

**Case Report****A Rare Challenging Case: Chronic Post-traumatic Anterior Instability of the Metacarpophalangeal Joint of the Thumb**Bennis Azzelarb<sup>1\*</sup>, Bouya Ayoub<sup>2</sup>, ELghoul Naoufal<sup>2</sup>, Ouzaa Mohammed Reda<sup>3</sup>, Jaafar Abdeloihab<sup>1</sup><sup>1</sup>Professor in Orthopedic Surgery and Traumatology, Department of Orthopedic Surgery and Traumatology, Military Hospital Mohammed V (HMIMV), Faculty of Medicine and Pharmacy, University Mohammed V, BP 10100 Rabat, Morocco<sup>2</sup>Resident in Orthopedic Surgery and Traumatology, Department of Orthopedic Surgery and Traumatology, Military Hospital Mohamed V (HMIMV), Faculty of Medicine and Pharmacy, University Mohammed V, BP 10100 Rabat, Morocco<sup>3</sup>Specialist in Orthopedic Surgery and Traumatology, Department of Orthopedic Surgery and Traumatology, Military Hospital Mohamed V (HMIMV), Faculty of Medicine and Pharmacy, University Mohammed V, BP 10100 Rabat, Morocco**Corresponding Author:** Dr. Bennis Azzelarb, E-mail: Azzelarabbennis@gmail.com**ARTICLE INFO***Article history*

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**Key words:**Metacarpophalangeal Joint,  
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The chronic post-traumatic anterior instability of the metacarpophalangeal joint of the thumb is a rare medical condition that impairs the pollicis - digital clamp as well as the dextrous function of the thumb. Multiple treatment options could be employed. The authors present the case of a young patient who suffers a chronic anterior instability of the metacarpophalangeal (MCP) joint of the thumb, due to an acute hyperextended trauma. The injury didn't get adequate treatment. However, a free tendon graft has achieved a good functional outcome.

**INTRODUCTION**

The capsulo-ligamentous trauma of the metacarpophalangeal joint of the thumb is common, which needs to be diagnosed and treated in time, or run into chronic laxity. The post-traumatic chronic anterior instability is a rare lesion, resulting from neglected palmar plate trauma. We discuss, in the light of the literature, the pathogenic, diagnostic and therapeutic aspects of this lesion.

**CASE PRESENTATION**

Mr. H.S. is 16 years old, student, right-handed, with no significant pathological history. He underwent 8 months earlier an isolated hyperextended trauma of the right thumb after a fall. To secure his injury, a plaster gauntlet cast was used for 15 days. Within 2 weeks, the patient could return to his previous level of activity with no restriction of movements. However, since the trauma occurred, he complained of recurrent painful discomfort as well as a partial loss of function

(difficulty writing). The clinical examination found a passive hyperextension of the MCP of 60° (Figure 1), with no associated internal or external laxity. The examination of the contralateral thumb came out normal. The radiography of the hand centered on the first column was showed no significant abnormalities.

The chronic anterior laxity required a surgical procedure. A volar incision centered over the MCP joint was performed. The surgical exploration showed a torn volar plate, allowing no reinsertion gesture (Figure 2);

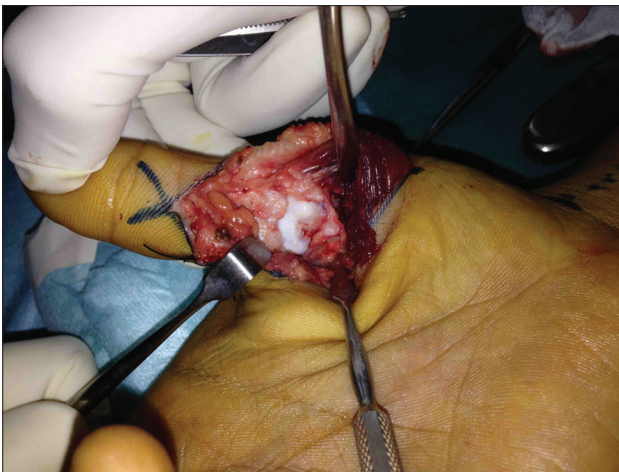
On the other hand, the lateral ligaments and the articular cartilage were grossly intact. Treatment consisted of the reconstruction of the volar plate using a graft taken from the tendon of flexor carpi radialis. The graft was 8cm in length and 5mm in width. It was prepared and stretched as an interpositional spacer to help fill the void between the base of the first phalanx (P1) and the neck of the first metacarpal (M1). Then, it was stabilized using 2.5 mm diameter anchors at 30° articular flexion (Figure 3). Intraoperative stability was satisfactory.



