Dupuytren´s Contracture. A case report

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Case Report

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Background: Dupuytren's disease is a progressive condition that causes the formation of nodules and later fibrous cords in the palm of the hand, specifically in the palmar and digital fascia, leading to contracture and deformity of the fingers, resulting in functional disability and aesthetic alteration for the patient. The disease is diagnosed clinically, and treatment focuses on both conservative and surgical management, depending on the severity of the condition.

Management was carried out for a 72-year-old male patient diagnosed with Dupuytren's disease, who presented multiple risk factors for developing the condition. According to the Tubiana classification, a grade 2 disease was identified, so it was decided to perform surgical management through fasciectomy. Additionally, a Z-plasty was necessary to improve the quality of the skin contracture the patient had. In the end, an excellent functional and aesthetic result was achieved for the patient.

Keywords: Dupuytren's contracture. Dupuytren´s Disease, Tubiana Classification, Fasciectomy.

Called the "Vikings' Disease," frequently observed in people with Northern European ancestry, it has a high prevalence in countries such as Iceland, Norway, and the United Kingdom. It has been determined that between 3-6% of people of European ancestry are affected, and men are 2 to 7 times more likely to develop the disease than women (1).

Dupuytren's disease is a myofibroblastic condition that affects the palmar and digital fascia of the hand and causes contracture and deformity in the hand. It begins with the formation of painless nodules, which form along the lines of tension; later, cords and contractures form, which generates contractural deformity within the fascial bands in the hand. It is more common in Caucasians, is typically bilateral, predominantly affects the right hand, and is more frequent in males. It is characterized by abnormal accumulation of type III collagen, which produces an effect on the mobility of the hand and fingers, which can affect hand movement and grip strength (1).

It presents its onset peak after the age of 40, its incidence increases with age, showing up to a 20% probability of occurring in those over 60 years old, and it tends to present more aggressively in young patients (1).

It is a disease with autosomal dominant inheritance; however, it is also associated with environmental factors such as excessive alcohol consumption, smoking, injuries and trauma to the hands, as well as intense physical activities involving the use of the hands, diabetes mellitus, arterial hypertension, dyslipidemia, HIV, and vascular diseases (1).

It mainly affects the palmar fascia, which plays a fundamental role in supporting structures such as tendons, nerves, and blood vessels in the hand. It is composed of longitudinal and transverse fibers (2).

The palmar fascia has a superficial and a deep layer, the former being anchored to the skin and providing stability to the palm. The palmar aponeurosis has fibers that extend toward the fingers, being crucial to maintaining the structural integrity of the palm (2).

The development of thickened, fibrotic cords in Dupuytren's contracture leads to restricted movement. The most significant cords in the progression of the disease are the spiral cords, which can cause contractures in the proximal interphalangeal joint. These cords originate from a combination of four structures: the grasping band, the spiral band, the lateral digital sheath, and Grayson's ligament (2).

Ectopic manifestations can be observed outside the hand, such as Ledderhose disease, affecting the plantar fascia, and Peyronie's disease, affecting the penile fascia, in 2% and 8% of cases, respectively (2).

There is no cure for Dupuytren's disease, and despite surgical intervention, the contractures may reappear and require further management. Fasciectomy is the most commonly used method to correct the disease; however, new therapeutic options, such as collagenase injection, have been chosen, which provide a reduction in costs as well as recovery time, though presenting high recurrence rates (3).

Dupuytren's disease is chronic and is not cured with surgery; surgical resection may be followed by a

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Figure 1. image of the palm of the hand which shows contracture of the fourth finger of the left hand and presence of fibrous cords. remission that lasts years or may present with an early recurrence (3).

Management is indicated for contractures in the metacarpophalangeal joint of 30 degrees or 15-20 degrees in the proximal interphalangeal joint. Treatment options include conservative management, needle aponeurotomy, collagenase injection, or surgical resection (3).

Conservative management is recommended for patients who do not experience pain, as well as for those who are stable and without functional deterioration (4).

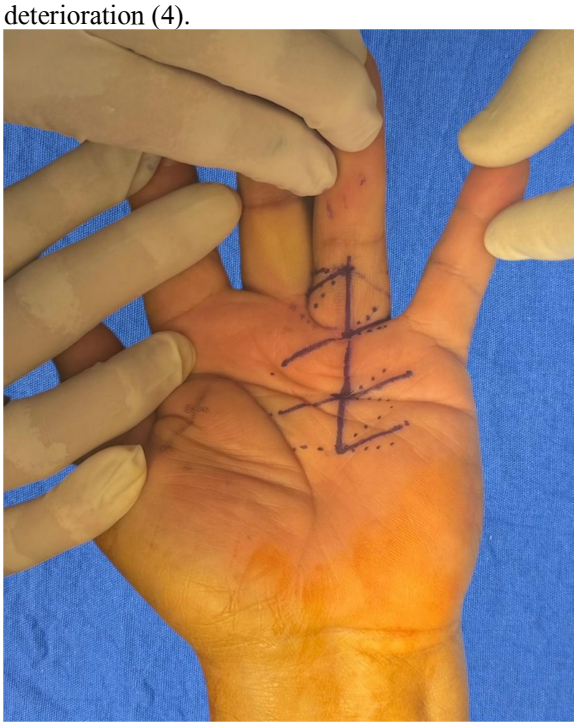

Figure 2. Pre-surgical marking for Z-plasty on the left hand

Figure 4. Post surgical result.

