Entrapment of the flexor digitorum profundus tendon is a rarely reported complication after distal radius fractures. Extensor tendon entrapment and ruptures are more frequently reported; this complication could be minimized by anatomic reduction, careful examination, and rehabilitation; even so, bony entrapment can occur and requires surgical release. We present a rare case of flexor entrapment in a young boy after an accidental fall.

**CASE REPORT**

A 17-year-old boy suffered a closed extra-articular dorsally displaced distal radial fracture during a soccer game after a low-energy trauma (Figs. 1, 2); a closed reduction and percutaneous pinning with 1.4 mm Kirschner wire was performed. Radiography at 1 month revealed bone consolidation with a light osteopenia (Fig. 3), but no signs or symptoms of complex regional pain syndrome were referred.

A short arm cast was used during 4 weeks; after removal of the cast, a 2-month course of rehabilitation was started, but the patient referred painful restriction of ring and little fingers’ flexion at the metacarpophalangeal (MP) joint and restriction of ring and little fingers’ extension at the proximal interphalangeal (PIP) joint. On examination, total active motion (TAM) of the 2 digits was, respectively, 10° and 20° at MPs and 30° and 40° at PIPs; TAM of the wrist was 20° and full pronosupination.

Rehabilitation failed to solve the problem, and after 2 months, surgical exploration was decided, revealing an entrapment of the ring and little flexor digitorum profundus in a normal sized bony callus at the site of the fracture (Fig. 4); the bony callus was trimmed down and the tendons were freed; lateral tenodesis of the affected and attenuated ring and little flexor digitorum profundus to the middle flexor digitorum profundus was performed.

Postoperatively, the patient was immediately started on active and passive range of motion exercises to prevent adhesion formation. One month postoperatively, the patient had full active range of motion of fingers and wrist: TAM of the 2 involved digits was finally 90° and 100° at MPs and 90° and 100° at PIPs; TAM of the wrist was 130°.

**DISCUSSION**

The reported rate of tendon entrapment in acute distal radius fractures is 1.3%. Extensor tendon entrapment in palmarly displaced fractures is more common.

Flexor digitorum profundus tendon entrapment is a rarer reported complication after distal radius fractures; it is more frequently reported after distal forearm fractures, and possible etiologies include...
Fig. 1. Anteroposterior preoperative radiography.

Fig. 2. Lateral preoperative radiography.

Fig. 3. One month postoperative radiography.
fibrosis secondary to hemorrhage at the fracture site and simple entrapment of the muscle belly.1,5,6

Other known complications of the closed reduction of forearm fractures include malunion, refracture, heterotropic ossification, neurovascular insult, compartment syndrome, infection, and soft tissue/nerve entrapment.5,6

Tethering of the flexor digitorum profundus and fibrotic scar tissue interposed at the fracture site4 should be imagined at the time of revision after cast removal if no full range of motion is obtained; furthermore, a persistent cortical defect after fracture healing should raise a suspicion: in our case, an overlap of volar cortices is observed in postoperative lateral radiography (Fig. 3).

According to our experience, this complication could be minimized by anatomic reduction, careful examination, and rehabilitation; even so, bony entrapment can occur and usually requires surgical release.

After release, if the flexor tendons are frayed and penetrated by spikes of bones, as in our case, lateral tenodesis to healthy and uninvolved flexor tendons is advisable rather than a low-quality direct tenorrhaphy, to allow immediate active rehabilitation.

In conclusion, this is a rare complication difficult to diagnose early during fracture healing; surgical treatment is the first choice, and good results can be obtained.

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