Supracondylar Fractures of humerus in Children

By

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Introduction

- Children below 10 years, especially boys, are more prone for fall from heights like tree, buildings, bicycle etc. (Fig No 1).
- During such a fall if they land on outstretched hands, they are more prone for fractures just above their elbow joint in the lower end of their arm bone called the humerus which is relatively weak and children are more prone for fractures in this age group. (Fig 2)
- Such a fracture is called Supracondylar fracture of Humerus.

Clinical Features:

- The child complains of enormous pain and swelling, deformity and loss of elbow joint movements. (Fig 3)
- In some extreme cases due to injuries of the blood vessels the forearm and the fingers may turn cold due to injuries to the blood vessels.
- There could be injury to the nerves around the elbow (Fig 4).
- This is a dangerous situation and has to be immediately attended and may require surgery.
This is how your elbow looks in a case of supracondylar fracture of the humerus

- There could be an S-shaped deformity. (See Fig 3).
- Arm is short, forearm is normal in length.
- Crepitus is present but should not be elicited for fear of increasing the pain and damaging the neighboring neurovascular structures.
- Dimple sign due to one of the spikes of proximal fragment penetrating the muscle and tethering the skin.
Fig 4: There are chances of injuries to the important blood vessels and nerves in a supracondylar fracture of the humerus

**Remedies:**

- Institute fist aid treatment like cold packs, splinting the elbow etc.
- Rush the patient to the hospital immediately.
- Do not do any forceful maneuvers or take the child to a quack.

**Investigations**

**Radiology:** Subjecting a child to the radiological examination of the elbow is a painful process. However, a good X-ray of the elbow in both anteroposterior and lateral views is an absolute must. Plain x-ray of the elbow helps your doctor to identify the type of supracondylar fracture of the humerus and institute the correct method of treatment depending whether it is undisplaced or displaced fracture. (Fig 5).

**Fig. 5:** Plain X-ray of the elbow showing a backward displacement (extension) type of supracondylar fractures: AP and lateral views
**Treatment:**

- In the hospital, your doctor may ask for the X-ray of the elbow joint.
- If the fracture is un-displaced or mildly displaced, he may reduce it under general anaesthesia and put an above elbow plaster slab or cast (Fig No 6 and 7).
- And if the fracture is grossly displaced, he may reduce it under general anaesthesia in the major OT and under C-arm control put 2 steel wires called the k-wires without opening the fracture site and fixes it. (Fig 8).
- Follow the instructions given by your doctor scrupulously.

![Figure No 6 showing the elbow fracture (Supracondylar fracture of the Humerus) being treated by an above elbow plaster slab](image1)

![Figure No 7: Plaster cast treatment for supracondylar fracture](image2)
Complications that Produce Cosmetic Abnormalities

**Cubitus varus** (*Gunstock elbow*) this is the most common complication of supracondylar fracture. Incidence varies from 9 to 58 per cent. Your elbow is bent inwards and looks awkward. (Fig 9). Though the elbow looks bad but surprisingly the patient will be able to carry out all the activities using the affected elbow. Plain x-rays your elbow helps to assess the extent of the deformity (Fig 10)
Fig 9: Figure above shows why the deformity is called a gun stock deformity and figure below is a clinical photograph showing cubitus varus deformity

Fig 10: x-ray showing malunited supracondylar fracture of the humerus that can cause cubitus varus deformity

Treatment:

Cubitus varus is only a cosmetic disability with no functional impairment of the elbow. Treatment of choice is corrective osteotomy and the surgeon can perform it whenever he is comfortable doing it or defer until skeletal maturity as cosmesis gains importance at this age and for the fear of recurrence of deformity, if surgery is done before growth stops since there is still potential for growth left.