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Dupuytren's disease digital radius IV right hand and carpal tunnel syndrome on ipsilateral hand

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ABSTRACT

Dupuytren's contracture is a fibroproliferative disease whose etiology and pathophysiology are unclear and controversial. It is a connective tissue disorder, which takes part in the palmar's fibromatosis category and has common characteristics with the healing process. Dupuytren's disease is characterized by the flexion contracture of the hand due to palmar and digital aponeurosis. It generally affects the 4th digital radius, followed by the 5th one. Without surgery, it leads to functional impotence of those digital rays and/or hand. It is associated with other diseases and situational conditions like Peyronie's disease, the Lederhose disease (plantar fibromatosis), Garrod's digital knuckle-pads, diabetes, epilepsy, alcoholism, micro traumatism, stenosing tenosynovitis and not the least with carpal tunnel syndrome. The carpal tunnel syndrome is a peripheral neuropathy with the incarceration of the median nerve at the ARC level, expressed clinically by sensory and motor disturbances in the distribution territory of the median nerve, which cause functional limitations of daily activities of the patient. After the failure of the nonsurgical treatment or the appearance of the motor deficit, is established the open or endoscopic surgical treatment with the release of the median nerve.

Postoperative recovery in both diseases is crucial to the functionality of the affected upper limb and to the quality of the patient's life. The patient, a 61 years old man, admitted to the clinic for the functional impotence of the right hand, for the permanent flexion contracture of the metacarpophalangeal joint (MCP) and proximal interphalangeal joint (PIP) of the 4th finger with extension deficit, for the damage of the thumb pulp clamp of the 4th finger, for nocturnal paresthesia of fingers I-III and pain that radiates into the fingertips. After clinical, paraclinical, imagistic and electrical investigations, surgery is practiced partial aponevrectomy, carpal ligament section, external neurolysis of the median nerve, flexor tendon tenolysis. The particularity of this case is the coexistence of two pathologies: Dupuytren's disease and carpal tunnel syndrome, the decision to solve in the same operator time and the problem of immobilization. Reportation of this case supports previous reports in literature, such as Dupuytren's disease and carpal tunnel syndrome are observed at the same patient, at the same time or one after another.

Keywords: Dupuytren disease, carpal tunnel syndrome

Introduction

Dupuytren's contracture [1-5] is a fibroproliferative disease whose etiology and pathophysiology are unclear and controversial. It is a connective tissue disorder, which takes part in the

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palmar's fibromatosis category and has common characteristics with the healing process. Dupuytren's disease is characterized by the flexion contracture of the hand due to palmar and digital aponeurosis. It generally affects the 4th digital radius, followed by the 5th one. Without surgery, it leads to functional impotence of those digital rays and/or hands. It is associated with other diseases and situational conditions like Peyronie's disease, the Lederhose disease (plantar fibromatosis), Garrod's digital knuckle-pads, diabetes, epilepsy, alcoholism, micro traumatism, stenosing tenosynovitis and not the least with carpal tunnel syndrome [6-19].

The carpal tunnel syndrome is a peripheral neuropathy with the incarceration of the median nerve at the ARC level, expressed clinically by sensory and motor disturbances in the distribution territory of the median nerve, which cause functional limitations of daily activities of the patient. After the failure of the nonsurgical treatment or the appearance of the motor deficit, is established the open or endoscopic surgical treatment with the release of the median nerve [20-29].

Postoperative recovery in both diseases is crucial to the functionality of the affected upper limb and to the quality of the patient's life.

Case presentation

The patient, a 61 years old man, pensioner, is admitted in the Clinic of Plastic Surgery, Aesthetic and Reconstructive Microsurgery at the Emergency Hospital Bucharest, "Floreasca" for the functional impotence of the right hand, for the permanent flexion contracture of the metacarpophalangeal joint (MCP) and proximal interphalangeal joint (PIP) of the 4th finger with extension deficit, for the damage of the thumb pulp clamp of the 4th finger, for nocturnal paresthesia of fingers I-III and pain that radiates into the fingertips.

From personal pathological history, is observed that the patient suffered from

type II diabetes, in treatment with OAD and as conditions of life and work he was a professor of needlework (keep in mind the possibility of existence of micro traumatism).

Affection history

The onset is insidious, with 3 years ago, with no history of local trauma.

The period of state consists in the appearance of the first distal palmar crease nodule formation of a contractile straps at finger IV, nocturnal paresthesias about 2-3 months. Evolved to worsening symptoms.

Current Status: paresthesia, palmar contracture out across digital radius IV without established diagnosis or treatment followed regarding this symptomatology.

Local examination revealed normal skin colored, slender; adherent skin deep plan in the radius IV; a nodule and a longitudinal cord on the palmar side of the radius IV from the distal palmar flexion crease over MPC and prolonged F1-F2; affecting the normal alignment of the fingers at rest and full extension; not found muscular atrophy; trophicity skin, sweating and normal T; Tinel sign (+) at radiocarpal joint with pain that radiates to the apical level finger II - III of the right hand; Phalen test (+) patient describing "tingling" apical level finger I-III; carpal compression test (Durkan) (+); discriminative test in 2 points (-); revealed mild tenderness hypoesthesia in territory median nerve; lightweight fine movements of the right hand disorders; capillary pulse current. (Figure 1-2) [2,5,7,14].

