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A Case Report of Neglected Pediatric Lateral Condyle of Humerus Fracture Treated with Osteoclasis and Open Reduction & Internal Fixation with Kirschner Wires and Intercondylar Cannulated Cancellous Screw Fixation

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Abstract: ***Background: Neglected fractures of lateral humeral condyle (LHC) when presented later than 3 weeks after the trauma, its management becomes difficult because of fibrous tissue formation, contracted muscles, and indistinct bony edges. Hence, deformity correction with osteotomy becomes necessary. Methods: Osteoclasis of the fracture with open reduction and internal fixation (ORIF) using Kirschner wires (K - wires) and cannulated cancellous (CC) screw. Results: Based on Mayo Elbow Performance Score (MEPS), 2 months Post surgery the patient had good outcome. And 6 month post operative follow up had excellent outcome. Conclusions: This method of osteoclasis with Kirschner wire and CC screw without bone grafting for a neglected LCH fracture in children could provide solid union of the fracture and improve elbow function.***

Keyword: Neglected; pediatric; lateral condyle of humerus fracture; osteoclasis; ORIF

1. Introduction

Fracture of lateral condyle of humerus is often neglected in developing countries. It causes deformities of elbow and the diagnosis can be difficult both radiologically and clinically, with loss of function occurring, due to an intraarticular extension. Incorrectly treated lateral physeal injury may remain unnoticed until months after the initial injury. Lateral condyle of humerus fracture is known for complications such as growth arrest, premature physeal closure, range of motion restriction, angular deformity of elbow, neural complications[1], nonunion, tardy ulnar nerve palsy, hypertrophic scar, avascular necrosis of ossific nucleus, malunion and angular deformity. Fractures of the lateral humeral condyle were more often caused by higher energy levels than the other fracture groups[2]. The management of neglected LHC fractures in children remains controversial[3].

2. Case Presentation

An 8 year old boy with history of slip and fall on an outstretched hand 1.5 months back, got his left elbow injured, then he undergone native splinting immobilization with bamboo sticks just after injury.

The patient is presented to the OPD with restriction of Left elbow movements and deformity of left elbow.

3. On Examination

Visible bony deformity of left elbow with bony prominence over the lateral condyle of humerus. Elbow is in 30 degrees of flexion. The three point bony relation was disturbed with widening of the intercondylar distance, fixed flexion deformity of 30° and further flexion upto 100°, producing bony block on terminal flexion, there were no signs of neurovascular deficit. No coronal plane deformity could be elicited, forearm rotations were normal.

Radiographs of X - ray and CT scan showed: malunited displaced oblique fracture of left humerus lateral condyle (Milchs Type 2)

Figure 1: Clinical pictures with limited range of motion on the left elbow and X - ray showing AP and lateral view of fracture line in lateral condyle of humerus

4. Method

Under Brachial block, patient was placed in supine position on a radiolucent table, parts were scrubbed, painted and draped, surgery was performed under C - arm guidance.

We used *open reduction and internal fixation method* here, through lateral approach to distal humerus (Kochers incision) [4], osteotomy of the malunited lateral condyle was done, realignment of the fragment is done with joy stick method, then two 2.5mm multidirectional Kirschner wires and a 4 mm intercondylar partially threaded AO screw of 20 mm length are used for osteoclasis. Loose fragments were removed, ROM of elbow was checked intra operatively, as the bony block was removed, and full range of movements of elbow was achieved. Accurate reduction was difficult as a result of new bone formation and remodeling at the fracture surfaces.

(a) **(b)** **(c)** **(d)**

Figure 2: intra operative pictures & post operative radiograph (d). Picture b & c shows full range of elbow movements achieved once osteoclasis was done.

Post operatively elbow was immobilized in an above elbow slab, which was converted to an above elbow cast on Post Operative Day - 8 for 2 weeks, k - wires were removed after 3 weeks post - op. Physiotherapy for elbow Range of Movements (ROM) was done. Patient was advised to follow - up every 2 months. At each assessment we performed clinical examination for ROM and radiological examination. CC screw was removed at 6 months post - operatively

5. Results

Elbow examination showed flexion 10 to 120 degrees, forearm rotations were normal.

Based on Mayo Elbow Performance Score (MEPS), 2 months Post surgery the patient had good outcome and 6 month post operative follow up had excellent results.

Figure 3: ROM at 6 months post - op

6. Discussion

Postoperative immobilization is recommended till radiological sign of callus formation is seen. Cancellous screw is better than Kirschner wires in term of duration of Plaster of Paris immobilization, final carrying angle and gain in final range of movements, screw provides absolute stability which reduces the possibility of lateral prominence and promotes early fracture union. Absolute stability of fracture permits early elbow movements. Both implants can be passed through ossific nucleus of capitulum without significant risk of damage to it[5].

7. Conclusion

ORIF of neglected Lateral Condyle of humerus fracture gives good - excellent results with CC screw and K wire fixation.

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