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CASE REPORT

Distal humerus lateral condyle fracture and Monteggia lesion in a 3-year old child : A case report

Rupen DATTANI, Surendra PATNAIK, Avdhoot KANTAK, Mohan LAL

From East Surrey Hospital, Surrey, United Kingdom

We describe a case of a Monteggia fracture dislocation and an ipsilateral lateral humeral condyle fracture in a 3-year-old child. This is a rare combination of injuries with no previously reported cases in the literature. This case emphasises that when a fracture is detected around an elbow there should be a high index of suspicion for other injuries in the region.

Keywords : Monteggia fracture dislocation ; fracture of the humeral condyle ; elbow dislocation ; humerus fracture.

CASE REPORT

A 3-year-old boy presented to the emergency department following a fall from a height onto his outstretched left hand. On examination, the elbow was swollen and deformed with no neurological or vascular compromise. Plain radiographs showed a lateral dislocation of the radial head along with a fracture of the proximal ulna (Bado Type III lesion) and an associated undisplaced fracture of the lateral humeral condyle (Milch Type II injury) (fig 1). Under general anaesthesia, closed reduction of the radial head was achieved (fig 2). The lateral condyle fracture remained undisplaced. The elbow was immobilised in a splint for 4 weeks after which routine mobilisation was commenced. Six months post surgery, there was a full range of elbow, forearm and wrist movements. Radiographs revealed the ulna and lateral condyle fractures had healed.

DISCUSSION

Lateral condyle physeal fractures comprise 17% of all paediatric distal humerus fractures with a peak incidence at 6 years of age (*8*). The mechanism of injury is either an avulsion by the pull of the common extensor origin owing to a varus stress exerted on the extended elbow ('pull off' theory) or a fall onto an extended upper extremity resulting in an axial load transmitted through the forearm, causing the radial head to impinge on the lateral head ('push off' theory) (*2*). Milch classified these fractures into two types (*12*). In type I injuries, the fracture line courses lateral to the trochlea and into the capitello-trochlear groove representing a Salter-Harris type IV fracture : the elbow is usually stable because the trochlea is intact. In type II injuries, the fracture line extends into the apex of the trochlea, representing a Salter Harris type II fracture : the elbow can be unstable because the trochlea is disrupted.

■ Rupen Dattani, MRCS, Specialist Registrar.
■ Surendra Patnaik, MRCS, Clinical Fellow.
■ Avdhoot Kantak, MRCS, Trust Registrar.
■ Mohan Lal, FRCS, Consultant.
East Surrey Hospital, Redhill, Surrey United Kingdom.
Correspondence : Mr R. Dattani, East Surrey Hospital, Redhill, Surrey, UK. E-mail : rupendattani@hotmail.com

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Fig. 1. — Lateral (a) and anteroposterior (b) radiographs of the elbow showing a disruption of the radiocapitellar articulation and a minimally displaced fracture of the proximal ulna in keeping with a Monteggia type injury. On the lateral view, an undisplaced lateral condyle fracture can be seen.

Intraoperatively, the stability of the fracture can be determined by varus and valgus stress radiography. If displacement occurs on stressing, then the cartilaginous hinge is not intact and the fracture is deemed unstable and will require operative stabilisation (*9*). Minimally displaced fractures (< 2 mm) can be treated with casting (*4, 5*) and if close observation is not possible then percutaneous pinning is advocated (*7*). Although all displaced fractures should be treated with internal fixation (*6*), operative stabilisation should be performed judiciously as over-treating these injuries can result in non-union and avascular necrosis (*3, 13*).

The Monteggia lesion is defined as fracture of the proximal ulna accompanied with dislocation of the proximal radioulnar joint (*1*). This is a rare phenomenon accounting for less than 2% of all paediatric forearm fractures (*1*). The mechanism of injury is usually hyperextension and occasionally hyperpronation of the elbow joint (*14*). Bado described four variants of the Monteggia lesion based on the direction of proximal radial displacement in conjunction with a proximal ulna fracture (*1*). In type I, the dislocation is anterior, in type II posterior, in type III lateral and in type IV there is a fracture of both bones of the forearm with dislocation of the radial head. The fracture of the ulna can vary from plastic deformation to a complete fracture located anywhere along the shaft (*10*). The primary treatment aim is reposition of the radial head dislocation which can usually be achieved by closed reduction. Immobilisation is recommended until the ulna fracture has united which, depending on the child's age generally takes between 3-6 weeks (*1*).

