INTRODUCTION
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Supracondylar fracture of the humerus in children is one of the most common injuries of this region in childhood and though the fracture in most cases unites uneventfully (‘when Watson Jones stated "The prognosis of supracondylar fractures is excellent" he must have been speaking of function not of form’ - Lyman Smith M.S.) there is a high rate of occurrence of residual deformities following its malunion, and though a number of treatment modalities have developed, since times immemorial, each have their limitations and the dilemma continues as to which treatment modality would best serve a particular case of a displaced supracondylar fracture of the humerus taking all factors into consideration and though the recent trend is towards closed reduction and percutaneous pinning, certain studies cast doubt on its being the sole treatment option in all cases and in all situations; a brief review of the history of the treatment options that developed over the years follows:

The various treatment modalities for the supracondylar fractures of the humerus in children have developed with the aim of reducing / preventing the frequent complication of residual deformity (most commonly cubitus varus specially in the more displaced Type III & IV fractures. An analogy can be drawn between this goal and the aim of prevention of non union in cases of fracture neck femur where the treatment armamentarium is even larger.

Closed reduction and immobilization by traditional means has a long history, finding its strong support in veterans such as Sir Astley Cooper(1826), Sir
Robert Jones (1921), Watson Jones (1952 -55) and Sir Charnley (1961), and is still widely accepted as an ideal treatment of supracondylar fractures of humerus fresh or old; however the instability of the reduction, which increases as the initial swelling subsides is high.

With the aim of reducing the frequency of deformity most importantly varus (often called the necessary evil) as a post treatment complications, Dunlop, for the first time in 1939 described the role of traction in the treatment of supracondylar fractures of the humerus. Initially he gave a straight lateral traction, and to his surprise the fragments were in perfect position; later he started giving a vertical counter traction on the arm with traction in a semiflexed position of the elbow.

Dunlop’s method was found inconvenient and tedious as it required check x-rays and an eye on maintainance of the carrying angle though, later Allen and Gramse (1945), Dodge (1972), Jefferis (1977) and Alberger (1992) found traction to be a useful method.

Watson Jones (1952 - 55) opined that traction be given for 3 to 5 days and be followed by reduction of the fracture under anesesthesia after the swelling has subsided, and the reduction maintained by immobilization is full flexion.

James Piggot (1986) found better results if traction for three weeks was
followed immediately by active exercises under supervision.

Traction has been summarised into two groups:

(a) **Skin Traction** -
    - In flexion -
      - (i) Dunlop (1939)
      - In Extension
        - (i) El Sharkawi and Fatteh (1965)
        - (ii) Jefferis (1976)
        - (iii) Bosanquet and Middleton (1983)

(b) **Skeletal Traction** - (In flexion only)
    - (i) Smith (1947)
    - (ii) Palmer et al (1978)

Though none of the traction methods claimed an accurate reduction, the alignment, length and carrying angle were all well controlled under vision and by AP x-ray. During the period of skin traction treatment deformity could be corrected from time to time. In skeletal traction in flexed position how ever these advantages were not there and there were added disadvantages of pintract infection and damage of the ulnar nerve by the implant.

A problem with all the methods was the 3 weeks hospitalization of a child whose activity was difficult to restrict in bed even for a day, not to forget the increase in hospital load by the long stay at hospital. Moreover, both the conservative reduction and immobilization, and the traction methods were useless in the unreducible type II & type III fractures due the fish tailing of the proximal fragment.

(i) Accurate reduction

(ii) Avoiding all the disadvantages of the extreme positioning of elbow.

(iii) A well maintained carrying angle due to absence of redisplacement.

However a strong adversary of open reduction, Watson Jones condemned the procedure on the grounds that:

(i) It is a difficult procedure

(ii) It does not provide any added advantage, rather it adds the disadvantages of

(a) Post operative infection

(b) Myositis ossificans

(c) Stiffness of joint due to the capsular fibrosis

Thus developed a compromise between the traditional closed reduction with POP and operative methods in the form of closed reduction and pinning to stabilize the fracture.
One of the factors contributing to its development was the improved per opertaive radiological assessment possible with the biplanar image intensifier. The advantages of this technique include:

(i) It avoids the extreme positioning of the elbow
(ii) Reduces the duration of hospitalization
(iii) later displacement and change in carrying angle are prevented

However the method is not without disadvantages viz :

(i) Pin tract infection
(ii) Nerve injury (specially of the ulnar nerve)
(iii) It requires, for the best results, an image intensifier the formidable cost of which precludes its use in third world countries like ours.
(iv) Recent studies as one conducted by Hadlow A.T. et al (1996) have shown that if the recent trend of pinning all type II & type III fractures is followed 77% of type II and 61% of type III would be pinned needlessly. Thus the current trend towards pinnig of all type III supracondylar fractures is not supported by some recent studies.
(v) Perhaps the most difficult and unsolved problem in the treatment of supracondylar fractures is the difficulty in assessing both the preopertative deformity present and the assesment of reduction peropertaively by x-rays. According to Campbell the three most common reasons for deformity are:-
(a) Inability to interpret poor x-rays thus accepting inadequate reduction
(b) Inability to interpret good x-rays because of poor knowledge of
    pathophysiology of this fracture.
(c) The loss of reduction

In conclusion, it is clear that though the treatment of type I fractures is
clearly closed reduction and casting, the treatment options for the displaced types
of fractures is controversial. Considering the high costs of other methods in a third
world country like ours, with not adequate health care facilities in the periphery,
treatment of these troublesome injuries, even in displaced fractures remains closed
reduction and casting in most cases.

I have chosen this thesis for the following reasons:
(i) It is the commonest injury of elbow in children
(ii) It is one of the difficult fractures to treat.
(iii) It may show all grades of vascular and neurological complications and if
    the treating surgeon is not vigilant even limb loss may occur, chances of
    which increase, the longer the time is spent between injury and treatment, the
    time being taken to transport the patient to a higher sophisticated treatment
    centre.
(iv) Even if treated effectively it leaves in the wake of its healing deformities
    like cubitus varus or the gunstock deformity.
Aims of Study:- The Study was conducted with the following aims:-

(i) To assess the incidence (with respect to age, sex etc.) of displaced supracondylar fractures of the humerus in children in Bundelkhand region.

(ii) To study the incidence of complications (i.e. immediate, early and late) in supracondylar fractures of the humerus in children of Bundelkhand region treated conservatively.

(iii) To evaluate the role of closed reduction maintained by an above elbow plaster of paris cast in hyper flexed elbow in the prone & supine position of the elbow in supracondylar fractures of the humerus.