

## **The joy stick technique: an easy, reliable, safe and cost effective, technique in closed reduction and percutaneous fixation of supracondylar fracture of the humerus in children**

### **ABSTRACT**

**Background:** Supra condylar fractures of humerus account for approximately 16% of all pediatric fractures. This produces an extension type fracture in 97–99%. Flexion type accounting for 1-3%. This often causes significant morbidity due to malunion (gun-stock deformity) reported in 12 to 20%, while neurovascular complications and compartment syndrome is documented in worse scenarios.

**Methods:** A prospective study was conducted with 24 cases of supracondylar humerus fracture between June 2017 to June 2021. Both males and females aged 3 years to 12 years, within 5 days of injury, with modified Gartland's type III and type IV, without compartment syndrome were included and followed up for 6 months to one year. The fracture was closely reduced using a 2-2.5 mm k-wire (joystick) in proximal fragment placed 5-7 cm proximal to fracture line and fixed with multiple percutaneous pinning under C-arm. All the patients were followed for rate of union and functional outcome using Flynn's criteria.

**Results:** All the 24 cases were managed by closed maneuver with the help of a joy stick. This reduces the surgical time and stress, preventing opening of fracture. Outcome was assessed in each follow up using Flynn's criteria. 87.5% of patients had good to excellent outcomes.

**Conclusions:** Our results demonstrate that good functional outcomes are expected in supracondylar fracture regardless of age at injury, sex, weight, side of extremity provided satisfactory reduction by closed technique with help of joy stick. This simple technique reduces surgical stress, duration of surgery and also minimizes the C-arm exposure.

**Keywords:** Fish tail sign, Joy-stick technique, Closed manoeuvre, Reduces surgical duration and stress, Flynn's criteria