Follow-up can be carried out every 6 months to assess the degree of disease progression, use of heat in the affected region, as well as physiotherapy, use of ultrasound waves, and splints. Similarly, intralesional corticosteroid injections can be used, mainly indicated for patients who experience pain; however, their recurrence rate is up to 50%, they also cause fat atrophy, pigmentation changes, and there is a risk of tendon rupture (4).

Surgical management focuses on a fasciectomy. The dissection is generally performed from proximal to distal in order to identify neurovascular structures before encountering the spiral cord (5).

Figure 5. Result 3 weeks after the surgery

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Case report

72-year-old male patient weighing 67 kilograms, height 1.55 meters, and a BMI of 23.52 kg/m², unaware of relevant medical history in his immediate family. He has a diagnosis of Type 2 Diabetes Mellitus (20 years of evolution), Systemic Arterial Hypertension (15 years of evolution), bronchial asthma, surgical history secondary to catheter ablation in 2015, complete vaccination schedule, positive smoking history since 52 years old, smoking 4 cigarettes per day, quit 8 months ago. He denies previous transfusions. Upon evaluation, the patient reports growth of nodules in the palmar region of both hands with subsequent flexion deformity of the fingers and functional limitation. He is diagnosed with Dupuytren's Disease grade II according to the Tubiana classification.

A complete pre-surgical protocol is carried out, obtaining an assessment by internal medicine with surgical risk ASA II, GOLDMAN II, CAPRINI 5 points, without contraindications, by cardiology and anesthesiology for the procedure. A fasciectomy + Z-plasty of the left hand was performed on February 4, 2026, without any complications, and the patient was discharged home to continue with follow-up and post-surgical monitoring.

Follow-up and management were carried out for a 72-year-old patient diagnosed with Dupuytren's Disease grade II according to Tubiana, who required a surgical procedure focused on Fasciectomy + Z-plasty of the left hand, finding an adequate evolution and improvement of the contracture both in the skin and in the digital and palmar fascia.

Discussion

Dupuytren's contracture has been described as a pathology generated by genetic factors and secondary to the external environment; however, attempts are also made to demonstrate the presence of causes secondary to injuries, with the latter being mentioned as a triggering factor. Dupuytren's disease is progressive in nature and has no cure; cases have been described in which the nodules improve over time. In Dupuytren's disease, scar tissue accumulates in the palm of the hand, which can form cords over time. This will generate finger contracture and inability to fully extend, which will limit the use of the hand (5).

The best way to evaluate the deformity of the metacarpophalangeal joint is by flexing the proximal interphalangeal joint. The Hueston table top test can reveal contractures; it is positive when the palm cannot be placed flat on the surface. Another indication to start treatment is a contracture greater than 30° (5).

Previously, it was stipulated that Dupuytren's disease was exclusive to patients of Nordic or Viking origin; however, it has been established that it is caused by the interaction of multiple genes, identifying 26 genomic regions associated with this disease, and this may not be all, as a cohort study mentioning more than 30,000 pairs of Danish twins showed that the heritability of Dupuytren's contracture is close to 80% (6).

It is most frequently identified in patients with Northern European/Scandinavian ancestry. It has a global heritability of 80%, and a 2:1 ratio of men to women has been identified. It has been observed that an earlier age of onset is associated with greater disease severity (6). A worldwide prevalence of 8% was calculated, with the highest prevalence rates in Africa at 17%, Asia at 15%, Europe at 10%, and America at 2% (6).

Dupuytren's disease is caused by abnormal myofibroblastic growth in the hand, composed of type III collagen; it is also associated with interleukin-1, transforming growth factor beta-1, transforming growth factor beta-2, epidermal growth factor, platelet-derived growth factor, and connective tissue growth factor. It progresses through 3 phases, which were named in 1959 and have since been part of the Luck classification for Dupuytren's disease, which consist of the following. The proliferative phase is characterized by an increase in fibroblasts in the palmar fascia, generating the formation of nodules; subsequently, they differentiate into myofibroblasts, which are responsible for the formation of extracellular matrix components, particularly type III collagen. This contributes to the formation of fibrous tissue (6).

Involutive phase involves contraction of the myofibroblasts and alignment along the fascia, which will cause thickening and shortening of the cords, generating flexion of the affected fingers. Residual phase results in stabilization of the disease; the cords become less cellular but remain thickened and contracted, and the flexion deformities become permanent at this point (6).

Risk factors for presenting a more severe form of the disease include onset before 50 years of age, bilateral disease, involvement of siblings and parents, as well as having Garrod, Ledderhose, or Peyronie’s disease (6).

