Machine Translated by Google

LINBURG-COMSTOCK SYNDROME: A CASE REPORT

Sanchez-Ponce G1, More Martinez Elia1, Sanchez-Jimenez A2, Zaballos Carpenter V1 .

Abstract

The Linburg-Comstock variant consists of an anomalous tendon connection between the flexor pollicislongus (FPL) tendons and, more frequently, the flexor digitorum profundus (FDP), causing inability to flex the great toe alone. It can manifest as intermittent pain on the volar surface of the forearm, numbness in the fingers, tingling, and night pain. It can be successfully treated by surgical excision and for its diagnosis it is worth highlighting the usefulness of musculoskeletal dynamic ultrasound, available in our clinics, as a useful and efficient instrument for the diagnosis of suspicion of it.

***Keywords:** Linburg-Comstock syndrome, anomaly, dynamic ultrasound*

1Corresponding Author: Sánchez-Ponce G; Arnau Vilanova Hospital.

sanchez.genop3@gmail.com

Carrer de SantClement, 12, 46015 Valencia, Valencia

[2]La Fe Hospital, Avd Fernando Abril Martorell 106, 46026 Valencia

Machine Translated by Google

INTRODUCTION

Several anatomists described the cone anomalous tendinous junction between the flexor polycislongus (FPL) and the flexor digitorumpro fundus (FDP) at the end of the 19th century [1,2].

In 1979, Linburg and Comstock first published its frequency in humans.
According to these authors, this anomaly occurs unilaterally in 31% of the population and in 25% in cadavers. The incidence varies according to the studies from 12.5 to 36%. This tendon interconnection is the Linburg-Comstock variation (LCV) which is asymptomatic and when it manifests it is called Linburg Comstock syndrome (LCS) [3].

It is interesting to note that, although this variation is quite prevalent, there are few clinical studies that study it. In a recent meta-analysis, a higher prevalence was found in the Turkish population than in Europeans (22.2 vs 15.2%). In the Spanish population it occurs in 34.5% while in Africans it only occurs in 8.8% [4].

The prevalence of the right side was higher in men, while the left side was more frequent in women, but the difference between them was not statistically significant. Although all fingers could be involved, it occurred more frequently on the index[5].

Linburg and Comstock described a test for the diagnosis of this anomaly, in which the examiner passively blocks the flexion of the fingers, while the patient flexes the thumb towards the base of the 5th finger.
A positive test is characterized by active restriction of thumb flexion with associated pain or cramps in the palmar and radial area of the wrist, or distal forearm [3].

An alternative test is that the patient, when flexing the thumb, flexes the index finger. If pain appears with passive extension of the index, it is considered a positive test [6].

Conservative treatment such as splints, NSAIDs, stretching exercises, and local steroid injections have not shown efficacy [7].

Surgery by releasing the tendon connections in the LCS has been shown to be effective[3].

CLINICAL CASE

We present the case of a 42-year-old woman who attended the Rehabilitation outpatient clinic, referred from her Primary Care Physician due to right cervicobrachialgia of 6 months' evolution, with no other pathological history of interest. Right-handed and police profession (use of weapons).

The patient referred cervical pain radiating to the right upper limb (MSD) without specific radicular distribution, which improved after physiotherapy treatment.

Unspecific discomfort persisted at the level of the right forearm and wrist with pain on pressure over the flexor muscle area at the level of the middle third of the forearm, together with the appearance of involuntary flexion of the second finger when actively flexing the distal phalanx of the thumb of both hands. with right predominance (Fig. 1 and 2).

Without finding other findings in the exploration.

Machine Translated by Google

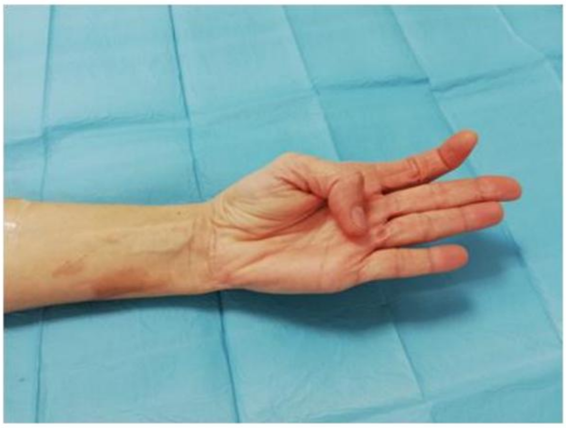

Figure 1 and 2: In the images during the examination: appearance of joint flexion of the second finger when performing voluntary active flexion of the distal phalanx of the thumb

As the only antecedent in previous weeks, highlight the performance of an electro myography of upper limbs without significant changes.

The patient provided hand-held magnetic resonance imaging (MRI) (performed at Mutual Laboral) with no pathological findings.

Given the symptoms, MSD ultrasound with linear transducer (Frequency 12 mHz) is performed in consultation, where dynamic exploration at the level of the middle third distal volar aspect of the forearm is suggestive of myotendinous junction of the FPL and FDP, when requesting active flexion of the distal phalanx of the thumb, dragging of the FDP is observed (figure 3 and video), for which it was decided to expand the study with MRI forearm in which only changes of synovitis in the dorsal carpal capsule can be seen without other findings.

