Scaphoid fracture associated with distal radius fracture in children: a case report

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The forearm distal bone fracture is the most common fracture in children. Scaphoid fracture is rare because the scaphoid is largely cartilaginous in children. Some cases associating both distal radius and scaphoid fractures were reported in the literature. Scaphoid fracture often occurs without displacement and can be easily overlooked. We reported a case of children wrist injury combining scaphoid fracture with ipsilateral distal fracture.

CASE REPORT

A 14-year-old boy was seen in the emergency department of our hospital after sustaining a sport-related fall on his outstretched right hand. The patient complained of pain and deformity of the wrist. Clinical examination revealed swelling on the dorsum of wrist. The neurovascular status was normal.

The roentgenograms of the wrist revealed displaced Salter-Harris type II distal radius fracture associated with an ipsilateral undisplated transverse midscaphoid fracture (Fig. 1). Immediate reduction of radius fracture was performed under general anaesthesia by gentle closed manipulation to avoid the displacement of scaphoid fracture. The wrist was immobilized in a long-arm thumb spica cast for 11 weeks. In seven months follow-up, his wrist had a full range of motion without symptoms, and the fracture bone was strengthened in good position (Fig. 2).

DISCUSSION

Although distal radius fractures have been considered as a common fracture in children, scaphoid fractures are rare in the same age 1-3 and constitute about 0.4% of all pediatric fractures.1, 4, 5 The combination of distal radius and ipsilateral scaphoid fractures in children is remarkably rare and only a few cases have been reported.5-10 Compson11 reported three cases of transcarpal injuries associated with an ipsilateral distal radius fracture in children, including two cases of simul-
taneous fracture of the scaphoid and the capitate and one case of scaphoid and triquetrum fracture.

In children aged from 5-15 years, the scaphoid is a cartilaginous mass surrounding ossific nucleus. The thick layer of cartilage surrounding the ossification center provides a cushion-effect against fractures, so scaphoid fractures in children require a great causal force. The scaphoid fracture is the most common carpal fracture in children with a peak incidence between the ages of 12-15 years. Ligamentous and cartilaginous structures of the children’s wrist offer a relative resistance, the impact force being delivered to the distal radius which is more prone to injury. Unlike scaphoid fractures in adults, paediatric scaphoid fractures involve the distal pole in 59% to 87% of cases, the middle pole in 12% to 36%, and the proximal pole in 0 to 2%. This type of combined injuries is often reported in children over ten years, probably because the scaphoid is less cartilaginous and the line of the scaphoid fracture is clearly visible.

In this case, the association of scaphoid fracture and distal radius fracture with posterior displacement happened from a fall on the palm of an outstretched hand with the wrist fixed in dorsiflexion. The diagnosis was confirmed by X-ray and fractures were seen in the same view. If scaphoid fracture did not show up on an X-ray but was still suspected, further immobilization is recommended until MRI or CT scan confirms or rules out this possibility. In such associated injury, the important particularity is to be careful in the initial management. During the manipulation of the distal radial fracture, the risk is the displacement of the initially nondisplaced scaphoid fracture.

Wise reduction by brief vertical traction on the extremity only lasts for two or three minutes, while the manipulation of distal radius is performed. The traction apparently does not interfere scaphoid healing. Immobilization in a long-arm thumb cast for three months is necessary for the treatment of such injuries. The scaphoid fractures being sufficiently immobilized in a cast have a very low non-union rate and scaphoid non-union in children is reported to be 0 to 3% in large series. This rare complication has been seen in patients who have insufficient treatment as well as in those patients whose scaphoid fracture is overlooked. The diagnosis is made when scaphoid pseudarthrosis is observed.

In conclusion, if a child presents a distal radius fracture, associated carpal injury should be recognized especially in great external force. The diagnosis of simultaneous displaced distal radius and scaphoid fractures leads to adequate treatment and a satisfactory clinical result.

REFERENCES


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