

Monteggia lesion and ipsilateral humeral supracondylar and distal radial fractures in a young girl

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ABSTRACT

Ipsilateral supracondylar humeral and forearm fractures are uncommon in children. We present an unusual case of a 4-year-old girl with an ipsilateral supracondylar humeral fracture, Monteggia lesion, and distal metaphyseal radial fracture. Our management consisted of closed reduction and immobilization with plaster splint. The patient had an excellent result and full function.

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Monteggia lesions have been associated with fractures of the wrist and the distal forearm. However, most of the so-called floating elbow injuries include a supracondylar humeral and a distal radial fracture.¹⁻⁶ There are few reported cases of ipsilateral supracondylar humeral fracture and a Monteggia lesion in the literature. One of these reported cases also had a distal radial fracture. These unusual lesions depict the importance of critically analyzing the x-rays in elbow injuries of children. Being familiar with such combined injuries will help us to better diagnose and manage these lesions.

Case Report A 4-year-old right-handed girl sustained a left elbow injury following a fall from a one-meter height. Four hours after the trauma she was admitted to the emergency unit. At that time, there was moderate soft tissue swelling of the elbow and

the wrist and a pinpoint wound in the volar aspect of her forearm, but the neurovascular status was normal. Radiographic examination showed an extension-type supracondylar humeral fracture (type II Gartland), ipsilateral type I Monteggia lesion, and an undisplaced distal radial metaphyseal fracture (**Figures 1 & 2**). Antibiotics were administered immediately, and under general anesthesia and after debridement and irrigation of the wound, we performed a gentle closed reduction of the supracondylar fracture, and then the Monteggia lesion was reduced and the quality of reduction was controlled with image intensification. The arm was then splinted in the semi supinated forearm position and 90° elbow flexion. Plain x-rays were obtained that showed acceptable reduction of all lesions (**Figure 3**). She received cefazolin and gentamicin for 5 days, and the body temperature was controlled with serial measurements. The wound dressing was not changed, and the splint was maintained for 5 weeks. The splint condition and its safety were checked at each visit and control x-rays were taken after 3 days and then at weekly intervals for up to 3 weeks. At 5 weeks after injury, immobilization was discontinued and gradual range of motion was started. At 6 months after injury, she was pain free and had a normal elbow and forearm range of motion. The fractures healed in an acceptable alignment (**Figure 4**).

Discussion. Ipsilateral elbow and forearm fractures are called floating elbow injuries and comprise between 4-13% of all childhood elbow fractures.^{2,7} A Monteggia lesion is very rare in this entity. On review of the literature, we found 4 such lesions, with only one of them having concomitant distal radius fracture.⁸ The treatment of that patient consisted of open reduction and internal fixation of supracondylar fracture by k-wires, followed by fixation of ulnar fracture with one 3.5 mm cortical screw and closed reduction of the radial head. The distal radius fracture was undisplaced and was treated by the closed method. Powell⁹ reported a 2-year-old girl with ipsilateral supracondylar humerus and Monteggia lesion that was treated with closed reduction

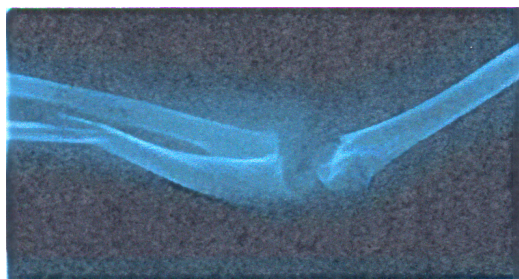


Figure 1 - An extension-type supracondylar humeral fracture (type II Gartland), ipsilateral type I Monteggia lesion.

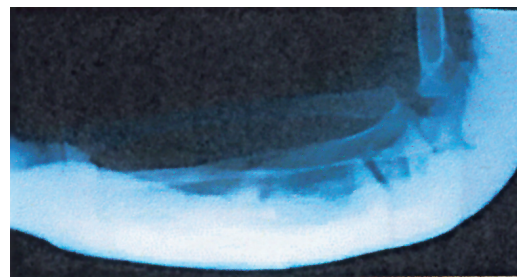


Figure 3 - Acceptable reduction of all lesions.

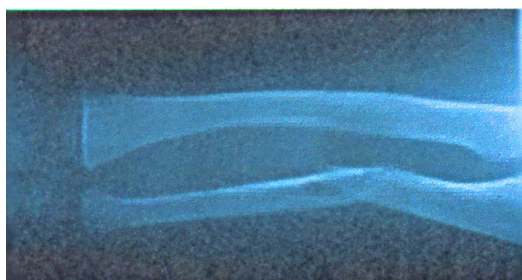


Figure 2 - An undisplaced distal radial metaphyseal fracture.

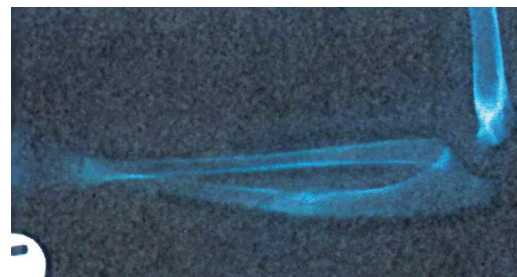


Figure 4 - The fractures healed in acceptable alignment.

and K-wire fixation of both lesions. Menkowitz and Flynn¹⁰ reported a 5-week-old infant that was treated by closed reduction and immobilization. The treatment of the fourth case, which was reported by Wiley and Galey¹¹ was not described in the article. In our case, all lesions were treated by closed methods. The supracondylar humerus fracture was relatively stable and only gentle reduction was performed. Because of this relative stability we decided to treat the Monteggia lesion conservatively. The distal radial fracture was undisplaced, and there was no need to perform any reduction.

In conclusion, although internal fixation of these combination injuries is the logical treatment in most unstable displaced fractures, we suggest that type I and greenstick type II supracondylar humerus fractures associated with Monteggia lesion can be treated by closed manipulation and plaster splint immobilization.

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