CASE REPORT

Monteggia fracture dislocation with radial head fracture: The need for early recognition and review of the literature

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Introduction

The Monteggia fracture dislocation was classically described by Giovanni Battista Monteggia as a fracture of the proximal one-third of ulna with an associated radial head dislocation. Later, Bado described the term Monteggia lesion and included four distinct types. Occasionally, we have fracture patterns which do not fall in the classic description of Monteggia lesion and are called Monteggia equivalents or variants. One such injury is Monteggia fracture with an associated fracture of the radial head. There are few reports of such an injury in the literature.

We report the case of a 53-year-old patient with a Monteggia fracture dislocation associated with a radial head fracture, which was treated successfully with excellent outcome at 1-year follow-up. We also highlight the importance of recognising these variants early when dealing with such injuries and a review of the literature.

Case report

A 53-year-old, right-handed gentleman reported to the Accident and Emergency Department following a fall with the elbow in semi-flexed position. The right elbow was swollen and deformed with no demonstrable deficits on neurovascular examination.

Radiographs of the elbow showed a comminuted fracture of the proximal third of the ulna with dislocated radial head (Fig. 1). Radiographs of the ipsilateral wrist were normal. The patient was listed for emergency open reduction and internal fixation of the fracture. A posterior midline approach was used. Intraoperatively, there was a comminuted fracture of the proximal ulna, distal to the coronoid and surprisingly a three-part fracture of the radial head on fluoroscopy, which was not obvious on preoperative radiographs. The radial head fracture was reduced and fixed with three interfragmentary (Omni Tec) screws. The ulnar fracture was reduced and stabilised with a 10-holed one-third tubular plate with two interfragmentary screws. Peroperative use of image intensifier confirmed proper reduction of dislocation and the fracture (Fig. 2). Postoperatively, the limb was immobilised in a long...
arm cast and the elbow mobilised after 4 weeks. No complications of wound healing or infection were noted.

Follow-up radiographs (Fig. 3) showed satisfactory evidence of fracture healing and at the latest follow-up 1 year after injury, he demonstrated 5°—135° of flexion at the elbow with full pronation and supination.

Discussion

Although the incidence of Monteggia fracture dislocation is less than 5% of all forearm fractures,1 they are potentially complex injuries to diagnose and manage. Giovanni Battista Monteggia initially described this in 18141,8,6 as a fracture of the proximal third of ulna and a concomitant anterior dislocation of the radial head. Bado1 has further broadened the original description of the Monteggia lesion to include any fracture of the ulna with an associated disruption of the radio-humeral articulation.4 There have also been reports of unusual variants of Monteggia fracture in the literature.9,3 Monteggia fractures associated with radial head fracture are usually encountered with Bado Type II.10 Ring et al.10 reported radial head fractures in 26 of the 38 patients with Bado type II Monteggia fracture dislocations. Similarly, Jupiter et al.5 reported 10 radial head fractures in 13 patients with posterior Monteggia fracture dislocations in patients with an average age of 56 years.

Treatment of associated radial head fracture remains the most challenging elements in treating these injuries.10 The key to success is early diagnosis, accurate reduction, stable fixation and early mobilisation. Radial head fractures associated with Monteggia fractures could be treated by open reduction and internal fixation, partial or complete excision of the radial head and/or prosthetic replacement.5,10
In the series by Ring et al.\textsuperscript{10} consisting of 26 patients, 12 patients had their radial head excised (partial or complete) with insertion of silicon prosthesis in two. Ten had internal fixation and the rest four did not have any surgical intervention. In the study of 13 patients by Jupiter et al.,\textsuperscript{5} three patients had open reduction and internal fixation, one had a replacement and seven had radial head excision. They concluded that incomplete reduction of ulnar fracture with residual posterior radiocapitellar subluxation was a cause of loss of forearm supination. Palarick\textsuperscript{7} suggested that primary resection must be avoided while treating radial head fractures in such injuries.

Though it is not difficult to diagnose Monteggia fractures, failure to recognise an associated radial head fracture may lead to problems with preoperative planning and consenting for additional procedures involving the radial head. Preoperative diagnosis and awareness is quite important so that the patient could be forewarned and consented for a possible radial head excision and/or prosthetic replacement. Also, this helps to ensure availability of proper implants and prosthesis before operating on such injuries, especially in emergency theatres.

In our case, the radial head fracture was not evident on the preoperative radiographs. Unfortunately, the plain radiographs without plaster were not of good quality due to poor patient positioning because of pain. The radiographs repeated in plaster could have masked the fracture. Emphasis is, therefore, laid to obtain adequate radiographs before contemplating on surgical intervention in these patients. Also, good quality intraoperative fluoroscopic images could help identify such undiagnosed injuries.

The fracture dislocation was successfully treated operatively and the radial head fracture fixed with interfragmentary screws preserving the joint integrity. The ulnar fracture was stabilised with a tubular plate, though the authors agree that a dynamic compression plate would have been the ideal implant. The limb was immobilised in plaster for 4 weeks because of the comminuted nature of the ulnar fracture and associated radial head fracture. At follow-up, the patient has regained almost full functional recovery of his elbow and is able to get back to his original occupation.

This case report illustrates the successful operative treatment of such an injury with excellent results and also reiterates the importance of holding a high index of suspicion of a possible radial head fracture in Monteggia fracture dislocations.

References