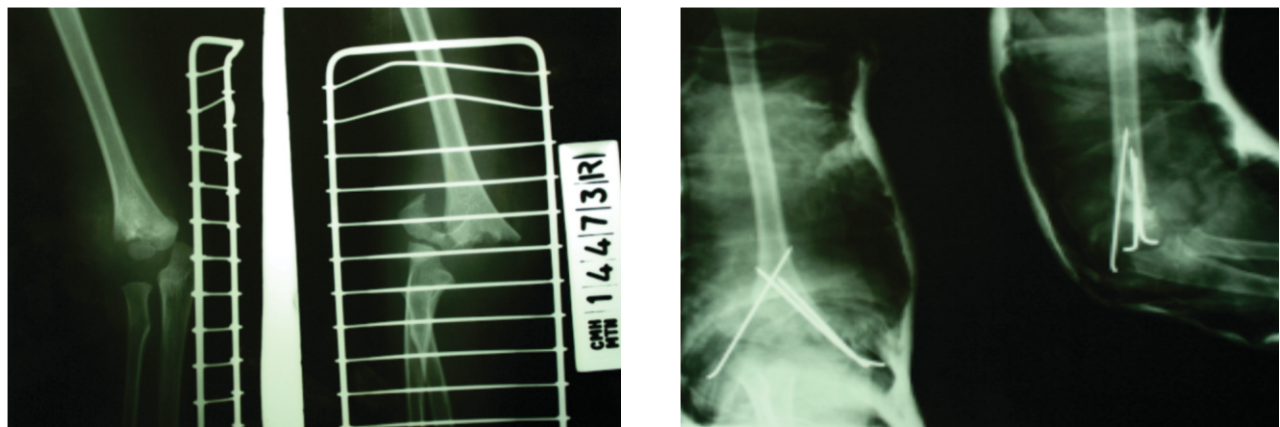
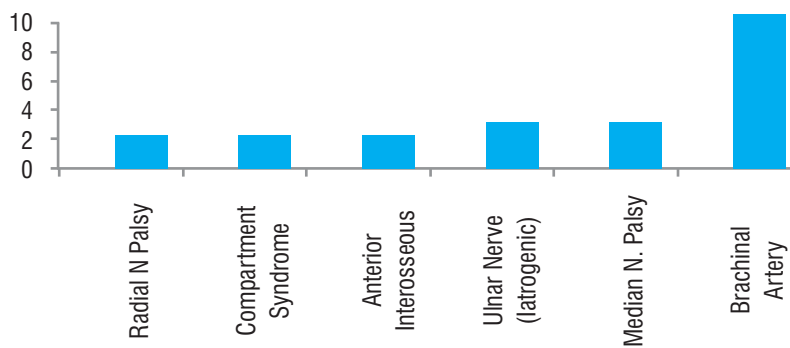


Figure 3: An early presentation (within 24 hours) of a supracondylar fracture in a seven years old. Treated with open reduction and internal fixation. Closed reduction could not be attained in this case.



Pre operative complications in Type II and Type III case October 1999 to September 2004

DISCUSSION

Very late presenting supracondylar fracture are not abnormal phenomenon in the developing world. The children usually presenting in accident and emergency department with in some days. There have been studies which show that a delay of 8 hours or more versus 8 hours or less do not affect the outcome of the results^{11,12}. However in our cohort of patients only 12.5% cases presented with in the first 24 hours post injury. Thus it would be logical to assume that there would be an inability to achieve a satisfactory closed reduction in the vast majority of displace supracondylar fracture.

Thus the need to resort to open reduction and k wire fixation is thereby much more than the normal. Furthermore we used the medial approach much more frequently identifying the ulnar nerve retracting it and excising the exuberant callus before resorting to accurate reduction and crossed k-wire fixation¹³. Our cases had minimal ulnar nerve neuropathies¹⁵ but accurate data was not available as more patients were lost in follow-up.

Our primary aim of surgical intervention is to restore functional range of movement of the elbow joint which is approximately 30° to 100°. However this resulted in a less than average patient's satisfaction.

There were a few cases which presented nearly three weeks post injury. These cases were treated by surgical intervention as there was gross displacement, there had been manipulation by the quacks and the dreaded complications of myositis ossificans as well as ischemic contracture were present to the same extent. Leaving them alone would result in a functional useless upper limb. Thus these were salvage surgeries in the sense that open surgical dissection and anatomic correction was carried out to restore some elbow function. The result of the salvage surgeries could not be fully evaluated as these cases were few and some were lost to follow-up. Surprisingly there

was more patient satisfaction in these cases.

CONCLUSIONS

Supracondylar fractures are a serious injury with a significant morbidity in children. In our study 87.5% children presented from 72 hours to 3 weeks post injury. The reasons for a higher number of complications at the time of presentation were that almost all cases presenting after 24 hours had been manipulated by traditional bone setters who applied poultice as well as tight bandages and manipulation resulting in gross edema and vascular and neurological problems in addition to a very frightened child. Lack of access, illiteracy and poverty further compounded the problem. Type I fractures were seen in 61% patients, Type II 19% and Type III in 20% patients. Displaced supracondylar fractures presenting early require manipulation and fixation usually by PCP^{8,9,10}. In our case because of very late presentation management was by open reduction and crossed K wire fixation on the basis of Gartland classification to state the severity of SCF. Pre operative complications were more and a large number of patients were lost to follow up as this centre was getting referrals from 5 peripheral military hospitals and the patients were either seen by them or local doctors. Post operatively residual elbow stiffness was higher as compared to western studies. Patient satisfaction was also less. Their expectation of a fully functioning elbow obviously not being achieved. Anatomical correction was restored; a functional range of movement of 30 to 100% was restored in the vast majority of cases. This contrasts with studies in developed countries where open reduction is usually not needed and complications are less. Thus with late presentation management guidelines are different and protocol was changed resulting in changed results and level of satisfaction of patients. There is a need to educate the patients to present early to the hospital for better results.

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