Due to the mechanism of injury being a fall onto an outstretched hand, Monteggia lesions often are

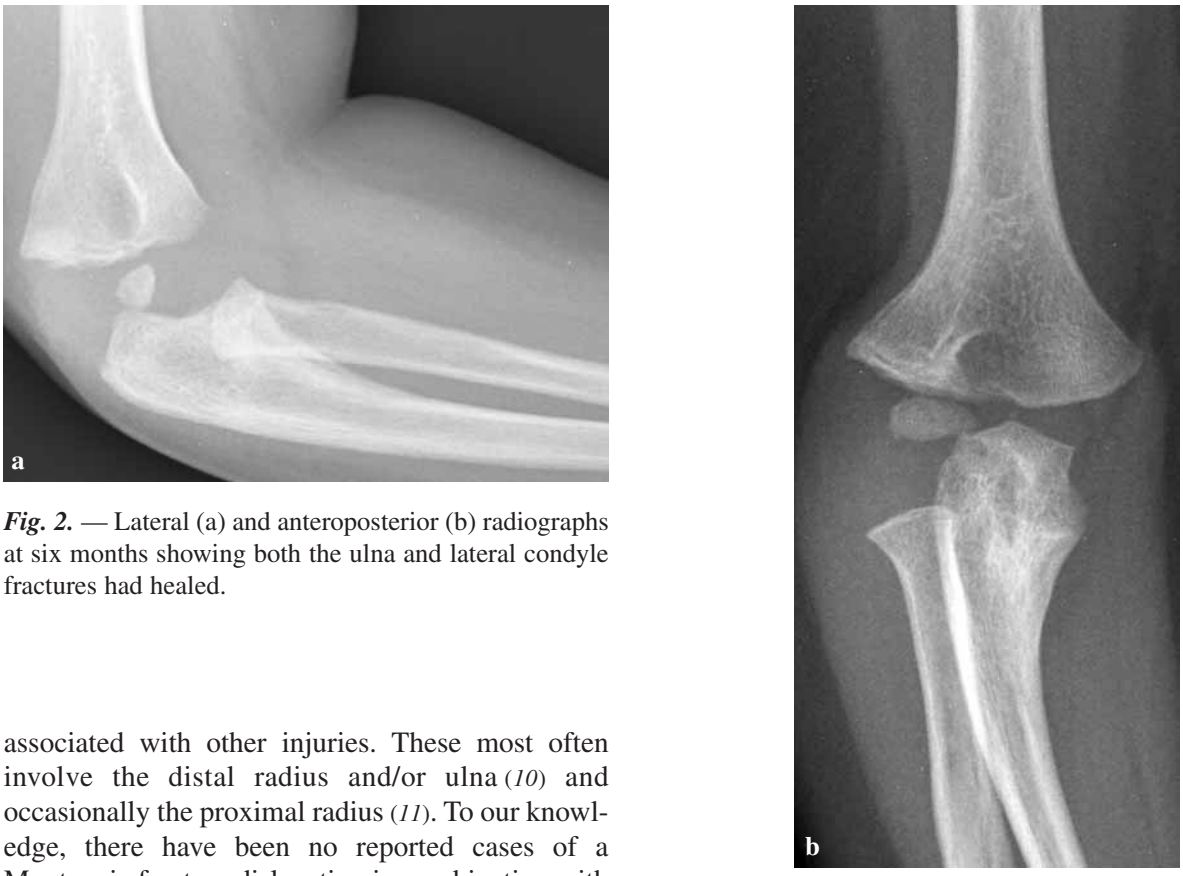

Fig. 2. — Lateral (a) and anteroposterior (b) radiographs at six months showing both the ulna and lateral condyle fractures had healed.

associated with other injuries. These most often involve the distal radius and/or ulna (*10*) and occasionally the proximal radius (*11*). To our knowledge, there have been no reported cases of a Monteggia fracture dislocation in combination with a lateral humeral condyle fracture. This rare injury is most likely to have occurred due to a fall onto the outstretched hand with the elbow hyperextended, resulting in a Monteggia lesion and with continued axial load causing the radial head to fracture the lateral condyle. In this case, the radial head dislocation was relocated by closed reduction. Stress radiography revealed the lateral condyle fracture to be stable thus, closed treatment with splinting was employed and resulted in an uneventful outcome.

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