

Case Report

Posterolateral Elbow Dislocation with Entrapment of the Medial Epicondyle in 16 Years Boy

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Abstract: Elbow dislocation due to trauma is rare in children with an incidence of only 3% to 6% of all elbow injuries. Pure dislocations are rare and radiological evaluation is must to evaluate carefully for associated injuries, which can include fractures or avulsions of the medial epicondyle, coronoid process, radial head, trochlea and lateral condyle or disruption of the proximal radio-ulnar joint. A 16 years boy came to the casualty department with the history of fall on outstretched hand while playing and diagnosed to have posterolateral elbow dislocation with entrapment of the medial epicondyle in the humeroulnar joint by 3-D CT. Treated with open reduction and internal fixation with cancellous screw with washer. Postoperatively wound healed well, range of motion exercises started two days after the surgery and patient achieved full range of motion by two weeks. Radiologically the fixation was satisfactory and at three months physis was fused to the distal humerus. Elbow dislocations in children are rare. If there is associated type 1 Salter Harris medial epicondyle injury with entrapment in the humeroulnar joint and elbow instability, must be treated with open reduction and internal fixation. Early rehabilitation protocol helps to gain full range of motion.

Keywords: Posterolateral, Elbow dislocation, Entrapment, Medial epicondyle, 3-D CT

INTRODUCTION

Elbow dislocation due to trauma is rare in children with an incidence of only 3% to 6% of all elbow injuries. Pure dislocations are rare. Radiological evaluation is must to evaluate carefully for associated injuries, which can include fractures or avulsions of the medial epicondyle, coronoid process, radial head, trochlea and lateral condyle or disruption of the proximal radio-ulnar joint [1].

CASE REPORT

A 16 years boy came to the casualty department with the history of fall on outstretched hand while playing in the school with a complains of pain, swelling and deformity in the left elbow joint. Examination of the elbow joint show tenderness, swelling and flexion deformity of the elbow with altered three bony point relationships. X-ray examination of the elbow joint revealed posterolateral dislocation with Salter harristype-1 epiphyseal injury of medial epicondyle (Fig 1). Tried for closed reduction and immobilization under sedation, the reduction was not achieved. Patient was further evaluated using 3D CT scan of the elbow joint, it was showing entrapment of the medial epicondyle in the humeroulnar

joint(Fig.2,3,4,5). Patient was again operated by open reduction of the elbow joint with fixation of the medial epicondyle using 3.5 mm cancellous screw with washer (Fig. 6, 7, 8).

Postoperatively wound healed well, range of motion exercises started two days after the surgery and patient achieved full range of motion by two weeks. Radiologically the fixation was satisfactory and at three months physis was fused to the distal humerus.



Fig. 1: Posterolateral elbow dislocation



Fig. 2: 3D CT –Avulsion of medial epicondyle from humerus



Fig. 3: 3D CT-Entrapment of medial epicondyle in the humero-ulnar joint



Fig. 4: CT-Entrapment of medial epicondyle in the humero-ulnar joint



Fig. 5: CT-Entrapment of medial epicondyle in the humero-ulnar joint



Fig. 6: Intra op-Medial epicondyle in situ with guide wire



Fig. 7: Intra op- Medial epicondyle in situ with cancellous screw and repair of flexor apparatus



Fig. 8: Image intensifier showing medial epicondyle fixed with cancellous screw

DISCUSSION

Elbow dislocations in children are rare; most of the dislocations are toward the posterolateral. Closed reduction and immobilization are used for treatment of isolated elbow dislocations. If there is an associated fracture, treatment is determined depending on the position and displacement of the fracture fragment, and depending on whether it is intraarticular or not following the reduction. Medial epicondyle fracture can be found after posterolateral dislocation in children [2].

In adults the medial collateral ligaments usually tears after the dislocation, but in children this ligament can produce a displaced Salter-Harris type I fracture of the medial epicondyle. The epicondyle is small and when displaced it is difficult to see on routine radiographs; it may be overlapped by the distal humeral metaphysis or confused with the ossification centre of the trochlea or olecranon. The treatment of choice for these types of injuries is open reduction and internal fixation in all cases to prevent instability and non union [1, 3].

Hines *et al.* [4] suggested surgical treatment for medial epicondyle fractures with a displacement over 2 mm. Fowles *et al.* [5] reported conservative treatment even in the presence of displacement. Kobayashi *et al.* [6] reported the significance of the size

as well as the degree of displacement of the fragment in epicondyle fractures, also suggested that conservative treatment is indicated for patients, with maximum diameter of bone fragment 13 mm or less or the displacement of the bone fragment is 9 mm or less.

Delay in diagnosis of this injury can occur due to lack of interpretation of the radiographs. There should be high index of suspicion, meticulous assessment of the radiographs with good clinical examination and need for 3-D CT. Elbow dislocations in children should ideally be reduced under general anaesthesia and radiological control to avoid delay in accurate diagnosis.

CONCLUSION

Elbow dislocations in children are rare. If there is associated type 1 Salter Harris medial epicondyle injury with entrapment in the humeroulnar joint and elbow instability, must be treated with open reduction and internal fixation. Early rehabilitation protocol helps to gain full range of motion.

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