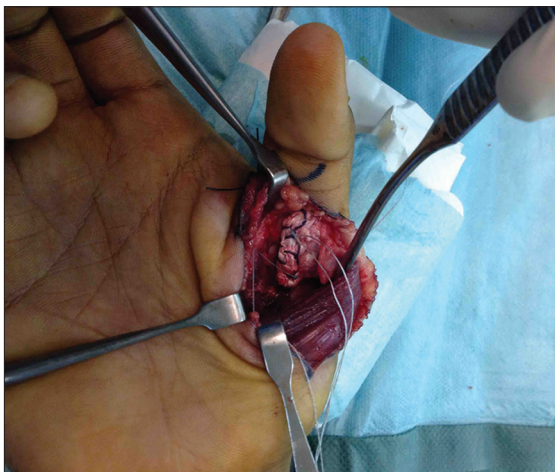
**Figure 1.** Passive hyperextension of the thumb MCP joint, laxity control anterior



**Figure 4.** Disappearance of the anterior laxity in postoperative



**Figure 2.** Intraoperative aspect: complete degeneration of the palmar plate



**Figure 3.** Intraoperative aspect: placement of the free tendon graft after preparation



**Figure 5.** Radiographic inspection showing the location of the fixing anchors

## DISUCSSION

The hyperextension of the MCP joint of the thumb is mostly found in a context of constitutional ligament laxity. Its post-traumatic origin is rare, generally secondary to a neglected lesion of the palmar plate [1].

Kapandji and De Cheveigne [2,3], state that the MCP joint of the thumb is endowed with great stability based on the anatomy and biomechanics of the first ray. The volar plate, which represents the main brake at the hyperextension of the articulation, has a strong attachment to the base of P1, but a rather loose fibrous attachment to the neck of M1; It is at this level that most avulsion lesions occur [4,5].

If neglected or inappropriately treated, the excessive laxity of the ligaments may lead to joint instability and subsequently to the degeneration of the articular cartilage [4]. This may lead to a marked pain, especially exacerbated by pinch or grasping actions, weakness and a reduced motion [6]; A targeted examination of the passive hyperextension of the MCP joint, demonstrates the extent of the damage of the volar plate according to Pechlaner [7]; The frontal stability of the joint must be sought systematically, since the associated involvement of the lateral ligaments is frequent [8,9].

Postoperative management required the thumb to be immobilized in a protective orthosis for 8 weeks. A one-year follow-up, showed that the outcome of this surgery was a pain-free and stable thumb that functions well. (Figures 4, 5).

Radiography of the hand may be normal, or reveal bone graft, sesamoid fracture or osteoarthritis of the joint [5-10].

Treatment of chronic post-traumatic anterior instability of the thumb MCP joint is surgical. Hence, several techniques are available. The capsulodesis procedure has been described by many authors [4-11,12]. It nevertheless requires a residual volar plate. In the absence of the latter, pediculated tendinous transfer of the palmaris longus [13] or the extensor pollicis brevis [14] represents an interesting alternative, but its realization remains delicate. The use of a free tendon graft to reconstruct palmar plate has been described by Milch [15] and Lumens [10]. This procedure is reliable and effective and worth considering.

In our patient, the ligamentoplasty is provided by a free tendon graft taken at the expense of the flexor carpi radialis, previously prepared and fixed by two anchors. The functional result was satisfactory on both stability and function.

## CONCLUSION

The post-traumatic chronic anterior instability of the thumb MCP joint is a rare and disabling lesion. A close clinical examination can lead to diagnosis. Using a free tendon graft, if the volar plate is found degenerated, remains a rather simple and effective technique.

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