

Trapezium Fracture: Percutaneous Screwing Treatment

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Abstract

TRAPEZIUM is a bone of the second row of carpe whose functional role (in duet with the scaphoid bone) fundamental in the biomechanics of the thumb. We report a case of a young man of 22 years who presented a vertical fracture trapezium of left wrist treated by reduction and percutaneous screwing, followed by a favorable and satisfactory functional result.

Introduction

Isolated trapezium fractures are rare lesions which represent 3 to 5% of bone fractures of carp [1]. However, they must be diagnosed and treated quickly given the importance of the trapezoids in the carpometacarpal joint and mobility and biomechanics of the thumb. They are usually the result of trauma has high energy, a vertical line more often. Occasionally, it may also be associated with ligaments (anterior oblique ligament, radial dorso ligament intermetacarpal ligament, posterior oblique ligament). Several methods have been described in the literature for the treatment of this fracture, ranging from conservative treatment in plaster too open reduction with internal fixation. We report the case of a fractured carpal trapezium which was treated by closed reduction and percutaneous screw guided, with a good functional outcome at 6 months follow-up.

Case Presentation

A young man of 22 years without medical or surgical history, unemployed living in Morocco, which is in the emergency room for pain left wrist following a fall on the left hand, wrist extension during a domestic accident. On examination: obvious swelling at the root of the thumb and the thérienne lodge, without skin incision, palpation and mobilization was difficult and painful in the thumb, lack of nerve vascular lesions. Plain radiographs (Figure 1) revealed a vertical fracture of the trapezium.



Figure 1: X-ray profile face and the left wrist, showing a vertical fracture of the trapezium.

Analgesic treatment was administered and prescribed to the patient, with a splint immobilization antébrachio palmar. The patient has been called the next day that it is presented daily staff emergency service, to have a therapeutic collegiate decision of an orthopedic or surgical treatment, given his fasting Age and the importance of the function of the wrist even if not dominant.

The decision was to surgical treatment, has closed reduction and screwing fixation. The patient was admitted in the operating theater the same day, receiving regional anesthesia left upper

limb, the reduction fragment and its fixing with the aid of a guide pin inserted through thin skin fleck opposite the trapezium under amplifier control brianse, followed by neutralization with a cannulated screw Herber 1.5mm diameter, length 18mm (Figure 2).



Figure 2: X-ray control after percutaneous screw fixation of the fracture of the trapezium.

A capital compliment by a plaster splint for three weeks, the assembly being stable for mobilization and early rehabilitation of three weeks. The result on 3 months was satisfactory, with normal mobility of the wrist and painless left thumb, He had satisfactory grip strength and a good amplitude of an inch of motion with a minimum of pain. The patient was reviewed in consultation 5 months satisfied with the function of his hand, and projecting to integrate the service of the Royal Armed Forces, thus requiring osteosynthesis material ablation, can be a reason of his ineligibility.

After removal equipment radiography was performed in 8 months in total from the date of the accident showing a perfect consolidation of the trapezoid [3].



Figure 3: X-ray showing 8 months consolidating trapezium.

Discussion

isolated fracture of the trapezium is rare, can often go unnoticed, lack of diagnosis and care suitable outlet can cause significant functional impact on the function of the thumb. The mechanism may be either directly by impaction sleep radial or axial indirect. The line can be in different forms (transverse vertical, body or peak). the usually c interesting feature is the body vertical keystone following indirect trauma [1]. The clinical presentation may vary widely depending on the displacement of the fracture and the involvement of the carpometacarpal joint. Some patients do complain about minor pain at the base of the thumb without swelling or a gross distortion, while others, as in the present case report, had swelling and severe restriction of movement. Thus, it is important to have a strong clinical suspicion based on history and mechanism of injury. Imaging for this injury consists of plain radiographs, but often non-displaced fractures may go unnoticed. At Robert's AP view, with hand full pronation is a good way to visualize the trapeze on plain radiographs. If the diagnosis is still in question a CT is recommended [2].

Reconstruction inter-metacarpal bone and capsular structures, as described by Brunelli, et al. [3] may be required, particularly in isolated dislocations. This may not be necessary if there is a fracture subluxation, wherein the fragment of the metacarpal base and back of the trapezium remains connected by the dorsal capsule. A temporary Kirchner wire additional stabilization ensure inter-metacarpal orientation.

The literature reports several management options. However, as the orthopedic universally accepted principle that fractures involving articular surface require precise reduction, most authors adhere to a treatment involving the accurate restoration of the articular surface. This is supported by two sets [4,5] which highlighted the need for a clear reduction of the articular surface with displacement > 2 mm. An article [6] reported the success of conservative treatment of the trapezoidal fractures in non-displaced plaster cast only. However, another article [7] demonstrated dismal results in three patients with comminuted fractures treated this way.

Most of the literature recommends open reduction and fixation of displaced fractures of the trapezoids vertically as in this case. Corey and FerrerTorrells [8] were the first to recommend this and they used the Kirschner-wire fixation for a series of five patients. Foster and Hastings [9] recommended this or closed reduction and pinning, similar to what was done in this case. Inston, et al. [10] described the use of a Herbert screw that gave the dynamic compression of the fragments and he brought such great success our experience. Tolat and Jones [11] reported a case of a trapezoidal trapeziometacarpal associated fracture dislocation in skeletally immature 14 years that has been treated with a precise reduction and plaster and made a good recovery, suggesting that the precise reduction / fixing the trapeze may be sufficient to stabilize the trapezometacarpal joint. No studies have compared the results of Kirschner wire fixation (percutaneous / open) for fixing screws (open), but McGuigan and Culp [5] examined 11

patients (mass) with trapezoidal intra articular fractures that had some type of surgical treatment and said good results overall. However, it is important to note that in this study 5/11 patients showed degeneration in the joint trapeziometacarpal during long-term follow-up (mean 47 months), despite excellent functional results in quick review. Therefore, it is important to indicate this important long-term complication in all patients.

Regarding the case of our patient, the method of attachment by a screw Herber, as described by Inston and G [10] has brought favorable results totally uncomplicated, functional and great satisfaction to our patients.

Conclusion

We have reported a case of an isolated fracture trapeze, a rare injury treated by percutaneous screw with a good functional outcome. This is a technique for a reduction of the articular fracture with a stable fixing enabling compression of the fracture site, in addition to the advantage of the closed screwing, avoiding the damage that may have on the soft parts and allowing early rehabilitation and rapid functional recovery.

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