

COMPLEX ELBOW DISLOCATION WITH IPSILATERAL SEGMENTAL FRACTURE OF RADIUS AND ULNA IN A YOUNG BOY: A COMPLEX INJURY WITH MULTIPLE FRACTURES

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ABSTRACT

Complex elbow dislocation¹ (fracture of lateral condyle and avulsion fracture of medial epicondyle) with ipsilateral segmental fracture of radius and ulna without distal neurovascular deficit following machinery rolling belt injury in a 14 years boy presenting to emergency room of BP Koirala Institute of Health Sciences, is reported due to its complex nature of injury and good outcome after adequate follow up. The literature is reviewed for complex elbow dislocation to show its rarity.

Key Words: Complex dislocation, elbow joint, segmental fracture.

INTRODUCTION

The case is presented because of its complexity of injury and rarity of incidence. This particular injury occurred due to complex mechanism of twisting of the upper limb in the rolling belt of the beaten rice making machine. This is an injury sustained not because of the usual mechanism of injury that occur in childhood, but because of machinery rolling belt injury. Due to the entrapment of the forearm on the rolling belt segmental fracture of the radius and ulna occurred first, then dislocation of elbow occurred with associated medial epicondyle avulsion fracture and

lateral condyle fracture without compromising the distal neurovascular status.

CASE REPORT

A 14 years old boy from Saptari, a Terai District of Eastern Nepal attended the emergency department of B P Koirala Institute of Health Sciences after 72 hours of injury with severe pain, swelling, blistering and deformity of the left upper limb following entrapment machinery rolling belt injury. On examination, the patient presented without proper splintage of the limb, without pre-hospital

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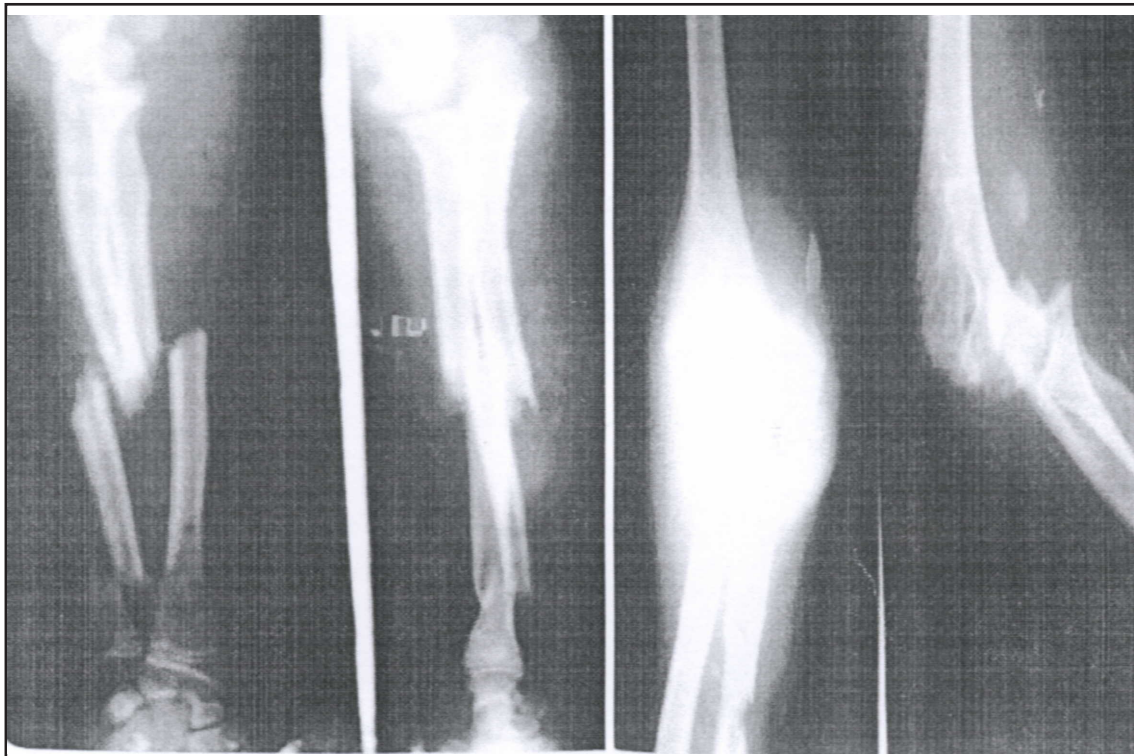


Fig.1&2: Pre-operative radiographs showing segmental fractures and complex fracture dislocation of elbow.



