

# Combined Monteggia And Galeazzi Fractures In A Child's Forearm

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## Abstract

The Monteggia fracture dislocation and Galeazzi fracture dislocation are well recognized in isolation. The incidence of both of these fractures in the same forearm is rare. Only two other cases have been reported [1,2]. This case report highlights the importance of early diagnosis and treatment of this combined fracture in a multiple trauma patient.

## CASE REPORT

A fifteen-year-old Caucasian female was the front seat passenger in a motor vehicular accident. She presented in a state of hypovolaemic shock due to bilateral femoral fractures and a ruptured spleen. There was also evidence of hypoxic cerebral injury. A dislocated left wrist was noted during resuscitation confirmed radiologically as a Galeazzi fracture.

. Her orthopedic injuries were initially managed conservatively in the ICU because of the severity of her co-existing injuries.

Twelve days post admission, the Monteggia fracture in the left upper limb was diagnosed. The combined fracture (figure 1) was treated by closed reduction and application of an above elbow cast with the forearm in mid-pronation. At a later date internal fixation of the Galeazzi fracture was performed to correct malunion.

## Figure 1

Figure 1



AP and Lateral radiographs of Monteggia and Galeazzi fractures in the same forearm. The resulting deformities were:

- Range of movement of left elbow limited to twenty to ninety degrees of flexion.
- Shortening of left radius, with hand in pronation. Malunion between fractured ends of radius.
- Severe Madelung's deformity of left wrist.

At 1 year follow up, she was found to have 100 degrees of flexion at the elbow, 10 degrees loss of extension, 100 degrees pronation and 45 degrees supination. She complained of no functional deficit and opted not to have corrective surgery.

### DISCUSSION

The postulated mechanism of injury for the combined Monteggia and Galeazzi fracture is a fall on the outstretched hyperpronated forearm. The cases of combined injury previously described resulted from falling backwards on the out-stretched hand<sup>[1]</sup> and falling down a flight of stairs<sup>[2]</sup>. In our case, the Monteggia injury was missed and diagnosed twelve days post-admission. This emphasises the point by Gleeson et al <sup>[3]</sup> who, in a retrospective analysis of 220 forearm fractures in children, showed that 50% of Monteggia fractures were misdiagnosed by the Accident and Emergency Senior House Officers and 25% were misdiagnosed by Senior Radiologist. This shows the need for early review of all cases admitted to the Orthopaedic Unit by the Consultant Surgeon. Early radiographic evaluation is crucial to the diagnosis of these injuries.

In our case the initial treatment of closed reduction was not satisfactory. The patient had limited range of movement at the elbow, with an extension deformity of the proximal ulna of twenty degrees. Though up to ten percent angulation is generally considered acceptable, providing concentric radial head reduction is maintained, Olney et al <sup>[4]</sup> showed that angulation of up to twenty-five degrees to be compatible with full elbow and forearm motion. This degree of deformity generally remodels with time.

Perhaps we achieved such poor results because the forearm was immobilized in mid-pronation. In full pronation, the annular and quadrate ligaments of the proximal radio - ulnar joint become lax, allowing maximal movement of the radial head. Walsh et al <sup>[5]</sup> showed that in supination, the distal radio - ulnar joint is best reduced. Therefore, in this case, the reduction achieved was not stable and may have later slipped within the cast.

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