

COMBINED MONTEGGIA LESION AND ELBOW DISLOCATION

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ABSTRACT

This case is a 19-year-old soldier who suffered a combined elbow dislocation and posterior Monteggia fracture and dislocation (type II). The ulna fracture was managed by ORIF. The elbow dislocation was managed by closed reduction and immobilization in 90° flexion. The posteriorly dislocated radial head was kept reduced by a transarticular pin. After 6 months elbow and forearm motion was restricted and X-ray revealed heterotopic ossification around the radial head. In further follow up there was no improvement in his range of motion. Treatment of these combined elbow injuries remains challenging.

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INTRODUCTION

Treatment of combined injuries of the elbow remains challenging, in part because of inaccurate definitions of the pattern of injury and also since the specific roles of the component structures contributing to stability have not been fully determined.¹ There is little data specifically addressing combined osseous, articular, and ligamentous injury of the elbow.¹ In particular, the posterior variation of the Monteggia lesion has received much less attention and there are few references in the literature.

CASE REPORT

This case is a nineteen year old soldier whose left forearm became trapped in a washing machine while trying to wash his blanket.

The patient suffered from a swollen elbow and tenderness and pain in his left elbow, forearm and wrist. Neurovascular structures were intact.

Initial X-ray showed a Monteggia fracture with posterior dislocation of the radial head and a volar articular lip fracture of the distal radius (Fig. 1).

After initial assessment, closed reduction of the radial head plus open reduction and internal fixation by

plate and screws for the ulnar fracture were performed.² The volar lip fracture of the distal radius was also treated by open reduction and internal fixation. Then the left upper limb was immobilized in forearm supination and 70° elbow flexion by a plaster splint.²

In control X-ray, it was disclosed that the patient suffers not only a Monteggia lesion (type II), but also a posterior elbow dislocation (Fig. 2). Immobilization of the elbow in 70° flexion to keep the radial head reduced would cause the elbow to dislocate; bringing the elbow to more flexion in order to keep the elbow reduced, caused the radial head to dislocate posteriorly (Fig. 3). Therefore the patient was managed with closed reduction of the elbow joint in 90° flexion of the elbow and the radial head was kept reduced by a transarticular pin under X-ray control and the elbow immobilized in a posterior splint³⁻⁶ (Fig. 4).

After two weeks the transarticular pin was removed and the elbow brought to more extension; by the fourth week immobilization was discontinued.³ The patient was encouraged to actively perform elbow and forearm range of motion exercises.²

Final result after 9 months was: restricted elbow motion from 45 to 100° flexion and restricted forearm rotation from 45° supination to neutral position.¹ X-ray revealed that heterotopic ossification had formed around

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Combined Monteggia Lesion and Elbow Dislocation

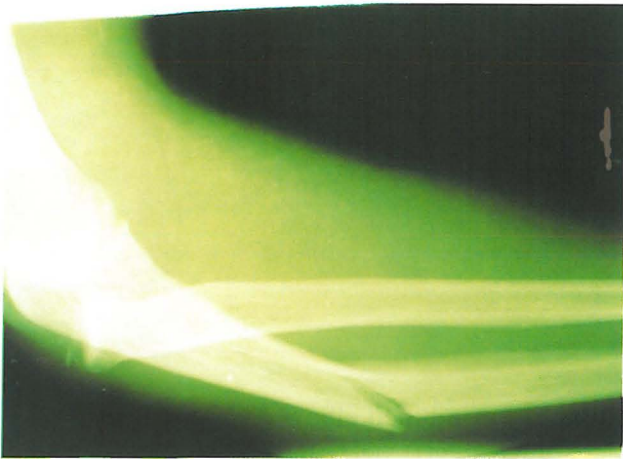


Fig. 1. Initial X-ray presents posterior Monteggia fracture and dislocation.



Fig. 3. Flexing the elbow to maintain reduction of the elbow joint causes the radial head to dislocate.

