Simultaneous, bilateral fracture of the triquetral bone

Bo Jan Noordman,1,2 Klaas Albert Hartholt,2 Jens Anthony Halm2

DESCRIPTION
A 50-year-old man fell on both outstretched hands, after jumping from a 2 m high fence. He supported his entire body weight on both palms. Immediately after the injury, he experienced mild pain, moderate limitation of movement and slight swelling of both wrists. Presentation to our emergency department occurred 8 h after the injury. The patient reported pain on the dorsoulnar side of both wrists. Examination of the wrists revealed swelling and tenderness immediately distal to the ulnar styloid, on the dorsum of the wrists. Motion of both wrists was limited, both actively as well as passively. Flexor carpi ulnaris, ulnar artery and ulnar nerve functions were intact. No joint pain or joint effusion of the distal radius and anatomical snuff-box was found. Although a contusion of both wrists seemed to be most probable, plain X-rays were performed.

X-rays of the wrists were suggestive for bilateral, minimally displaced fractures of the dorsal cortices of the triquetral bone (figure 1). A bilateral CT of the wrists confirmed the diagnosis and ruled out additional carpal injuries (figure 2). Both wrists were immobilised in removable short-arm casts, and the patient was encouraged to exercise the wrists within pain limits. The casts were removed after 4 weeks. The movement of both wrists had normalised without physiotherapy, no carpal instability was found, and the patient was pain free and without any complications after a period of 5 weeks.

Fracture of the triquetrum is the second most common carpal bone fracture, accounting for up to 3.5% of all wrist injuries.1 These fractures are frequently associated with other carpal injuries. The exact incidence of isolated fractures of the triquetral bone is unknown, since they are often not diagnosed or misdiagnosed as wrist sprain. Triquetral fractures can be classified into three types: cortical dorsal avulsion (>90%), cortical palmar and body.1 The fracture mechanisms remain controversial. Two theories are generally accepted: first, ulnocarpal impaction resulting in a fracture, and second, ligament avulsion-type fracture.2 Ligaments inserted at the dorsum of the triquetrum consist of intrinsic (dorsal intercarpal) and extrinsic (dorsal ulnotriquetral and dorsal radiocarpal) ligaments.3 Recently, an association was found between dorsal fractures of the triquetrum and dorsal carpal ligament injury, using MRI.1 Treatment of dorsal triquetral chip fractures consists of pain relief by short-arm cast immobilisation for 3–6 weeks. There is no indication for surgery, and due to the rich vascular supply, avascular necrosis is an extremely rare complication. If ulnar-sided pain after fracture union persists, triangular fibrocartilage complex injury should be considered as a possible cause of the lack of response to treatment. In such cases, partial resection of the triangular fibrocartilage complex is an effective treatment.3

The trauma mechanism and the quick and complete recovery of the patient suggest that ulnocarpal impaction was the cause of bilateral triquetral fracture in the presented case. Furthermore, this case illustrates that an isolated triquetral fracture can present with mild pain only. It is conceivable that this could have been misdiagnosed as a wrist sprain and the patient would have been discharged without further investigation. In the current case, diagnosis was complicated by the fact that there was a bilateral fracture. This could easily lead to the assumption of bilateral contusion, given the small chance of a bilateral triquetral fracture and the impossibility of clinical comparison of the two wrists to come to a diagnosis. Misdiagnosis of the injury might have resulted in non-union and chronic pain. To the best of our knowledge, this is the first case in which a bilateral triquetral fracture in a single accident is reported. Prudent investigation of wrists after falls on outstretched hands may reveal fractures of the triquetrum that require immobilisation, sometimes even of both wrists!

Figure 1  X-rays of both wrists suggestive for fractures of the dorsal cortices of the right (R) and left (L) triquetral bones (arrows).

Figure 2  CT scan showing the dorsal chip fractures right (R) and left (L, arrows).
Learning points

▸ An isolated triquetral fracture can present with mild pain only and this can be misdiagnosed as a wrist sprain.
▸ Prudent investigation of wrists after falls on outstretched hands may reveal fractures of the triquetrum that require immobilisation, sometimes even of both wrists.

Contributors BJN and KAH drafted the manuscript. JAH critically revised the manuscript.

Competing interests None declared.

REFERENCES