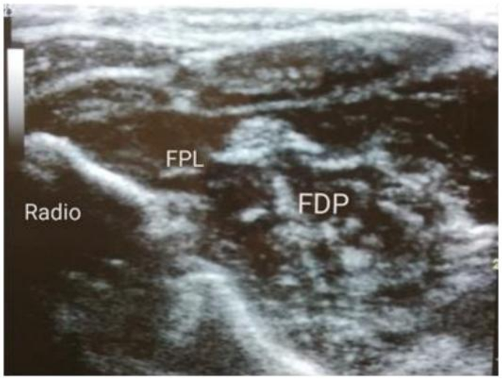

Figure 3: Ultrasound image of the volar face of the middle-distal third forearm in cross section.
Video: inability to move independently of the tendons FPL and the FDP

In the Radiology service, they performed a dynamic ultrasound of the right forearm, finding suspicion of the union of the FPL and index flexor tendons without evidencing a link between both flexors or no inflammatory changes. Infiltration under ultrasound control with lidocaine and triamcinolone was performed in the flexor compartments of the first and second fingers of the right hand without clinical improvement.

Machine Translated by Google

Given the findings found with dynamic ultrasound, he was referred to the COT service for surgical evaluation, indicating surgical tenolysis. During surgery, the FLP and PF of the second finger were identified, which presented a fibrous tissue link between them at the level of the tunnel of the finger.
carpus and at the beginning of it.

The link was resected, verifying independence for flexion of both tendons separately.

The patient later starts rehabilitation treatment with mobilizations
active-assisted, detachment of adherent scar and strengthening of forearm and hand muscles.

At 7 months after surgery, the patient is asymptomatic, and has even resumed.
given his work activity without limitations.

DISCUSSION

In the general population we can find different variants in the musculature
at wrist level on many occasions
asymptomatic, but in others they can cause disability.

When the LCV is present, it can give symptoms before the LCS manifests itself. It can start with pain in the ante
arm, edema, flexor tenosynovitis, and secondary carpal tunnel symptoms [6].

One of the factors being considered as the cause of this syndrome is mobility.
of the fingers, Lombardi et al justify it as tenosynovitis due to repetitive traction and irritation [6].

According to Rennie and Muller they did not find this relationship between repetitive activity and tenosynovitis causing tendon adhesion [8]. In our case we could think of tenosynovitis due to overuse at work, but the symptoms presented bilaterally.

Ultrasound is a technique of great value in the diagnosis of musculoskeletal diseases. It is available, cheap, non-invasive, and allows a rapid and dynamic evaluation of the structures.

In fact, some authors point out that high-resolution dynamic ultrasound should be used in the diagnosis of LCS, as it has some advantages over MRI to identify tendinous or tenosinovial interconnections; such as being
more sensitive to recognize interconnections smaller than 1
mm thick, allows for dynamic assessment, there are no artifacts with the metallic material, and it can also be compared with the contralateral forearm [9].

Knowing that the SCL could be observed at the level of the forearm, wrist and hand [3,6], a preoperative localization with MRI would be useful before surgical treatment [9].

In the case presented, all the diagnostic tests performed were negative. It was the dynamic ultrasound that made us suspect the existence of the LCS by observing the inability to move independently of the FLP and FDP.

According to different authors, the treatment consists of surgical excision with very good results [3,6]. In our patient, the conservative treatment failed and it was the surgical treatment together with the subsequent rehabilitation that achieved the improvement of the pain and the return to her work activity, including the use of weapons.

Machine Translated by Google

BIBLIOGRAPHIC REFERENCES

1. Macalister A. Additional observations on Muscular abnormalities in human anatomy. (Third Series) With a catalog of the principal muscular variations. Trans Roy IrishA cad. 1875; 25:1-134

2. Testut L. Les anomalies musculaireschez l'homme expliquées par l'anatomie compa rée. Leur importance in anthropology. g. Masson, Paris.1884; 4:454-509 Available at: https://archive.org/stream/lesanomalie smusc00testuoft#page/n5/mode/2up

3. Linburg RM, Comstock BE. Anomalus tendon slips from the flexor pollicis longus to the flexor digitorum profundus. J Hand Surg Am. 1979; 4:79-83.

4. Yammine K, Eric M, Linburg-Comstock variation and syndrome. A meta-analysis. SurgRadiolAnat 2017 40(3):289-296. in:

Available https://doi.org/10.1007/ s00276-017-1957-1.

5. Eric M, Yammine K, Gosh V, Feigl G, Mar ic D, Prevalence of the Linburg-Comstock variation through clinical evaluation. SurgRadiol Anat 2019 Nov;41(11):1307-1314. Available in: https://doi.org/10.1007/ s00276-019-02265-0.

6. Lombardi RM, Wood MB, Linscheid RL. Symptomatic restrictive thumb-index flexor tenosynovitis: incidence of musculotendi nous anomalies and results of treatment. J Hand Surg Am. 1988; 13:325-328.

7. Yoon Hong-Kee, Kim Chang Hyun. Linburg-Comstock syndrome involv ing four fingers: A case report and review of the literature. JPRAS [Internet] 2013 66, 1291-1294. Available in: https://dx.doi.org//10.1016/j.bjps.2012.12.0 32

8. Rennie WR, Muller H. Linburg syndrome. J Hand Surg Am. 1998; 41(4):306-308.

9. Smith J, Finnoff JT. Diagnostic and interventional musculoskeletal ultrasound: part 1. Fundamentals PM&R. 2009;1(1):64-75.