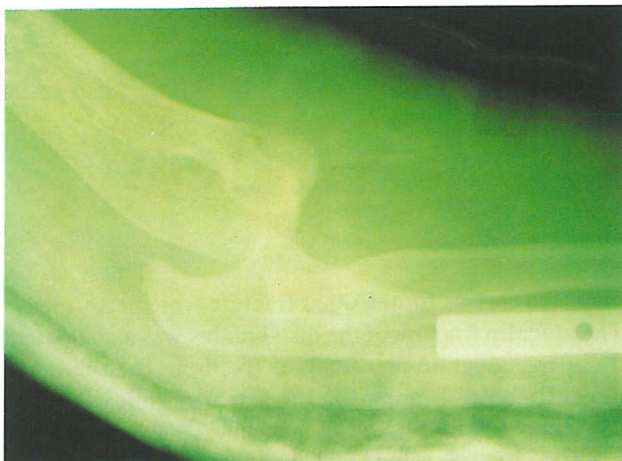


Fig. 2. X-ray reveals elbow dislocation after ORIF accomplished for the ulna. The splint holds the elbow in 70° flexion.

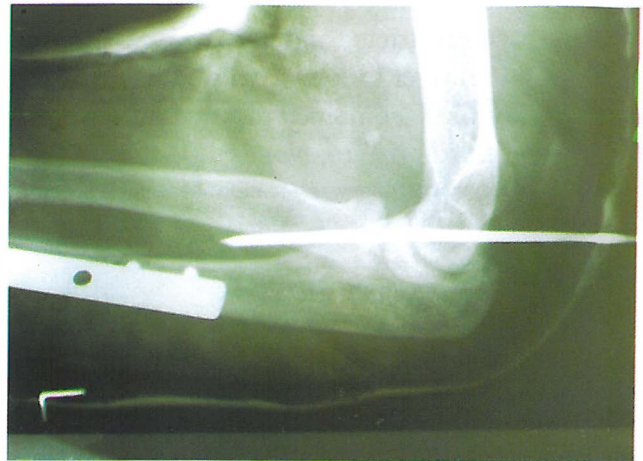


Fig. 4. Radial head reduction stabilized by a transarticular pin.

the radial head¹⁻⁴ (Fig. 5).

DISCUSSION

A spectrum of soft tissue injury, extending from lateral disruption alone to rupture of all of the capsuloligamentous restraints of the elbow can occur with simple dislocation as well as with dislocation associated with fractures.¹⁻⁷

There has been very little discussion of these injuries in the literature, particularly with regard to patterns of injuries, decisions regarding treatment, operative tactics and outcome.¹

It is difficult to utilize internal fixation for radial head dislocation and consider surgical versus non-surgical treatment for ligamentous injuries following dislocation of the elbow joint.⁸ Penrose suggested that the posterior Monteggia lesion (fracture



Fig. 5. Final X-ray with heterotopic ossification around the radial head.

of the ulna with dislocation of the proximal radioul-

nar joint in a posterior direction) is a variant of posterior dislocation of the elbow. According to his opinion, displacement of the radial head posteriorly or posterolaterally is comparable to displacement or a dislocated elbow and it appears that the posterior Monteggia lesion is a simple variation of elbow dislocation in which ligamentous attachments of the elbow prove to be stronger than the shaft of the ulna; the ulnar shaft therefore fractures. In dislocation the reverse is the case.⁹

In this case, it seems that the initiating mechanism to produce this type of injury is forced pronation of the forearm since washing machines rotate in a clockwise direction and the patient's left hand was trapped in it. Due to bone strength, the first part of the injury is a ligamentous injury around the elbow and its severest form results in elbow dislocation.

In continuation of forced pronation after the elbow had been dislocated the ulnar bone was fractured under the radius which acts as a fulcrum.

Therefore, the surgeon who faces a posterior Monteggia fracture and dislocation should bear in mind that there may be other ligamentous injuries around the elbow joint, or even a dislocated elbow. When the entire spectrum of the Monteggia lesion is considered, the re-

sults of treatment are found to be better than combined fracture and dislocations around the elbow.¹⁻³

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