Case Report

A rare case of neglected paediatric elbow dislocation treated with open reduction in tertiary care rural hospital of Nepal

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Introduction

Old unreduced dislocation of elbow is rare[1]. However, they remain rather frequent in developing countries, because of the recourse of patients to the traditional medicine.[2] Term 'Unreduced' is defined as those posterior elbow dislocations not treated within 3 weeks of injury.[3] These elbows are fixed in either extension or flexion with only a few degrees of flexion, supination, and pronation, and have a non-functional range of movement for activities of daily living.[3,4] The time since injury and patient age determine the mode of treatment.[5] The likelihood of restoring useful function of the elbow by open reduction alone is inversely proportional to the time since injury.[6] There are many ways to treat chronic dislocation or fracture-dislocation of the elbow, including ORIF, excision arthroplasty, replacement arthroplasty, arthrodesis, and hinged external fixators.[7] There has been considerable disagreement about the impact of such variables as the duration of the untreated dislocation, the age of the patient, the method of repair or reconstruction of the collateral ligaments, the performance of triceps or biceps-lengthening, and postoperative mobilization.[8,9]

Case

Twelve year boy presented with history of fall on out stretched hand 83 days back with complaint of inability to move his right elbow since injury. He had undergone treatment by local bone setters, who splinted the elbow in full extension but his elbow range of motion didn't come and presented to our hospital with stiff elbow. (Fig 1)

Fig 1: *Clinical picture showing right elbow fixed at extension*

On examination

Upper limb was extended at elbow. Three point bony relationship between olecranon tip and medial and lateral epicondyles of humerus was disrupted. The olecranon tip was prominent posteriorly with tenting of the triceps tendon and distal articular surface of humerus could be palpated anteriorly. Joint was tender on palpation. Elbow was fixed in extension (<4 degree of flexion). Distal neurovascular status was intact. Patient didn't have any other illness. On radiological examination, there was posteromedial dislocation of right elbow (Fig 2)

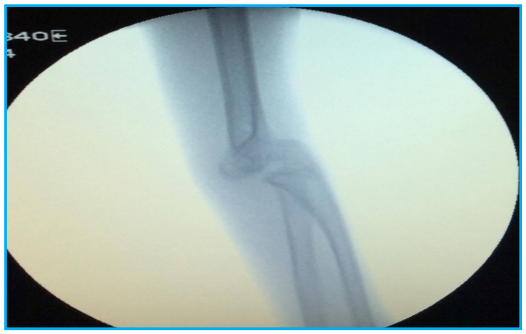

Fig 2: *Preoperative radiograph showing posteriomedial elbow dislocation*

Treatment

After careful evaluation, open reduction done by posterior approach. Triceps tongue made. Fibrous tissues removed, joint thoroughly cleaned with normal saline and joint reduction achieved. Stability ensured by fixing joint with 2.5 mm K-wire in 90 degree of elbow flexion. V-Y plasty of triceps done to decrease contracture. Vacuum suction drain was kept and skin closed by 2-0 prolene. Elbow splinted with above elbow posterior slab. Drain removed on 2nd post- operative day. K wire removed on 14th postoperative day and physiotherapy started then after. Patient followed up up to 6 month and on final follow up his elbow flexion is 110 degree. Radiological assessment at at 4, 12 and 36 weeks showed no signs of resubluxation of joint or myositis ossificans.

