

Ipsilateral Radial Head Dislocation and Radial Shaft Fracture in a Child-A Case Report

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What to Learn from this Article?

Rare Combination of Injury with Management.

Abstract

Introduction: Traumatic dislocation of the radial head in paediatric population is a well described injury, it is usually associated with an injury to the ulna in the Monteggia lesion (1), but can occur as an isolated injury also (2,3).

Case Report: A 4.5 year old girl presented to emergency department with her right upper limb held in pronation and flexion following isolated closed injury. Roentgenograms showed oblique fracture of the radial shaft and dislocation of radial head. She underwent nailing of the radial shaft and open reduction of the radial head. After 4 months, the fracture healed fully and she had full range of elbow movements.

Conclusion: Ipsilateral radial head dislocation and radial shaft fracture is extremely rare injury in a child. A good outcome can be achieved by applying principles of management of proximal forearm fracture-dislocation.

Keywords: Radius, Shaft, ipsilateral, radial head, child.

Introduction

Traumatic dislocation of the radial head in the paediatric population is a well described injury, it is usually associated with an injury to the ulna in the Monteggia lesion (1), but can occur as an isolated injury (2,3). Acute dislocation of the radial head with ipsilateral radial shaft fracture has been reported in adults (4-7) but never, to our knowledge, in children (8). We report such a case in a four and a half year old child.

Case Report

A four and a half year old, right hand dominant girl presented to our emergency department one hour after an injury to her right

upper limb where a "Metallic Garden Ornament" fell on her right elbow, witnessed by her mother.

The child was taken to theatre and an attempted closed reduction of the radial diaphysis failed, a Titanium Elastic Nailing System (TENS) nail was passed from distal radius but the fracture could not be reduced. Open reduction of the radial shaft via a Henry's approach revealed that the proximal fragment has penetrated through the flexor muscles. The reduction of the fracture fragments was achieved and the nail was negotiated proximally.

Intra-operative screening showed that the radial head was still not reduced (Fig 3 & 4) and trials of different maneuvers failed

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Author's Photo Gallery



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Figure 1: Lateral X-Rays on initial presentation.



Figure 2: Anteroposterior X-ray on initial Presentation.



Figure 3: Lateral X-ray before radial head reduction.

to reduce the radial head. The exposure of radial head through a separate lateral Kocher's incision revealed a tear of the annular ligament and the anterior joint capsule with interposition of the capsule between the radial head and the capitellum. The radial head was reduced and a direct repair of the capsule and the annular ligament was done. Examination after that showed that the radial head was stable in supination during the full arch of sagittal range of motion.



Figure 4: Lateral x-ray after radial head reduction.



Figure 5: X-Rays at 4 months showing healed fracture and reduced radial head.

The limb was immobilized in an above elbow cast in 90 degrees of flexion and full supination. After 4 weeks, the cast was removed and X-rays done showed consolidation of the fracture. The radial head was stable and gentle range of motion exercises were commenced. At 4 months after the surgery, the fracture was fully healed, Fig. (5), and full range of motion was achieved.

Discussion

It has been explained that traumatic radial head dislocation occurs due to hyper-pronation injury with sequential disruption of the annular ligament, quadrate ligament and the interosseous membrane(9). A few authors have reported ipsilateral radial shaft fracture with radial head dislocation in adults (4,5) and thought that the fracture preceded the

dislocation. A similar case has been reported with a clear mechanism of injury of a fall on a pronated forearm and thus postulated that the dislocation happened first and a lateral or supinating deforming force would have caused the radial diaphyseal fracture at the most distal level of interosseous membrane injury(6).

Congenital dislocation of the radial head could have been a possible explanation for this type of injury in children (8) but In this patient, the contra-lateral side was normal and the intra-operative findings of haemarthrosis and damage to the soft tissue complex suggest an acute injury rather than congenital.

Conclusion

Up to our knowledge, this is the first reported case of such an unusual complex injury in a child. A good clinical outcome was achieved by applying the principles of management of proximal forearm fracture-dislocation.

Clinical Message

Though Ipsilateral radial head dislocation with radial shaft fracture is a rare entity, high index of clinical suspicion and urgent management by applying basic fracture dislocation principles can give outstanding results.

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