Nine genetic loci have been identified that contained genes encoding proteins involved in Wnt signaling, among them RSPO2, WNT4, SRFP4; although they are not the only ones, they are the most significant (7).

It begins as a palpable nodule on the palm, frequently in the distal fold. The nodules enlarge into cords, and this is the first thing identified in the early stages of the disease: palpable nodules along the palm

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of the hand. Over time, the cords thicken and shorten, causing flexion contractures at the metacarpophalangeal and proximal interphalangeal joints, presenting with loss of range of motion of the hand and contractile cords on the palm that extend toward the affected fingers, which is pathognomonic of the disease (7).

In Dupuytren's disease, the presence of pain is not characteristic unless the ulnar nerve is affected. Among the physical findings of Dupuytren's contracture are skin blanching when the finger is extended, proximal to the nodules. The cords are painless; there may be dimples and grooves. The pads over the PIP joints may be sensitive. If the plantar fascia is affected, this indicates a more severe disease (Ledderhose disease). The table test (Hueston) is performed by having the patient try to place the palm flat on the examination table. If there is any flexion contracture deformity, the patient cannot straighten the fingers, which is considered positive (7).

The Tubiana classification is one of the most widely used systems for Dupuytren's disease and helps to classify the disease depending on the degree of contracture, finding a range of extension deficit from 0° to 45° for grade I, 45° to 90° for grade II, 90° to 135° for grade III, and those with extension deficit of more than 135° for grade IV, with surgical management being required in patients with an extension deficit greater than 30° (7).

The DASH questionnaire (Disabilities of the Arm, Shoulder, and Hand questionnaire) is a widely used measure that evaluates functional impairment and the impact of hand dysfunction on daily activities, and it is used for follow-up before and after management to provide a comprehensive view of the outcomes perceived by the patient (8).

Another important aspect for evaluating the effectiveness of the treatment is the measurement of the range of motion with a goniometer. The surgical management of Dupuytren's disease focuses not only on radical fasciectomies but also on limited ones, due to the high degree of morbidity generated by the former. In limited fasciectomies, segments of 1 cm of the pathological cords are removed. The procedures introduced more recently are minimally invasive, such as percutaneous needle fasciotomy and collagenase injections (8).

There are some predictors of recurrence such as family history, bilateral disease, age of onset under 50 years, the presence of concomitant diseases like Ledderhose, Peyronie, as well as Garrod's nodes, even the presence of high cellularity fibrosis and mitosis in the histopathological study (8).

The treatment is mainly divided into two approaches: a non-surgical one and the other focusing on surgical management. One of the novel treatments has been the use of collagenase, which is an enzyme that acts specifically on the collagen of fibrous cords and breaks them down, effectively weakening the contracture and subsequently being manipulated to break the weakened cord. Success rates range between 65 and 85%, with recurrence rates of up to 40% (8).

Physiotherapy and splinting are treatments that are frequently used; they are interventions that provide temporary relief and improve the range of motion. Their long-term effectiveness is limited, since although splinting helps keep the fingers extended, its use is discouraged due to the risk of increasing finger stiffness (8).

Surgical management is considered the main treatment option for advanced Dupuytren's contracture, with the surgical objectives being to release the contracted fascia and restore finger extension (8).

Dermofasciotomy consists of removing the fascia and overlying skin, performing the placement of a skin graft to cover the resulting defect. This procedure is reserved for cases with significant skin involvement or when there is a high concern of recurrence. One of the factors to consider is that it has a prolonged recovery time and a higher risk of complications, including factors associated with graft loss (9).

It has been shown that non-surgical

treatments, such as collagenase injection and needle aponeurotomy, are minimally invasive and favorable in the short term. The recurrence rate ranges between 35-58% over a 5-year period. This pattern emphasizes the need for long-term follow-up and repeated interventions (9).

Conclusion

Dupuytren's disease or Viking disease is a progressive degenerative condition that mainly affects the digital and palmar fascia of the hand, causing contracture at the level of the fingers, primarily the ring finger, and the ulnar portion of the hand. This will lead to disability in the patient and a decrease in both hand function and aesthetics. In our patient, a Dupuytren's contracture grade II according to Tubiana was identified, so it was decided to perform surgical management consisting of Fasciectomy + Z-plasty of the left hand on February 4, 2026. Adequate progress was observed, and below are pre-surgical images, surgical marking images, as well as post-surgical images following the Z-plasty.

Different management options have been attempted to avoid the surgical procedure in this disease; however, both enzymatic therapy with collagenase and minimally invasive options have shown adequate progress. Nevertheless, they present a

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high recurrence rate, so the standardized management continues to be fasciotomy, as it presents a low morbidity rate. Patients who have a very pronounced skin contracture could benefit from dermofasciotomy, in which the skin contracture is also removed and covered with a skin graft. There are various management options to offer patients with this disease; however, so far none are curative, and patients must be evaluated serially to observe long-term progression.

Conflicts of interests

The authors declare that there are no financial, personal, or institutional conflicts of interest that could have influenced the work reported in this manuscript.

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