ENTRAPMENT OF EXTENSOR TENDONS IN A SMITH'S FRACTURE: BRIEF REPORT

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Although entrapment of the extensor pollicis longus tendon in association with a Smith's fracture has been reported previously, a search of the literature has failed to reveal a case in which all the extensor tendons have been entrapped. We describe such a case, the entrapment only being recognised at operation. Pre-operative diagnosis would have eased the surgical procedure considerably.

Case report. A 13-year-old girl fell from her bicycle suffering a Salter type II Smith's fracture of the left radius with an associated fracture of the ulna (Figs 1 and 2). She was unable to extend her fingers actively but it was assumed that this was due to pain from the fracture.

Fig. 1

Fig. 2

A closed manipulation was performed but check radiographs showed that a satisfactory reduction had not been achieved. A further manipulation also failed and the fracture was therefore exposed through a ventral

incision, reduced and fixed with K-wires. A radiograph taken in the operating theatre again showed failure of reduction. A dorsal incision was then made to exclude soft tissue interposition.

The extensor retinaculum was found to be disrupted and the extensor tendons had passed through the torn interosseus membrane from the dorsal to the ventral aspect of the wrist at the level of the fracture. The tendons were freed and the fracture fixed with two cortical screws. The patient subsequently made an uncomplicated recovery.

Discussion. In two of the three reported cases of entrapment of the extensor pollicis longus tendon in association with a fracture of the distal radius the diagnosis was only made some weeks after the injury when the patients returned with inability to extend the flexed thumb (Hunt 1969; Murakami and Todani 1981; Morrissey and Nalebuff 1977). There was similar delay in our case.

It is believed that a Smith's fracture results from forced over-pronation (Evans 1951). The mechanism of entrapment of the extensor pollicis longus tendon was described by Hunt (1969), who postulated that at the instant of fracture the proximal fragment emerges between extensor pollicis brevis and extensor pollicis longus. Subsequent supination of the proximal fragment carries the tendon towards the ulna and dislocation of the tendon into the fracture results in its entrapment. It is likely that a similar but more violent sequence of events might cause entrapment of not only the extensor pollicis longus but also the extensor digitorum tendons.

Inability to extend the thumb or fingers following a Smith's fracture should alert the surgeon to the possibility of tendon entrapment and exploration of the fracture through a dorsal approach may be necessary.

REFERENCES

- Evans EM. Fractures of the radius and ulna. *J Bone Joint Surg [Br]* 1951;33-B:548-61.
- Hunt DD. Dislocation of the extensor pollicis longus tendon in Smith's fracture of the radius: a case report. *J Bone Joint Surg [Am]* 1969;51-A:991-4.
- Murakami Y, Todani K. Traumatic entrapment of the extensor pollicis longus tendon in Smith's fracture of the radius: case report. *J Hand Surg* 1981;6:238-40.
- Morrissey RT, Nalebuff EA. Distal radial fracture with tendon entrapment: a case report. *Clin Orthop* 1977;124:205-8.

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