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Management of supracondylar fractures humerus by percutaneous pinning

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Abstract
A supracondylar fracture is an injury to the humerus, or upper arm bone, at its narrowest point, just above the elbow. Supracondylar fractures are the most common type of upper arm injury in children. They are frequently caused by a fall on an outstretched elbow or a direct blow to the elbow. Because of the proximity of crucial NeuroVascular structures, a thorough knowledge of anatomy if essential. Accurate reduction and stable fixation of bony injuries can often optimize ultimate function and limit long-term disability. Supracondylar Fractures of Humerus is one of the few fractures which when treated well may not bring credit to a reputed Surgeon, but, if it is not handled properly, it can definitely be a big problem. This study puts in an effort to find the effectiveness of management of supracondylar fractures humerus by percutaneous pinning.

Keywords: Supracondylar, fracture, percutaneous, pinning

Introduction
The supracondylar fracture fixed with pinning can be put in any desired position. Use of one pin may cause loss of reduction [1]. Use of medial and lateral pin fixation provides more stability than lateral pinning alone. The pins must continue into the opposite cortex to provide solid pin fixation [2]. Smooth pins are preferred and restoration of movements is of full range with closed pinning than open reduction [3]. Immobilisation in cast has been the standard treatment for undisplaced fractures, but for displaced fractures it remains controversial [4]. Closed reduction and percutaneous pinning provides the best cosmetic and functional results [5]. However, some fractures are irreducible by closed means [6]. Open reduction and pinning is therefore recommended for supracondylar fractures and for those with vascular injury or compound fracture [7]. Late presentations, defined as more than 2 days after injury, are commonly treated by continuous traction, with consequent prolonged hospitalization [8]. Alternatively, they are allowed to malunite and treated later by corrective osteotomy [9]. A higher incidence of stiffness, neurological and vascular complications, and failure of closed reductions are encountered in late-presenting cases, particularly after repeated manipulations [10]. Operative interventions risk further stiffness and myositis ossificans. Continuous traction has the disadvantages of prolonged hospitalisation, resort to frequent radiographic analyses, and inadequate reduction [11]. This study puts in an effort to find the effectiveness of management of supracondylar fractures humerus by percutaneous pinning.

Aims and Objectives
To study the effectiveness of management of supracondylar fractures humerus by percutaneous pinning.

Materials and Methods
This study was done in the Department of Orthopedics, Srinivasa Institute of Medical Sciences, Mangalore.
This study was done from September 2015 to Dec 2016.
Thirty cases were selected and studied for this.
19 cases of males and 11 cases of females were studied. Almost all the cases were admitted on the day of injury. We treated all the cases by the method of Percutaneous K-wire fixation under C-arm control.

Results

Table 1: Sex Distribution

Males	Females
19	11

Table 2: Results of the surgery

Loss of Carrying angle	Frequency	Loss of range of movement	Frequency	Remarks
0 - 5 degrees	28	0 - 5 degrees	27	Excellent achievement
6 – 10 degrees	02	6 – 10 degrees	02	Good achievement
11 – 15 degrees	Nil	11 – 15 degrees	01	Average achievement
>15 degrees	Nil	>15 degrees	Nil	Poor achievement

Complications

One patient had the pintract infection and there was a stiffness. So the degree of movement was lost between 11 to 15 degrees.

Discussion

Prione *et al*. (1988) studied 230 supracondylar fractures in children treated by different methods. In percutaneous K-wire fixation 78%, skeletal traction 67% and open surgery 67% had excellent functional results. 2 patients had pin tract infection. Our study shows 70 % excellent results, 16% good results, 10 % of fair results & 4% of poor results. Sutton *et al*. (1992) study shows 66% of excellent results and 22% of good results our study shows far better results than this study with low complications. Herzenberg *et al*. (1988) showed that the application of crossed medial and lateral pins to be a more stable configuration bio-mechanically. Royce *et al*. reported 4 ulnar nerve palsies caused by the medial pin. In our study two patients had ulnar nerve injuries following medial pining. Out of two patents one had ulnar nerve involvement in immediate post-operative period and one other had delayed ulnar neuropathy. All these nerve injuries resolved spontaneously. Flynn *et al*. (1974) reported 52 patients treated by closed reduction and blind pining, 98 percent of his patients had satisfactory results. Two patients had loss of reduction and one patient had transient ulnar neuropathy.

Conclusion

This study indicates the usefullness of this procedure and this study is intended to be very helpful for the practising surgeons.

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