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Case report; Review Article

Isolated trapezius-metacarpal dislocation: about a case

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Abstract: Isolated trapezius-metacarpal dislocation is a rare lesion. Although it is usually easily reducible, the high risk of secondary instability poses a major challenge in the management of this type of injury.
There is controversy over what the treatment of choice is. Most of the authors opt for conservative treatment by closed reduction and immobilization with the antebrachial splint, using the stabilization of the joint with Kirschner needles (AK) if necessary. On the other hand, surgical treatment with ligamentoplasty has also been described.
The objective of this paper is to present a clinical case of trapezius-metacarpal dislocation and its definitive treatment with repair with suture anchors (Mini TightRope), as well as to review the literature.

Keywords: Isolatedtrapezius-metacarpal uxation; Tosuture nclajes; Mini TightRope.

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1. Introduction

Isolated trapezius-metacarpal dislocation of traumatic origin is an extremely rare injury, occurring in less than 1% of all hand injuries[1]. It usually predominates in males and on the right side.

It is usually caused by direct trauma, with an axial force that is transmitted through the partially flexed thumb to the base of the first metacarpal, forcing the joint to dislocate in a dorsal position[2]. It is frequently associated with avulsion of the base of the first metacarpal due to the tension exerted by the flying ligaments, especially the anterior oblique ligament. In fact, for many years, the palmar oblique ligament has been considered the main stabilizer of the joint[3]. This consideration has been debated by Harvey and Bye[4] and Pagalidis et al[5], who state in their studies that the posterior dorso-radial or radial ligament is the main stabilizer.

Trapezius-metacarpal dislocation is usually easily reducible, but the high risk of secondary instability poses a major challenge in the management of these types of lesions. If not treated or not treated properly, it can lead to instability of the joint and subsequent osteoarthritis of the joint, as well as pain and loss of functionality of the hand[6].

There is controversy over what the treatment of choice is. Most of the authors opt for conservative treatment by closed reduction and immobilization with the antebrachial splint, including the thumb[7], stabilizing the joint with Kirschner needles (AK) if

necessary[8]. On the other hand, surgical treatment with ligamentoplasty [9,10] has also been described. At present there is the possibility of treating unstable dislocations with suture anchors, but there are still no articles in the literature that report the results.

The objective of this work is to present a clinical case of trapezius-metacarpal dislocation initially treated conservatively and secondarily with suture anchors.

2. Clinical case

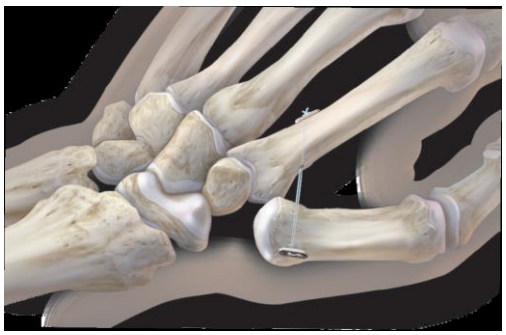
A 55-year-old man who went to the emergency room presenting trapezius-metacarpal dislocation of the right hand, after a motorcycle accident. On physical examination he presented deformity at the base of the right thumb and on x-rays in the AP and lateral projections a trapezius-metacarpal dislocation was observed.