Rx does not reveal osteoarticular changes, but serves for differential diagnosis in both diseases.

Ultrasonography can decrease thickening of the palmar fascia, presence of nodules and cords, location flexor tendons, changes of the median nerve caliber through the carpal tunnel [23,24].

EMG is done in the short abductor thumb median nerve proximal to the carpal tunnel ex: flexor carpi radialis muscles, round pronator, long

thumb flexor, excluded proximal median neuropathy .muscle to detect early changes in the median nerve denervation. [1-5]

EMG can test for differential diagnosis:

- Two or more muscles innervated by the
- Two or more muscles innervated C6- C7 ex: round pronator , triceps , extensor fingers, cervical radiculopathy excluded .

- Two or more muscles innervated C8 -T1 egg I dorsal interosseous , extensor thumb, excluded a brachial plexopathy , polyneuropathy and C8 -T1 radiculopathy.



Figure 1. [30]



Figure 2. [30]

Differential diagnosis in Dupuytren's disease is made with : sequelae scar retraction of the hand with flexion after various injuries : burns , wounds , bruises , with damage of skin and / or tendon , bone,

ligament; infiltrative tumor formations : giant cell tumor of soft parts , epitheloid sarcoma ; intrinsic joint contracture : nerve damage or ischemia (sdr Volkmann) ; palmar ganglions; epidermoid inclusion cyst; stenosis or nodular tenosynovitis digitopalmare ; changes secondaries rheumatoid arthritis ; occupational hyperkeratosis ; callus [1-19].

Differential diagnosis in the carpal tunnel syndrome is made with: proximal nerve damage ; hypertrophic arthritis ; compression of the median nerve in the round pronator muscle ; neuritis associated with local corticosteroid therapy ; progressive muscular atrophy ; ulnar neuropathy [1-5,20-29].

Evolution in the absence of treatment is to emphasize digital flexion , and the other fingers catching , affecting aponeurosis in total, with appearance of joint changes , trophic and sensitivity disorders.

* can be found in the literature and description of rare spontaneous regression of DD

Conservative treatment of DD:

- treatments without semnificative results: immobilization, physiotherapy , ultrasound, radiation therapy, medication antigout creams with vitamin E [6-19].

- treatments with semnificative results: percutaneous needle fasciotomy , steroid injections , continuous skeletal traction light , gamma interferon , vitamin E, enzyme percutaneous fasciotomy [6-19].

Conservative treatment CTS: orthopedic local corticosteroid injections , physiotherapy, a possible change in the workplace [20-29].

Surgical treatment [1-29]

Based on the information obtained, consider with the patient the optimal time for surgery of both diseases. Medical treatment is taken in discussion as well as preoperative preparation postoperative treatment .Surgery is the only one able to bring rapid relief of symptoms of both diseases , restore hand function , elimination and prevention of contractures

and their recurrence (Dupuytren's d. 20-80 % relapse) , removal the risk of irreversible damage or modest possibilities to improve function hand (Full contracture , atrophy) .

The risk is medium -scale operator ADRIANI MOORE scheduled for surgery, 3 .

After preoperative and anesthetic preparation is practiced surgery.

Technical surgery

It was chosen longitudinal incision digital palm type Bruner centered on the 4th radius. which starts from the distal palmar crease to AIFD, with a fold extension of the thumb opposition to the insertion of long palmar tendon. (Figure 3) It performs dissection and off of skin, emphasizing the cord and the nodule. (Figure.4)

It makes regional aponevrectomie (subtotal) with removal aponeurosis affected by longitudinal dissection with cord and nodule excision. (Figure 5)

It mobilizes finger IV, highlighting the tendons and joint mobility and integrity and fluidity of digital nerve and vessel. Incision continue until radiocarpal joint with carpal ligament sectioning and aponevrotomie; the median nerve is isolated, the carpal tunnel is explored with obvious causes compression removal. (Figures 6-8) The external neurolysis and tenolysis flexor tendons is practiced, with the removal of thickened sheaths, lavage, hemostasis, drainage aspiration, suturing, dressing, immobilization. (Figure 9,10)

Postoperative suction drainage suppress after 2 days, antibiotic therapy is instituted, painkiller, NSAIDs, antiseptory and cold local applications. Start of active and passive movements of MCP at 3 days after surgery, immobilization of PIP at night. Maintaining immobilization 14 days.

Follow rehabilitation therapy program.



Figure 3. [30]



Figure 4. [30]



Figure 5. [30]



Figure 6. [30]



Figure 9. [30]



Figure 7. [30]



Figure 10. [30]



Figure 8. [30]

At 3 months highlight the possibility of performing MCP and PIP joint extension, absence of pain, numbness and resumption of daily activities. (Figure 11)



Figure 11. [30]

Prognostic and evolution:

This case has a good prognosis both early and late (with attention to relapses DD)

Conclusions and discussions

The particularity of this case is the coexistence of two pathologies: Dupuytren's disease and carpal tunnel syndrome, the decision to solve in the same operator time and the problem of immobilization. Reportation of this case supports previous reports in literature, such as Dupuytren's disease and carpal tunnel syndrome are observed at the same patient, at the same time or one after another.

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