ECRONICON OPEN ACCESS

EC ORTHOPAEDICS
Case Report

Chronic Instability of the Radial Collateral Ligament of the Metacarpophalangeal Joint of the Thumb. Ligamentoplasty with Free Tendon Graft

Gardino Emiliano*, De Turris Franco, Montiel Carlos, Beascoechea Darío, Martos Luis and Piñero Nahuel

Hospital Dr. Lucio Molas, Santa Rosa, La Pampa, Argentina

***Corresponding Author:** Gardino Emiliano, Hospital Dr. Lucio Molas, Santa Rosa, La Pampa, Argentina.

Received: December 11, 2022; **Published:** December 16, 2022

Abstract

The thumb provides up to 40% of the function of the hand. Injuries to the radial collateral ligament (RCL) of the thumb metacarpophalangeal joint (MCPJ) are much less common than ulnar collateral ligament (CCL) injuries. Cast or splint immobilization is recommended to treat grade I and grade II acute tears; however, there is no consensus for the treatment of grade III (complete) tears. In chronic RCL lesions, a dorsoradial prominence occurs at the MPCJ, resulting in weakness and pain during activity. There are many surgical treatment options for chronic tears, including CSF soft tissue advancement, abductor pollicis brevis reconstruction, and free tendon grafts. Our objective is to present a clinical case of chronic lesion of the RCL of the thumb associated with a surgical history of supernumerary thumb resection where the reconstruction of the radial structures was not performed in the same surgical act.

Keywords: *Radial collateral ligament; Chronic injury; Metacarpophalangeal joint; Thumb*

Introduction

The thumb provides up to 40% of the function of the hand, complete disability of the thumb is devastating and is balanced by a 22% loss of bodily function. Injuries to the ligaments of the metacarpophalangeal joint of the thumb (MCPJ) and interphalangeal joint (IPJ) of the fingers are common injuries. The results are poor when the lesions are chronic and have been unsatisfactorily treated. Injuries to the radial collateral ligament (RCL) of the metacarpophalangeal joint (MCPJ) of the thumb are much less common than injuries to the ulnar collateral ligament (CCL) accounting for 10 to 40%. Immobilization with a cast or splint is recommended to treat acute grade I and grade II tears; however, there is no consensus for the treatment of grade III (complete) RCL tears. In chronic RCL lesions, a dorsoradial bulge occurs in the MCPJ, resulting in weakness and pain on activity. There are many surgical treatment options for chronic tears, including RCL soft tissue advancement, abductor pollicis brevis reconstruction, and free tendon grafts [1-5].

Our objective is to present a clinical case of chronic lesion of the RCL the thumb associated with a surgical history of resection of the supernumerary thumb where the reconstruction of the radial structures was not performed in the same surgical act.

Clinical Case

G.D masc. 17 years. Patient who presents chronic lateral instability of the MCAF of the thumb of the left hand associated with pain and functional limitation. Presented as surgical history: resection of duplication of the thumb. The static and dynamic physical and radiological examination reveals instability (Figure 1 and 2). Surgical treatment was performed: ligamentoplasty with free tendon graft

(palmar major) (Figure 3 and 4). The patient was operated on in the supine position with an accessory table for the hand, previously with regional anesthesia with axillary block, antibiotic prophylaxis with 1g of cefazolin and a hemostatic cuff. First we performed the extraction of the palmar major graft with a percutaneous technique and then we performed the surgical approach in the form of an italic S in the radial region of the MCPJ, divulgation by planes, the skin flaps were raised and the superficial branch of the radial nerve was protected, the abductor aponeurosis was incised from the palmar to the extensor pollicis brevis. The abductor aponeurosis was raised to volar and the RCL was examined, which was found to be fibrotic, weak and shortened, the remains of the RCL were resected, we drilled two tunnels on the radial side of the proximal phalanx and then a blind tunnel was made in the neck. metacarpal. The graft is prepared with sutures and it is proceeded to pass through the tunnels of the phalanx, then tension is applied to the graft and it is fixed in the metacarpal tunnel with an interference screw under radioscopic control. It is washed with physiological solution, the cuff is deflated and hemostasis is checked. MCPJ stability maneuvers are performed under radioscopic control. Approach closure is performed, healing is performed, covered with sterile gauze and immobilized with an antebrachial digital plaster splint including the thumb.