Fig.3: Post operative Radiograph.

management, with huge swelling of the elbow and forearm, multiple blisters over the forearm. Distal neurovascular status was intact. Plain radiographs revealed posterior dislocation of elbow with medial epicondyle fracture with lateral condyle with ipsilateral segmental fracture of radius and ulna. (Fig 1, 2,) At the procedure room of Emergency department, posterior dislocation of elbow was reduced under Brachial Plexus block with anteriorly directing pressure on the forearm at the same time giving counter pressure on the humerus. Check radiograph of the elbow confirmed reduction of the dislocation, in which avulsion fracture of medial epicondyle was also reduced. After 5 days, the displaced segmental fractures of radius and ulna and lateral condyle fracture were reduced and fixed with square nails and K-wires respectively (Fig 3). Surgical intervention was delayed due to poor skin condition of the forearm. A posterior above elbow POP slab in 90 degree flexion was applied for immobilization of the limb. Elbow mobilization was started after 6 weeks with functional forearm cast brace. At 6 months follow up patient had almost full painless active and passive range of movements of the elbow and wrist.

DISCUSSION

Dislocations of the elbow associated with fracture are termed complex; comprise 49% of elbow dislocations; most of these fractures are inherently unstable and require surgery. Prolonged elbow immobilization produces poor results. Surgery must achieve sufficient stability to allow early range of movement.

The most common fractures associated with pediatric elbow dislocations is avulsion of the medial epicondylar apophysis,² though fractures of the radial head^{3,9} lateral condyle of the humerus⁴ Galeazzi fracture dislocation,⁵⁻⁷ coronoid process and radial head^{8,10} have been reported.

Rovinsky et al present a Milch type I lateral condyle fracture associated with a posterior elbow dislocation in a pediatric patient. Previously, Milch type I fractures were thought to be stable injuries due to maintenance of the lateral trochlear rim. Prompt recognition and treatment are essential to avoid complications of this injury and to ensure a good functional result.⁴

Mezzadra et al. describe a rare instance of elbow dislocation associated with Galeazzi fracture-dislocation in a 16 year-old patient injured in a motor vehicle accident. They analyzed the modalities of the trauma, the type of treatment employed, and the result after 2 years.⁵

Nepal et al presented posterior elbow dislocation with Galezzia dislocation because of its rarity in mechanism and incidence of injury. This injury occurred due to two separate impacts occurring sequentially one after the other during the same fall. The case had excellent outcome without neurovascular compromise at adequate follow up.⁶

Bopp et al presented an alternative way of treating the special case of a fracture of the coronoid process combined with comminuted fracture of the proximal end of the radius. A suitable fragment of the head of the radius was used to reconstruct the coronoid process. The stability achieved allows early functional postoperative treatment with a good

range of movement at the elbow joint.⁸

Popovic et al believe that a floating prosthesis may be indicated in Mason type III radial head fractures associated with elbow dislocation, especially in the presence of associated destabilizing fractures. The basic principle of maintaining anatomic and physiologic relationships applies when deciding on treatment for radial head fractures with associated elbow dislocation. The loss of lateral osseous support will render the elbow grossly unstable.⁹

Elbow fracture-dislocations that involve a fracture of the coronoid process in addition to a fracture of the radial head are very unstable and prone to numerous complications. Identification of the coronoid fracture is therefore important. Ring et al recommend operative treatment, by attempting to restore stability by providing radiocapitellar contact (preserving the radial head when possible and replacing it with a prosthesis otherwise), repairing the lateral collateral ligament, and perhaps performing internal fixation of the coronoid fracture.¹⁰

This case of pediatric posterior dislocation associated medial condyle avulsion fracture with lateral condyle fracture with ipsilateral segmental fracture of radius and ulna is presented for its rarity. This is a rare complex type of injury to the forearm and elbow with an unusual mechanism of injury with intact neurovascular status and good outcome with prompt management.

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