Case Report

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A rare case of an isolated triquetrum body fracture in a 14-year-old boy

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ABSTRACT

Isolated carpal fractures are uncommon injuries usually caused by a fall on the outstretched hand. The patient might present with non-specific clinical signs and X-ray diagnosis might be difficult due to bone overlay. An isolated triquetrum body fracture is an absolute rarity. The treatment is easy and the outcome excellent but if missed, degenerative changes with chronic pain and impaired movement might be the consequence.

Key words: Carpal bone fracture, triquetrum bone fracture, wrist fracture

INTRODUCTION

Carpal fractures are rare lesions in children accounting for nearly 0.4% of all paediatric fractures.[1] About 70% of isolated carpal injuries are scaphoid fractures followed by triquetrum injuries with 19%.[2] More than 90% of all triquetrum fractures are dorsal chip fractures. Triquetrum body fractures are extremely rare.[3] We report a case of a triquetrum body fracture in a 14-year-old boy.

CASE REPORT

A 14-year-old boy consulted our clinic for severe wrist pain after he had a bicycle accident. He did not remember the exact mechanism of the fall, especially how he fell on his hand.

The clinical examination showed a swelling on the ulnar side of the wrist. The wrist mobility was significantly reduced due to pain. Neither the elbow joint nor the metacarpus showed an abnormality. On the hypothenar side a laceration was seen [Figure 1]. In addition, there were some superficial scratches on the thenar. There were no signs of a reduced perfusion of the fingers or a nerval injury.

We took X-rays of the distal forearm that ruled out a fracture of the radius or ulna. Only in the oblique X-ray view of the hand a corpus fracture of the triquetrum bone was seen [Figure 2]. In order to rule out additional fractures of the carpus and injuries of the interosseus ligaments, we took an MRI scan of the wrist. The MRI verified the triquetrum body fracture and showed no further injuries [Figure 3].

As treatment, a volar cast was applied to the forearm. After 6 weeks of immobility the cast was removed. Clinical examination revealed a non-tender wrist with full range of motion. A control X-ray showed bone consolidation without any sign of pseudarthrosis.

DISCUSSION

Carpal bone fractures in children or adolescent are rare injuries. One reason might be the late ossification of the carpus in the upgrowth.[1] The triquetrum fracture is



Figure 1: Laceration of the hypothenar and thenar

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Figure 2: A 45º oblique X-ray of the wrist: triquetrum bone body fracture



Figure 3: Hand MRI: Fracture and bone oedema of the triquetrum bone

described as the second common injury with a rate of 19%.[2] There are two different types of triquetrum bone fractures.[4] The common dorsal chip fracture might be caused by the impact of the ulnar styloid process on the dorsal part of the triquetrum in a fall on the hand in dorsiflexion and ulnar deviation.[5] The triquetrum body fracture has a rate of 3% of all triquetrum fractures.[3] A specific trauma mechanism for this type is not known, but in our case the lacerations on the hypothenar could suggest a similar trauma mechanism.

A dorsal chip fracture is usually diagnosed by a lateral wrist X-ray. In this view, a fracture of the triquetrum corpus can be easily missed due to an overlay of the whole carpus. A standard posterior-anterior view X-ray has limited validity in case of a corpus fracture because of the pisiform bone overlay. In case of a suspected triquetrum fracture, a 45° oblique view, a CT or a MRI scan are recommended.[6,7]

For therapy, most of the authors recommend a volar forearm cast for 2-4 weeks for dorsal chip fractures and 4-6 weeks for body fractures.[4] An open reposition with osteosynthesis is recommended for fractures with dislocation.

Only a few complications are reported as a result of a triquetrum fracture. A pseudarthrosis was seen in one case after the fracture was not immobilized.[8] Also, a pisotriquetral arthrosis was seen once after a triquetral fracture.[9] An avascular necrosis as possible complication was never described probably due to good vascularisation through small vessels in the attached ligaments.[10]

If diagnosed and treated early triquetrum fractures have an excellent prognosis. Late presentation or non-diagnosed triquetral injuries can lead to degenerative wrist changes with pain during movement, stiffness and reduced function.

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