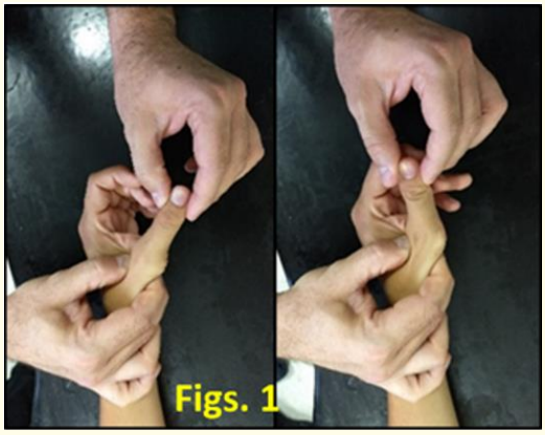

Figure 1: *Clinical instability.*

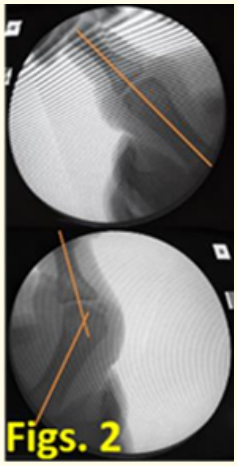

Figure 2: *Radiological instability.*

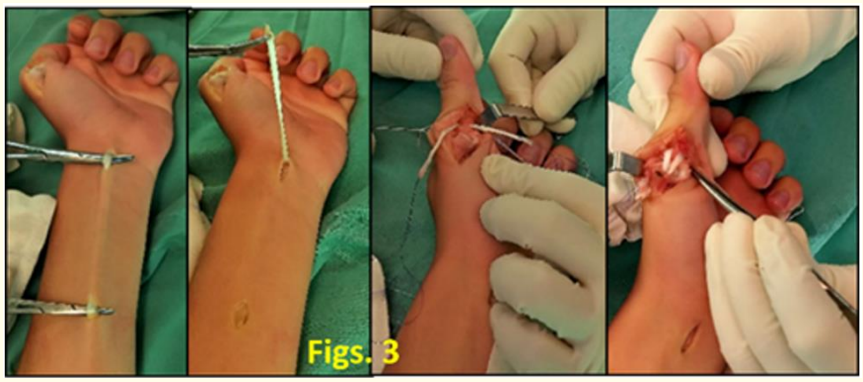

Figure 3: *Palmaris major tendon graft harvesting and ligamentoplasty.*

Figure 4: *Postoperative control radiographs.*

Results

An optimal result was obtained in the immediate and long postoperative period. Clinical and radiological controls were performed once a week during the 1st month after surgery, and once a month until 6 months after surgery, a control at the 1st year and the 2nd year after surgery (Figure 5). He underwent occupational therapy rehabilitation from the 1st postoperative day to 6 months after surgery. Normal range of motion, stability, and grip strength (Figure 6).

Discussion

In the past, trauma to the stabilizing structures on the radial side of the MCPJ of the thumb was thought to be an innocuous event requiring little intervention. It is now known that late diagnosis and treatment of RCL lesions and the resulting MCPJ instability will lead to a predictable pattern of degenerative osteoarthritis. Patients can experience chronic pain and swelling of the MCPJ of the thumb with relatively simple activities, such as opening a door or removing a jar lid. Immobilization with a cast or splint is recommended to treat

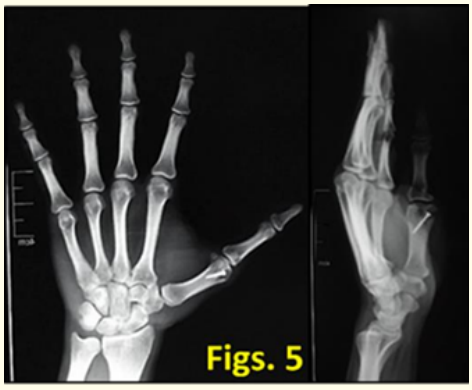

Figure 5: *Control radiographs 2 years postoperatively.*

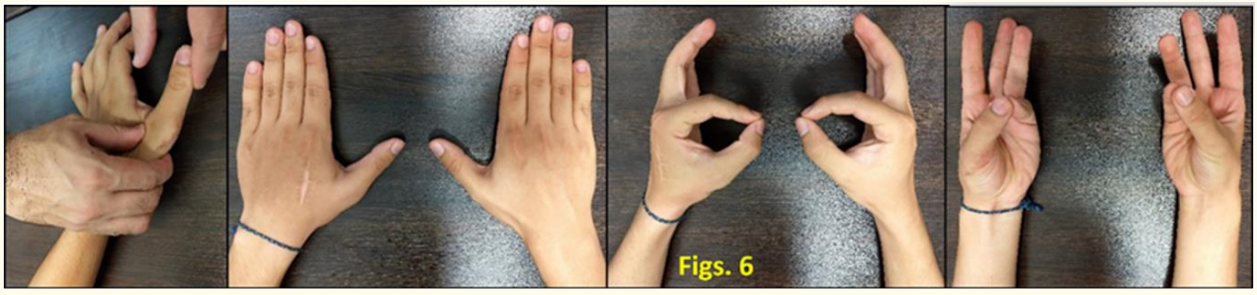

Figure 6: *Functional clinical control 2 years after surgery.*

grade I and grade II tears. There is currently a trend towards surgical management of grade III RCL lesions. Complete injuries can usually be identified on physical examination for lack of a strong endpoint with stress testing. Radiographic markers for surgical intervention include varus (adduction) on stress test showing a 30° MCPJ opening (15° compared to the contralateral uninjured digit) or lateral views showing at least 3 mm of volar subluxation [1-4].

Conclusion

In the resolution of this case, it was decided to perform a ligamentoplasty to reconstruct the CSF due to iatrogenic chronic instability due to his surgical history of thumb duplication resection, where the radial structures of the MCPJ were not reconstructed. We currently treat CSF lesions in the same way as CCL lesions, using the same surgical criteria.

Disclosure

We declare that we have no financing or conflicts of interest.

Bibliography

1. Catalano., *et al*. "Results of Surgical Treatment of Acute and Chronic Grade II Tears of the Radial Collateral Ligament of the Thumb Metacarpophalangeal Joint". *Journal of Hand Surgery American* 31.1 (2006): 68-75.
2. Cates RA., *et al*. "Botox and Thumb MCP Radial Collateral Ligament Reconstruction". *Journal of Wrist Surgery* 7 (2018): 156-159.
3. Doty., *et al*. "Radial Collateral Ligament Injury of the Thumb with a Stener-like Lesion". *Orthopedics* 33.12 (2010): 925.
4. Kibar B and Malkoç FE. "Reconstruction of chronic thumb metacarpophalangeal radial collateral ligament injuries with free tendon grafts". *Joint Diseases and Related Surgery* 31.1 (2020): 62-67.
5. Moran SL and Berger RA. "The biomechanics of hand trauma: what you need". *Hand Clinics* 19 (2003): 17-31.

Volume 14 Issue 1 January 2023