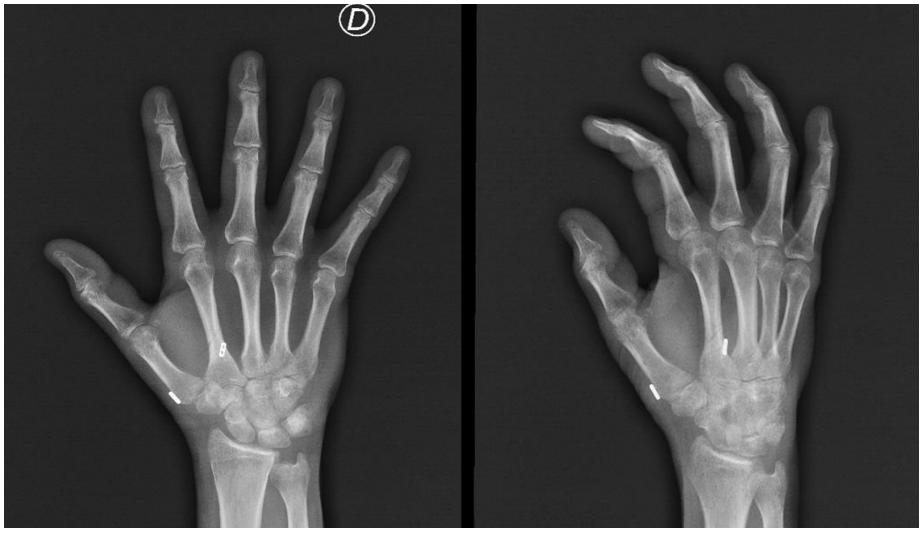
After narrowly reducing under local anesthesia and immobilizing with scaphoid splint, it was found in the radiographic control that the dislocation persisted. Given the high instability of the lesion, it was decided to perform a percutaneous fixation with 2 AK and 1.8 mm from 1st to 2nd MTC and from 1st MTC to trapezoid. The correct reduction was verified in radioscopy and it was immobilized with a splint of scaphoids.

After removing the immobilization and the AK in the consultation at 6 weeks, the patient had a good mobility without pain and began rehabilitative treatment

At 11 weeks he reported clinical worsening with correct mobility, although painful. The radiographic images showed a subluxation of the trapezius-metacarpal joint that was reducible.

Given the existing joint instability, surgical trapezius-metacarpal stabilization was indicated by the Mini TightRope system (anchoring the 1st MTC to the 2nd MTC).





At the time of the last visit made 6 months after the trauma, the patient had presented a satisfactory evolution. He reported discomfort in the right trapezius-metacarpal joint, but had no residual instability. Functional recovery was adequate, without presenting any limitation in the patient's working life and daily activities.

3. Discussion

The trapezius-metacarpal joint is an unstable joint because of its saddle anatomy. It has four main stabilizing ligaments: the anterior oblique ligament, the dorso-radial ligament, the posterior oblique ligament, and the intermetacarpal ligament. Although there is controversy in the literature about the main stabilizing ligament, recent anatomical and biomechanical studies have shown that the radial dorsal ligament is the main brake on dislocation [11,12,13]. The mechanism of injury that produces dorsal dislocation is the axial load with flexion of the thumb. The dorsal dislocation of the joint is due to the fact that the posterior portion of the joint capsule is thinner compared to the flying capsule, which is also reinforced by the anterior oblique ligament.

There is consensus in the scientific community on the treatment of choice in case of stable lesions, being the conservative treatment, with reduction and immobilization with plaster, including the thumb, the first option. Instead, surgical treatment of unstable lesions is up for debate.

In 1995 Toupins et al. published a review of the literature comparing the results of conservative treatment with the results of treatment with open reduction and ligamentoplasty and found no significant differences between the two groups [17].

Simonian and Trumble treated 8 patients with reduction and immobilization for 6 weeks, of which 3 required surgical reconstruction due to residual instability and one case evolved into osteoarthritis [15].

In 2017 Acero and Mesa published a clinical case of a patient treated with closed reduction and fixation with Kirschner needles who did not present any sequelae [16].

In 2020 Gargallo-Verge et al. treated 2 cases with orthopedic reduction and immobilization with plaster including the thumb and fixation with 2 Kirschner needles. In one case

the patient showed adequate functionality and absence of pain, while, in the other, 5 years after the trauma, the patient presented rhizothrosis secondary to the lesion [14], relating this complication with the presence of intra-articular bone fragments.

5. Conclusions

The most important factor in determining the treatment of acute injuries is the degree of stability after closed reduction.

Stable lesions can be immobilized with a scaphoid splint for 6 weeks and in unstable ones percutaneous fixation with AK is necessary.

Surgical treatment is reserved in cases with late or residual instability. The tendency is to try a repair with suture anchors and the reconstruction with ligamentous plasty is reserved in case of failure.

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