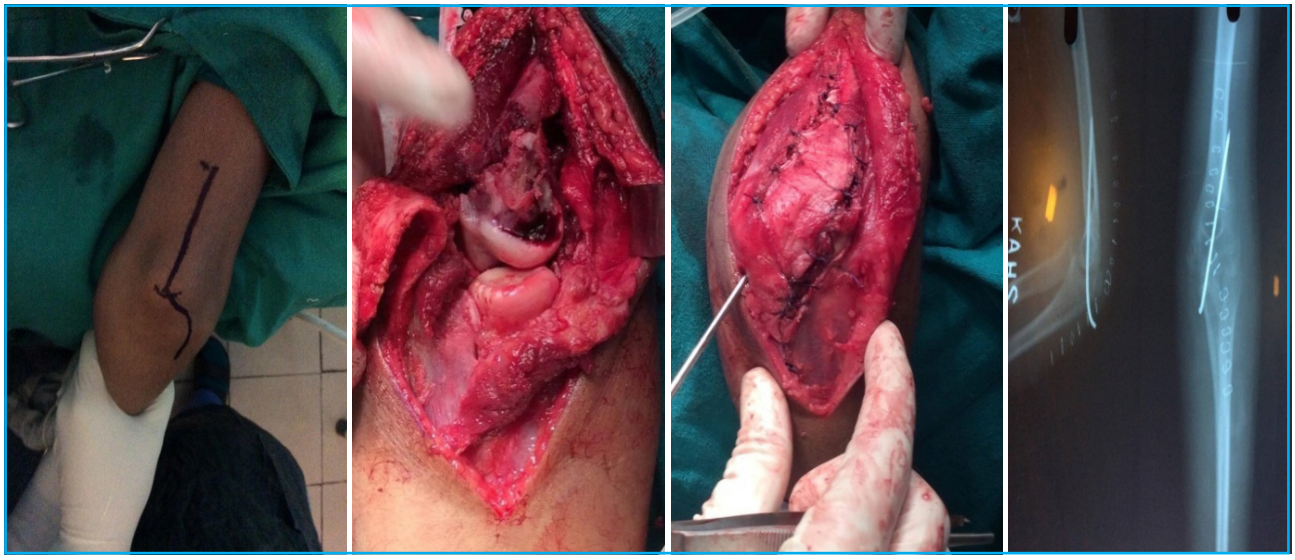

Fig 3-6: *Intraoperative pictures and post-operative radiograph with transolecranon K wire.*

Discussion

Elbow joint is second most commonly dislocated joint after shoulder[10, 11]. Elbow dislocations are classified as posterior, anterior, lateral, medial or divergent depending on ulnar relation to distal humerus. Posteromedial elbow are very rare compared to posterolateral dislocations. Those too old unreduced posteromedial dislocations are less reported. Elbow dislocations are also classified as simple or complex injuries depending on associated fractures around elbow[12]. In present days it is very easy to reach health services therefore the neglected cases of elbow dislocations seen very rarely. But it is common incident found in remote place of developing country like us. The delay of management of patients is often due to the initial recourse to traditional quacks[13]. These bonesetters use massages with forced manipulations and immobilization in extension which not only delays the diagnosis and the treatment, but also led to complications.[14] CT is useful investigation especially to identify minute fractures which will be missed in plain radiographs. In older dislocations too, CT plays important role in identifying malunited fractures and to know articular irregularities. But we dont have the faciltiy of CT scan in our set up and patient need to travel 2 days to get CT scan done. Treatment options for old unreduced elbow dislocation depends mainly on duration of injury, available range of movements and nature of articular surfaces[1,2,5]. Treatment options include conservative management, closed or open reduction, arthrodesis, excisional arthoroplasty or total elbow replacement. Conservative management can be tried if patient has got functional range of movements from 30°-130° with an arc of 100.[15] But in our case elbow was fixed at extension (<4 degree of flexion), so we opted for open reduction. Currently, most authors have agreed that by three to four weeks after dislocation the soft-tissue contractures and localized osteoporosis make closed reduction hazardous, in tha the manipulation may fracture the bone or damage the articular surfaces. Most studies suggest open reduction for elbow dislocation up to 3 months and other studies shows that it can be done till two years[15,13]. In the surgical treatment of these injuries, several technical processes can be used. The

reduction is done followed by transolecranon K wire in most of the cases. Several approaches are used whose choice depends on several elements: age of the injury, initial position of the elbow and the associated injuries. Then, a cleaning of the particular surfaces and the dimples is realized with excision of periarticular osteomas and intra-articular foreign bodies. In cases where the elbow is fixed in extension with retraction of the tricipital tendon, a plastic surgery to lengthen the latter with V-Y technique can be realized by posterior approach. With an older dislocation, open reduction with release of soft tissues and lengthening of the triceps will avoid further injury to bone and cartilage. Most authors have used the V-Y technique described by Speed to lengthen the triceps muscle as we did in our case. In the treatment of neglected elbow dislocations some authors recommend lengthening of the triceps brachialis muscle.[16-18]

Conclusion

An Old unreduced elbow dislocation when properly managed with open reduction and strict postoperative physiotherapy protocol it is possible to achieve good functional elbow. This case also signifies the lack of proper knowledge among patients in developing countries which may lead to bad outcome if not treated in time.

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