

Injury Extra (2007) 38, 308–311



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## CASE REPORT

## Ipsilateral Galeazzi and Monteggia fracture

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Accepted 27 November 2006

### Introduction

A combined Galeazzi and Monteggia fracture dislocation is very rare and there are few reported cases in the English literature worldwide.<sup>1,4,5</sup> However, the described injuries are not classical of either fracture dislocation. Both in children and in adults the reported literature does not show classical fracture types of either Galeazzi or Monteggia lesion in the same forearm.<sup>1,4,5</sup> Our patient had the classical combination of both Galeazzi and Monteggia fracture in the same forearm. We have described the rare mechanism of injury and management for this injury based on a review of the literature.

### Case report

A 35 years old truck driver met with a head on collision with another truck. He sustained right second to eight rib fractures and tension pneumothorax. Over the left forearm there was a puncture wound over proximal one-third of dorsal ulna and it was volarly angulated. There was loss of radial height and radial head was palpable on the anterior aspect of elbow. There was posterior interosseus nerve palsy. Radiograph of the forearm revealed Galeazzi and Monteggia fracture dislocations in

the same forearm (Figs. 1 and 2A and B). The distal radial fragment was displaced to the ulnar side with an ulna styloid fracture.

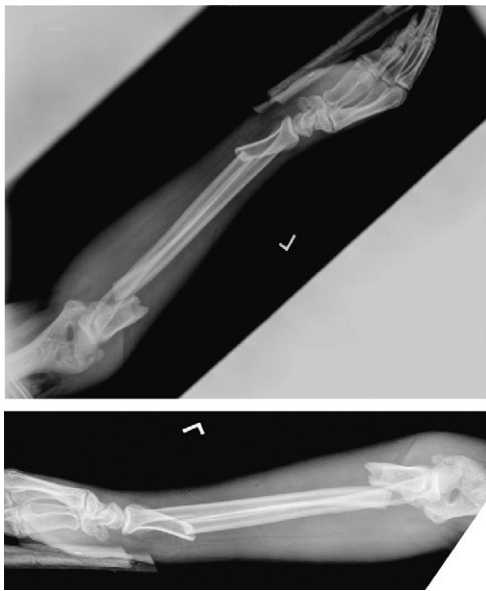
A chest tube was inserted for the right side haemopneumothorax. He underwent open reduction and internal fixation of the proximal ulna and the distal radius with 3.5 mm dynamic compression plates. The dislocated radial head and the distal radioulnar joint reduced spontaneously and were stable. He was immobilized in an above elbow plaster cast in semi-supination and 90° elbow flexion for 6 weeks. Active forearm and elbow physiotherapy was started after plaster cast removal.

Posterior interosseus nerve palsy recovered completely at 6 months (Fig. 3). At 3 years follow-up he had 0–135° of elbow flexion, 90° supination and 80° of pronation (Figs. 4–6). There was union of both radius and ulna (Fig. 7) and no residual pain either in the elbow, forearm or in the wrist. He returned to his occupation comfortably.

### Discussion

The forearm bones are considered as a single functional unit as the pelvic ring and hence isolated fracture of radius or ulna is rare. For every distal radius fracture the distal radioulnar joint should be carefully evaluated to rule out injury to the joint.<sup>2</sup> Our fracture pattern was classical because the Monteggia fracture was Bado type one with the

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**Figure 1** Combined Galeazzi and Monteggia fracture dislocations in the same forearm.



**Figure 3** Recovered posterior interosseus nerve palsy.

radial head palpable anteriorly. The radius was fractured and angulated ulna wards and ulnar styloid was fractured at the base. Loss of radial height and the disruption of triangular fibrocartilage



**Figure 2** (A) Proximal forearm with anteriorly dislocated radial head and fractured ulna. (B) Distal forearm with fractured distal one-third radius and loss of radial height.



**Figure 4** Elbow flexion at 3 years follow-up.

complex suggest instability of distal radioulnar joint as evidenced by the ulna styloid fracture at its base.<sup>6,7,9</sup>

The most common mechanism of injury for combined fracture pattern in the forearm is due to fall with the elbow in extension and the forearm in excessive pronation.<sup>11</sup> However, in our patient the mechanism was due to direct blow to the posterior and dorsoradial aspect of the forearm. The force on posterior forearm fractures the ulna and forces the radial head anteriorly resulting in a Type I Monteggia lesion.<sup>12,13</sup> The direct blow on the dorsoradial aspect as described by Hughston results in the Galeazzi lesion.<sup>3</sup> A direct force causing the fracture is further confirmed by the transverse pattern of fracture in the distal radius and in the proximal ulna.

In children closed reduction and plaster cast treatment was done for this combined injury.<sup>4</sup> However in adults it requires open reduction of both fracture types to obtain satisfactory function.<sup>11</sup> Although 80% of patients with Galeazzi fracture have dislocation of the distal radioulnar joint



**Figure 5** Forearm supination of 90° at 3 years follow-up.



**Figure 6** Forearm pronation of 80° at 3 years follow-up.

evident on clinical and radiographic examination at initial evaluation<sup>6</sup> the rest do not present with obvious dislocation. Other signs of an unstable distal radioulnar joint should be looked for. These include loss of radial height and fracture of ulnar styloid. However, radius fracture within 7.5 cm from the distal radioulnar joint is associated with distal radioulnar joint disruption in 50% of cases and hence requires rigid internal fixation.<sup>10</sup>

Posterior interosseus nerve palsy is present in 11% of Monteggia fractures. It is known to recover within 6 months.<sup>8</sup> This was found to be true in our patient too. This type of injury should be considered a variant of the Essex Lopresti type of fracture since with dislocation of both proximal and distal radioulnar joints and fractures involving both bones there



**Figure 7** Plain radiograph showing union of both bones forearm and reduced proximal and distal radioulnar joints.

will be extensive injury to the interosseus membrane.<sup>14</sup> Judicial immobilization for interosseus membrane healing and for ligamentous healing after rigid immobilization is necessary to prevent stiffness and to obtain a good functional recovery.

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