“Twist of the Wrist” A Rare Case of Carpal Dislocation

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Abstract A rare case of a scaphoid–trapezium dislocation is presented. The treatment was open reduction, ligament repair, and internal fixation with a Kirschner wire. After 4 weeks of immobilization, the Kirschner wire was removed, and full recovery was obtained 12 weeks after the trauma.

Keywords Dislocation · Scaphoid · Trapezium · Carpal

Introduction

Carpal dislocations are rare and easily missed injuries. Treatment is based on experience derived from older isolated case reports, and in recent literature, a several review articles were published about carpal dislocation in general. In this case, we describe such a case of a dislocation of the scaphoid and trapezium bone and our treatment.

Case Report

A 15-year-old girl presented on our emergency department with a painful right wrist. The day before, she purposely hit the wall with her right hand. Examination of her hand and wrist revealed swelling of the caput of metacarpal three and four. She was unable to move her wrist in any direction. Radiographs showed no fractures but a dislocation of the

trapezium and scaphoid (Fig. 1). For further evaluation, a computed tomography (CT) scan was made of the right wrist with three-dimensional reconstructions (Figs. 2 and 3). A palmar ulnar dislocation of the trapezium and scaphoid was noticed.

Treatment consisted of an open reduction through a palmar approach. There was an interposition of the partly ruptured ligament carpi radiatum between the scaphoid and trapezium bone which could be retrieved. An anatomical position of the scaphoid and trapezium was reached, and they were fixated with a Kirschner wire (Fig. 4). The ruptured carpi radiatum and radiocarpal ligaments at the volar side were sutured.

After 4 weeks of immobilization, the Kirschner wire was removed. Twelve weeks after the trauma, the patient has fully recovered with complete function of her wrist.

Discussion

Carpal dislocations are rare injuries and most often occur after high energy traumas. They require urgent identification and treatment to prevent a poor outcome. The injuries are easily missed, and a good knowledge of the mechanism of the injury is important. Radiological images in three directions (posterior–anterior, lateral, and oblique) are required [8]. Carpal dislocations can be divided into five separate groups: (1) Perilunate dislocations (most common), (2) Transcarpal fracture dislocations, (3) Radiocarpal dislocations, (4) Axial dislocations, (5) Isolated dislocations [5].

Isolated scaphoid dislocation is very seldom seen and is described in the following directions: pure radial, palmar radial, palmar straight, palmar ulnar, or dorsal. Palmar dislocations may be the result of ulnar deviation and forced dorsiflexion [4] Closed or open reduction and immobiliza-

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Figure 1 X-ray of the right wrist.

Figure 2 Three dimensional CT scan reconstructions of the left and right wrist (dorsal view).

Figure 3 Three dimensional CT scan reconstructions of the left and right wrist (volar view).

Figure 4 X-ray of the right wrist after the operation.

tion has been the mainstay of treatment with good results [5]. Open reduction with a palmar approach is recommended when the dislocation is palmar ulnar to repair the volar ligaments [4, 8].

Trapezium dislocation is associated with first metacarpal dislocation. Ligaments attaching the trapezium are very strong. Therefore, isolated dislocation is very rare and results only from severe direct force. Dislocations are mostly volar and, in some cases, dorsal. The recommended treatment is open reduction and Kirschner wire fixation [2, 3, 7]. In most cases, a volar approach is advised. Only when the dislocation is dorsal, a dorsolateral incision is recommended to avoid damage to the stronger and more important volar ligaments [1, 6].

There is no literature of a combined trapezium scaphoid dislocation; however, there are a few case reports describing subluxation of the scaphoid, trapezium, and trapezoid. The injury is often missed and is better shown with maximal ulnar deviation of the wrist during radiographic examination. Nowadays, CT scan with three-dimensional reconstruction plays an important role in the diagnosis. Treatment can be either plaster immobilization or open reduction, fixation, and suturing of the ligaments [6].

In many literature case reports, follow-up is brief or absent. The outcome of isolated dislocation of the trapezium is good. All cases described normal function 2 to 6 months after the injury [1–3, 6, 7]. Boe describes a case of trapezium dislocation with a follow-up of 2 years and 6 months with no avascular necroses, no subjective complaints, and no radiological signs of arthrosis [2]. The prognosis for scaphoid dislocations is also good. The best results were observed after open reduction, internal fixation, and direct ligament repair [8]. Patients have full recovery after 6 to 8 months after surgery. Early recognition and treatment will give better outcome [4].

Conclusion

Closed dislocation of the trapezium and scaphoid is a very rare injury. We described a case of a palmar ulnar dislocation. Treatment consisted of open reduction, fixation, and suturing of the volar ligaments with a successful outcome. Since there is not much to find in literature about what the best treatment is for this injury, we would recommend this successful treatment for similar injuries.

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