

Permit No MITA (P) 028/09/99
PP (S) No 580/12/95
ISSN 0037 - 5675

JOURNAL OF THE SINGAPORE
MEDICAL ASSOCIATION

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Cover Picture:
Bone Windows depicting the bony erosion of the anterior canal wall (arrow) into the temporomandibular joint but sparing the head of the mandible.
(Refer to page 443)

Supracondylar Fractures of the Humerus in Children – Back to Basics

E H Lee

Unlike adults children usually sustain fractures in the upper limb. Of all the fractures in the upper limb the supracondylar fracture of the humerus is not only the most common injury but can result in serious complications if not treated appropriately.

In general fractures in children are treated conservatively. Surgical treatment is reserved for some physeal injuries, fractures associated with neurovascular compromise, open fractures and certain special circumstances such as fractures around the hip. The management of supracondylar fractures of the humerus has evolved from a purely conservative approach to a more aggressive approach in recent years. When deciding on the appropriate treatment for these fractures it is useful to classify these fractures into three groups. Group 1- undisplaced fractures (Gartland type 1), Group 2 – partially displaced fractures (Gartland type 2) and Group 3 –completely displaced fractures (Gartland type 3). Needless to say undisplaced fractures should be treated conservatively with protection in a backslab or a cast for a period of about 3 weeks. In the case of partially displaced fractures the majority can be treated by closed reduction usually under general anaesthetic followed by immobilisation for about 3 weeks.

The management of the completely displaced fracture is more controversial. Regardless of the choice of treatment protocol it is imperative that the child is properly assessed for potential neurovascular injuries. If the child is seen within the first few hours of the injury it is possible to do a closed reduction and immobilisation under general anaesthesia. However there are cases where adequate flexion of the elbow to maintain reduction cannot be achieved due to potential vascular compromise. In such cases percutaneous pinning under image intensifier will allow the reduction to be maintained with the elbow immobilised in a less flexed position. Although closed reduction and immobilisation can be done for these fractures a number of studies have shown that there is a high incidence of redisplacement of the fracture despite adequate immobilisation. These authors advocate routine percutaneous pinning after closed reduction for these fractures^(1,2). Open reduction and internal fixation with K-wires are also advocated by a number of authors⁽³⁾. This is not routinely necessary as many of the fractures can be reduced closed. In cases where closed reduction is not possible or where there is vascular compromise open reduction and internal fixation will then become necessary. Some of these children can present acutely with very swollen elbows. In these cases it may be prudent to admit these children and put the arm in traction till the swelling subsides before further treatment is instituted. In all cases of displaced fractures it is important to monitor these children closely post-operatively for signs of compartment syndrome and vascular compromise.

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It is imperative that non-narcotic analgesics be given as narcotic analgesics can mask the early symptoms of vascular compromise.

HOW SHOULD WE MANAGE A CHILD WHO PRESENTS LATE WITH A VERY SWOLLEN ELBOW?

The article in this journal by Dr Devnani addresses this problem. Quite often parents have taken the child for alternative treatment and the child may have had manipulation or massage performed on the elbow which can contribute to further soft tissue injury. In this circumstance it is wise to admit the child and place the arm in traction until the swelling subsides before further treatment is instituted. Traction is always a very safe method of treatment in the interim period. Once the swelling subsides the orthopaedic surgeon has a number of choices. (1) closed reduction and cast immobilisation, (2) closed reduction with percutaneous pinning, (3) open reduction and pinning and (4) gradual reduction until union. The results reported by Dr Devnani in his article are very acceptable for this particular group of patients. The advantage of his method of treatment is that patients are not subjected to any surgical treatment or general anaesthesia. The main disadvantage is that patients have to stay in hospital for a prolonged period of time⁽⁴⁾. Closed reduction in these late cases can be difficult and in some instances open reduction is required for adequate reduction. When open reduction is contemplated, it is important that the final results should be at least as good if not better than closed treatment and complications such as nerve injury, myositis ossificans or stiffness of the elbow does not result⁽⁵⁾.

The supracondylar fracture of the humerus in children remains a most challenging injury for the orthopaedic surgeon. It is important to consider the options of treatment very carefully and tailor the treatment to the personality of each fracture. **SMD**

REFERENCES

1. Kasser JR. Percutaneous pinning of supracondylar fractures of the humerus. American Academy of Orthopaedic Surgeons, Inst. Course Lect. 1992; 41:385-90.
2. Gao GX, Lee EH. A preliminary report: The management of supracondylar fractures of the humerus in children. KK Hospital Review 1998; 01:8-12.
3. Cramer KE, DeVito DP and Green NE. Comparison of closed reduction and percutaneous pinning versus open reduction and percutaneous pinning in displaced supracondylar fractures of the humerus in children. J Orthop. Trauma 1992; 6:407-12.
4. Sutton WR, Greene WB, Georgopoulos G and Dameron TB Jr. Displaced supracondylar humerus fractures in children. A comparison of results and costs in patients treated by skeletal traction versus percutaneous pinning. Clin. Orthop 1992; 278:81-7.
5. Lal GM and Bhan S. Delayed open reduction for supracondylar fractures of the humerus. Int. Orthop 1991; 15:189-91.

Publisher

Singapore Medical Journal
Level 2, Alumni Medical Centre
2 College Road
Singapore 169850
Tel: 223-1264
Fax: 224-7827
URL <http://www.sma.org.sg>

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Printed by Entraco Printing Pte Ltd

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