Bilateral combined Monteggia and Galeazzi fractures: a case report

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Abstract
We present an exceedingly rare case of left Monteggia-Galeazzi fracture-dislocation and right Monteggia-distal radius fracture occurring simultaneously in a 20-year old male patient who had fallen 13 meters from a building. The combination of Monteggia and Galeazzi fracture-dislocation in the same forearm is very rare and, to the best of our knowledge, simultaneous bilateral Monteggia and Galeazzi or distal radius fracture in the same patient, have never been reported.

Keywords: forearm fracture-dislocation, Galeazzi, Monteggia

Introduction
Monteggia and Galeazzi fracture-dislocations are unstable forearm injuries and represent 1%-2% and 3%-4% of forearm fractures, respectively (1,2).

The reported mechanism of injury for Monteggia lesions in children is a fall on outstretched hand in pronated position. In adults, ulnar fractures always display either a transverse comminuted fracture or a fracture with butterfly fragment, both of which suggest a direct blow or bending force rather than torsion, and the mechanism of injury in children.

The mechanism causing a Galeazzi injury is generally believed to be a fall on outstretched hand with hyperpronation (2).

Case report
A 20 - year old college student who fell from a height of 13 meters (the 4th floor of a building) was brought to our hospital a few hours after trauma. He presented with bilateral open forearm fractures (exposed ulnar bone), swollen and deformed elbows and wrists, deformity of left arm and thigh. He presented radial nerve palsy on the left side and scalp laceration. Vital signs and central nervous system were normal.

Radiographic examination (Fig. 1) revealed bilateral ulnar fractures at the junc-
Combined Monteggia-Galeazzi

location in addition to left femoral and left humeral shaft fracture.

Both ulnar open fractures were treated with debridment and intramedullary pin fixation. Closed reduction was performed on both radial heads. The left Galeazzi fracture dislocation reduced and the distal radius fracture was pinned percutaneously (Fig. 2 B). After closed reduction of the right distal radius fracture, percutaneous pin was inserted (Fig. 2A).

Bilateral long arm splint was applied. Three days after the trauma when the patient’s general health had stabilized, open reduction of the humerus fracture with radial nerve exploration was performed. The radial lacerated nerve at the level of the fracture was repaired with open reduction of the femoral fracture.

When the forearm splints were removed after 4 weeks, the left distal radio ulnar joint (DRUJ) seemed unstable and dislocated by forearm supination. Consequently a closed reduction of the DRUJ was performed in the operating room and the ulna pinned to the radius (the pins were removed 6 weeks later). Twelve weeks after the primary trauma the ulnar fracture in the left forearm did not progressed to union as well as that of the right side, Thus plating and bone grafting were performed on the left side.

Six months after the trauma the healing of the fractures was completed and the patient recovered his wrist extension power (Fig. 2). The patient returned to work 9 months after the accident. At the time of the last visit 18 months after trauma, the elbow, forearm, and wrist motion were all evaluated (Table 1).

Left wrist extension, MP extension of the fingers, thumb extension and abduction power were in a good condition (4/5).

Discussion

According to Bado (3), Monteggia lesion includes radiohumeral dislocation associated with fracture of the ulna at any level. Galeazzi fracture is fracture of the distal radial shaft with DRUJ dislocation.
Table 1. Elbow, wrist and forearm range of motion 18 months after trauma.

<table>
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<th>Left</th>
<th>right</th>
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<tbody>
<tr>
<td>Elbow Rom</td>
<td>10 - 130</td>
<td>0 – 130</td>
</tr>
<tr>
<td>Forearm pronation</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Forearm supination</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Wrist flexion</td>
<td>60</td>
<td>70</td>
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<tr>
<td>Wrist extension</td>
<td>65</td>
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Anatomic restoration of the length and alignment to the radius is essential in the management of these injuries (2,8-10). Reduction and stability of the DRUJ are then assessed with forearm rotation; if the reduction is stable the forearm can be immobilized in supination for 4 to 6 weeks (11,12). If, after reduction, the DRUJ is unstable, stabilization of the joint seems necessary. This can be usually performed using open reduction and internal fixation or percutaneous pinning of DRUJ or with ulnar styloid fragment.

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References

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