Case Report

Conservative Management of Divergent Dislocation of the 2nd–5th Carpometacarpal Joints

Abdoul Wahab AM, Chaibou B, Zirbine A, Allamine A[1], BS Souna[1]

Department of Surgery and Surgical Specialties, General Referral Hospital - BP Niamey, [1]Department of Surgery and Surgical Specialties, Lamorde Niamey Niger Hospital, Niamey, Niger

Abstract

Carpo-metacarpal dislocations are rare lesions, the authors report a case of convergent carpo-metacarpal dislocation of the last four fingers, received urgently and treated by reduction and plastered cuff, it was for us a therapeutic alternative, patient had refused surgical treatment which has been indicated, it is essentially a reduction more pinning. The immobilization lasted one month then a physiotherapy of functional rehabilitation of the removal of the plaster was also carried out. The functional result was satisfactory and professional reintegration was successfully completed.

Keywords: Carpometacarpal, dislocation, orthopaedic treatment

Introduction

Divergent carpometacarpal dislocations of fingers are very rare injuries. Due to severe swelling and overlapping of bones of wrist and hand on radiograph, the dislocations are very often missed, so a high index of suspicion is required to make the diagnosis. If left untreated or if missed in the clinical evaluation of the patient, it can lead to chronic hand pain, stiffness and deformity. The purpose of this study is to highlight this rare and often missed injury and its timely treatment.

Case Report

We report a case of divergent carpometacarpal dislocation of the last four fingers. The patient was received in emergency and treated urgently with reduction using a plaster of Paris cast as a therapeutic alternative as the patient refused the surgical treatment which would have consisted of reduction and percutaneous pinning (K-wire).

The index patient was a 33-years-old, left-handed male who was admitted to our emergency room following a road traffic accidental history. He was the rider of a scooter, which was struck by a vehicle. He fell and landed on his left palm with his hand in extension. He sustained closed trauma to his left hand, causing him pain and functional disability.

Clinical examination showed gross oedema of the dorsal surface of hand without much deformity [Figure 1]. Anteroposterior (front) and lateral (side) radiographs showed pure carpometacarpal dislocation of long fingers associated with fracture of base of the second metacarpal bone [Figure 2]. He refused the surgical treatment option of reduction and pinning. Hence, we did closed reduction and applied compression cast. The reduction was very easily achieved with axial traction on fingers, and brachioradial compression cast was applied with the hand in a functional position [Figure 3]. The immobilisation lasted for 6 weeks, fingertip mobilisation was allowed immediately after cast application.

After the cast removal, the patient was subjected to intensive rehabilitation physiotherapy. At 3 months' follow-up, the functional outcome was very satisfactory with good muscular strength and complete recovery of wrist and hand mobility. Work was resumed after a week of observation of recovery.

Address for correspondence: Dr. Abdoul Wahab AM, Department of Surgery and Surgical Specialties, General Referral Hospital - BP Niamey, Niger.
E-mail: medwahabe@gmail.com

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Figure 1: Aspect of the hand showing significant edema and deformation of the arches of the hand

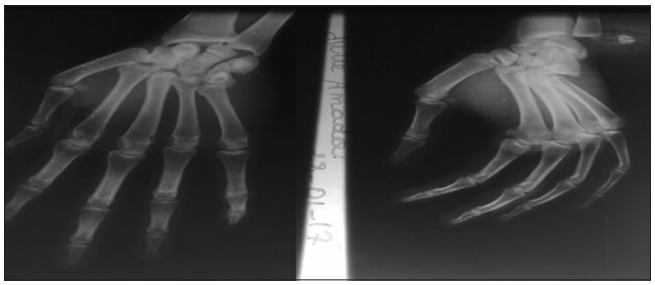

Figure 2: X-ray of the right hand postoperatively after osteosynthesis of dislocation and associated fractures by plugging in

Figure 3: Brachiopalmar plaster in the operating position

Discussion

Carpometacarpal dislocations of the fingers are rare lesions. Rivington described the first case in 1873.[1] Carpometacarpal dislocation of the thumb is very rare, and dislocations of the 2nd through the 5th metacarpal accounts for about 30% of these dislocations. The diagnosis is clinically suspected and confirmed by radiology. The treatment consists of an emergency reduction, stabilisation with pins in the event of an unstable lesion and a complementary plaster cast immobilisation. There also been reports of conservative management using closed reduction and cast application or operative intervention where conservative treatment was unsuccessful.

The carpometacarpal articulation is a very stable articulation,[2,3] and requires extreme forces to disorganise its articular interlocking.[4] This makes carpometacarpal dislocation of the fingers a rare lesion. It commonly affects young adults. Very violent injuries such as traffic accidents are the usual culprit. However, lower intensity trauma such as punches has been implicated in the aetiology of dislocation of the mobile metacarpals.[5] If the diagnosis of this type of lesion is made urgently on a radiographic image of the hand and wrist in a strict profile, the prognosis is better, although the interpretation of the radiographic pictures is sometimes difficult. A systematic approach to wrist radiographs has been advocated by Lefere *et al*.[6] to reduce the incidence of missed diagnosis associated with these dislocations. Gilula[7] has also described the evaluation of the carpometacarpal joints by parallel 'M' lines.

It is essential to carry out accurate radiographs showing the direction of movement of the metacarpal bases and oblique X-rays to show the bases of metacarpals. In addition, some authors recommend additional computed tomography study.[2] Reduction by external manoeuvres with percutaneous pinning is a good treatment in the absence of associated neurovascular compression. Stabilisation of the carpometacarpal spaces can be oblique, intramedullary or cross using k-wires.[5]

The prognosis of these carpometacarpal dislocations, if treated urgently, is good with a minimal residual disability of deformity.[8-10] Several complications have been reported in the literature, such as the persistence of residual hand pain, reduced grip strength, subluxations and secondary displacements.[11] In addition, Lawlis and Gunther reported that patients who have a dislocation of the four carpometacarpal joints have better results than those who have a dislocation of the 2nd and 3rd rays.[5,12] The 4th and 5th carpometacarpal joints must be inserted in slight flexion to preserve the curvature of the metacarpal arch.[13,14]

Conclusion

Carpometacarpal dislocations of the long fingers are rare lesions, often associated with fractures of the carpus or bones of the hand. Many go unnoticed either because of a poorly done clinical examination or overlapping of bones of hand and wrist on radiographs or as part of a polytrauma. Patient to urgent and correct treatment, they have good prognosis.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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