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Hamate Fracture Associated with A Fracture of the Base of the Fourth Metatarsal: A Case Report

Issa Fathi*, El mehdi Ouissaden, Mohamed Kharmaz, Moulay omar Lamrani, Ahmed El Bardouni, Mustapha Mahfoud, Mohamed Saleh Berrada

Department of Orthopedic Surgery, Ibn Sina Hospital, University Mohamed V, Rabat, Morocco

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***Corresponding author:** Issa Fathi

Abstract **Case Report**

We report the case of a 28-year-old patient who present a hamatum body fracture associated with a comminuted fracture of the confirmed 4th metatarsal base by the scanner. The patient was operated the day after the trauma by double racking. The operation was performed under locoregional anesthesia, tourniquet at the root of the limb. A dorsal approach of 2 cm centered on the hamatum. After the reduction of the focus of fracture and its fixation by two pins 10 under the control of the image intensifier to ensure the correct position of the pins, after a process with a percutaneous racking of the base of the 4th metatarsal. The immobilization was ensured by a cuff splint for 3 months.

Keywords: Hamate; Fracture; Traumas.

INTRODUCTION

The hamate bone is one of eight carpal bones, it is a triangular bone, composed of a body and a hook, located on the ulnar side of the distal carpal row. The hamate is bordered proximally by the pisiform and the lunate in the proximal carpal row, radially by the capitate, and distally by the bases of the fourth and fifth metacarpals [1]. The Guyon canal carries the ulnar artery and nerve, for this reason hook fractures should suggest a high probability of ulnar artery and nerve damage. Hamate fractures constituted about 2% of all carpal fractures.

CASE REPORT

We present the case of a 28-year-old patient who was visiting the emergency room for trauma with his right hand as a result of a shot perpendicular to the ground plane in the context of a bicycle accident. On clinical examination, the dorsal surface of the hand is swollen echymotic, painful on palpation and mobilization, especially at the base of the 4th ray. Standard radiography targets a hamatum body fracture associated with a comminuted fracture of the confirmed 4th metatarsal base by the scanner (Figure 1 & 2). The patient was operated the day after the trauma by double racking. The operation was performed under locoregional anesthesia, tourniquet at the root of the limb. A dorsal approach of 2 cm centered on the hamatum. After the reduction of the focus of fracture and its fixation by two pins 10 under the control of the image intensifier to ensure the correct position of the pins, after a process with a percutaneous racking of the base of the 4th metatarsal (Figure-3). The immobilization was ensured by a cuff splint for 3 months. Good evolution clinical trial with complete disappearance of painful symptomatology 10th day, bone consolidation obtained at the 6th week confirmed by a X-rays at the 3rd month. The removal of the pins was done after 4 months.

Fig-1: Face and profile X-ray showing a hamatum fracture associated with a fracture of the base of the 4th metacarpal

Fig-2: Wrist scanner to clarify lesions

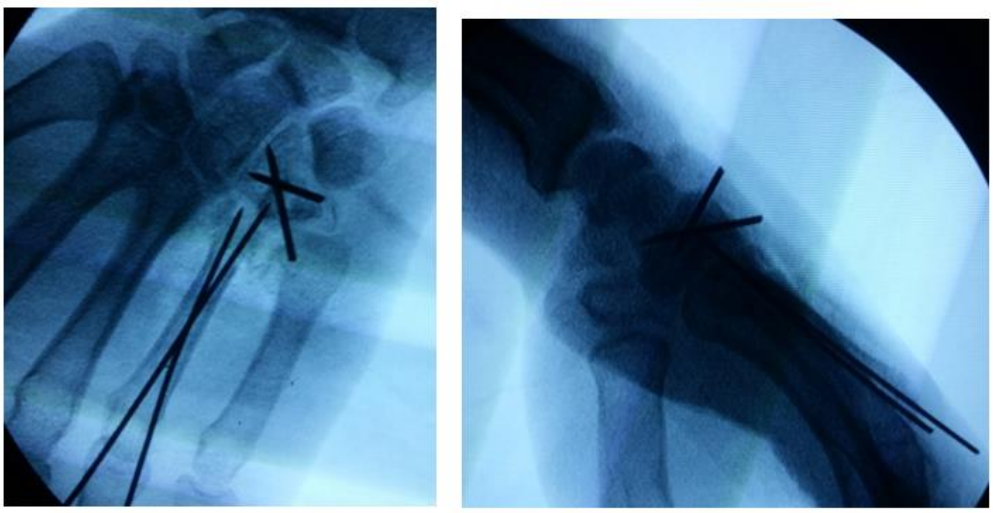

Fig-3: Control after osteosynthesis of two fracture by pins

DISCUSSION

Hamate fracture are rare, especially those involving the body, and constitute only 2% of all carpal fractures [1, 2]. They are not often mentioned as a differential diagnosis in the face of carpal trauma and may go unnoticed. The hamatum is composed of a body and a palmar hamalus (hook) which points forward and serves as a trochlea for the 4th and 5th flexor tendons [3]. The hamalus is palpable anteriorly; to locate it, the examiner places the interphalangeal joint of his thumb on the subject's ospisiform, pointing the tip of the thumb towards the first commissure of the patient's hand. The hamatum sits beneath the pulp of the examiner's thumb. By pressing with the pulp of the thumb in this place, one often provokes an unpleasant sensation which corresponds to the palpation of the hamalum hamalus [4]. The fractures of the hamatum are classified as being either type I involving the hook, or of type II involving the body. Type II fractures are less common [5]. Those of type I are related most often to the sport of rackets and sticks (tennis, golf ...). For type II lesions, other mechanisms may cause this fracture such as direct shock on a closed wrist that may be responsible for a depression in the hamatum body of the base of the 4th and 5th metacarpals causing vertical fracture and displacement. Dorsal posterior defragment as for our patient [6]. The clinic is not specific and finds pain in mobilization and palpation at the level of the hypothenar eminence. The nature of the trauma is interesting to consider carcette fracture occurs with predilection in athletes using a handle held in the hand [3]. The search for a lesion of the ulnar nerve must be systematic. The diagnosis is essentially radiological, based on frontal and lateral views, and especially oblique incidences at 30-45◦ [5]. CT remains the examination of choice in the diagnosis of this type of fracture by specifying the fracture traits and the number of fragments as well as their possible displacement [2]. In a study of 18 cadaver hands, CT had a sensitivity of 100% and a specificity of 94.4% whereas conventional radiography showed a sensitivity of 72.2% and a specificity of 88.8% [5]. Our case confirms the advantage of oblique incidences and especially the need for CT in the diagnosis of this fracture. The treatment can be orthopedic, with immobilization of 6 weeks, or surgical depending on the displacement of the fracture, fixation can be done either by pins as in our case, or by screws [6]. Because of their rarity, hamatum fractures can be neglected and lead to complications such as pseudarthrosis, tendon ruptures, or nerve damage to the deep branch of the ulnar nerve, hence the importance of systematically looking for them in the face of a strong clinical suspicion [3, 7, 8].

CONCLUSION

Fractures of the hamate body are very rare and may go unnoticed. Vertical trauma to the closed wrist may be responsible for a frontal hamate fractures. The diagnosis is often difficult and greatly facilitated by the practice of oblique radiographic incidences and a CT scan. The therapeutic indication is simple and the boundaries between orthopedic and surgical treatment are clear.

Conflicts of Interest: The authors do not declare any conflict of interest.

Contributions of the Authors: All authors have read and approved the final version of the manuscript.

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