Dupuytren's Contracture

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Introduction

Dupuytren's contracture is a common disorder characterized by hyperplasia of the palmar fascia and related structures with nodule formation and contracture of the palmar fascia. There is evidence that a T-cell mediated response causes this autoimmune proliferation of myofibroblasts. The incidence is higher among alcoholic patients and those with chronic systemic disorders including cirrhosis, Human Immunodeficiency Virus (HIV), epilepsy, and diabetes. Male sex, and environmental exposures (e.g., smoking, vibrational devices) have also been implicated. It manifests itself by nodular or cord-like thickening of one or both hands with the fourth and fifth fingers most commonly affected. It can be associated with systemic fibrosing syndrome, which includes Peyronie disease, mediastinal and retroperitoneal fibrosis, and Riedel struma. Slow progressive disease is more common than acute onset [1].

Clinical Findings

The disease presentation is usually asymptomatic and not painful except for flexed fingers interfering with the affected hand usage. The process commonly begins with the ring finger, but other fingers can often become involved. The percentage affected includes 60.7% ring finger, 51% small finger, 22.5% middle finger, 7% thumb, and 5.8% index finger involvement as stated in Wolfe Green's operative hand surgery text. On exam, one will find an isolated, painless palmar nodule that eventually hardens and progresses into a cord that can extend into the finger. As this cord enlarges, it contracts into a ball, creating flexion deformity at the metacarpophalangeal (MCP) or proximal interphalangeal (PIP) joints. Skin pitting is often an associated finding.

Diagnosis

Evaluation begins with inspection of palmar skin with palpation for palpable cords. Assess for MCP/PIP joint contracture. MCP contracture occurs before PIP contracture. The 'table top test of Hueston' is a reliable physical exam assessing for ability to flatten the hand on a table. If unable to flatten, this is a positive test. Surgery is generally not indicated if negative. Evaluate any other affected areas which may include knuckle pads (Garrod's nodes), plantar fascia (Ledderhose disease), and/or penile fascia (Peyronies disease).

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Imaging studies are not necessary for the diagnosis. Plain film radiographs, Computed Tomography (CT) scan, or Magnetic Resonance Imaging (MRI) may be helpful in considering differential diagnoses. Dupuytren's contracture is a progressive condition that can be staged from mild, moderate, to severe or as seen below [2]:

1. Early palmar disease without contracture.
2. One finger involved, with only metacarpophalangeal joint contracture.
3. One finger involved, with metacarpophalangeal joint and proximal interphalangeal joint contracture.
4. More than one finger involved.
5. Finger-in-palm deformity.

Treatment

Treatment is palliative, not curative as the disease cannot be reversed. A surgeon can only remove the pathologic tissue. There is always the threat of recurrence. Treatment options are described differently based on various staging criteria but is often simplified into observation versus surgical groups. If the patient has solitary palmar nodules, MCP contractures less than 30 degrees, and a negative table top test, many would recommend observation. Conservative management strategies include avoiding repetitive hand trauma, physical therapy, and stretching exercises. Intra-lesional corticosteroid injection can be effective in softening and flattening nodules. Enzymatic fasciotomy by Clostridium histolytic collagenase (Xiaflex) injection for cases with less than 50 degrees contracture has shown good efficacy. Xiaflex is the first FDA-approved, nonsurgical treatment option for adult Dupuytren's contracture patients with a palpable cord. Flexor tendon rupture can result from steroids and collagenase injection. If the MCP contracture is greater than 30 degrees, presence of any PIP contracture, and positive table test then one would fall into the surgical intervention group. Another indication for surgery is neurovascular damage of the finger. Evaluation by a hand surgeon is warranted with any painful nodule regardless of stage and if joint contracture develops. Surgery involving excision of the pathologic cords and nodules may straighten the finger and overstretch the neuromuscular bundle leading to compromise [3, 4].

Differential Diagnosis

- Soft tissue tumor.
- Tendon cyst.
- Fracture malunion.
- Volkmann contracture.
- Traumatic scars.
- Camptodactyly.
- Trigger finger.

High Yield Points

- Siblings of affected individuals are three times as likely to acquire the disease.
- Excessive myofibroblast proliferation and altered collagen matrix lead to thickened and contracted palmar fascia altering hand function.
- Slow progressive disease is more common than acute onset.
- Risk factors include >40 years old, male sex, northern European descent, positive family history, diabetes mellitus, alcoholism, smoking, HIV infection, hyperlipidemia, and exposure to vibration.
- Treatment is palliative, not curative.
- Patients with additional findings including tender knuckle pads (Garrod's nodules), Peyronie's disease, or Ledderhose disease (plantar fascia involvement) are considered to have Dupuytren's diathesis, and their disease progression is generally more severe.
- Table top test of Hueston is generally used to differentiate whether the patient should be treated surgically or conservatively.

Questions

1. Which cell is the dominant cell type involved in Dupuytren's disease?
   A. Fibroblast
   B. Chondrocyte
   C. Histiocyte
   D. Osteoblast
   E. Myofibroblast
   Answer: E
2. Which finger tends to be the most commonly affected digit?
   A. Index
   B. Small
   C. Ring
   D. Middle
   E. Thumb
   Answer: C
3. Which of the following have not been listed as risk factor for Dupuytren's contracture?
   A. Male sex
   B. >60 years old
   C. Diabetes
   D. Cirrhosis
   E. Family exposure
   Answer: B

References

1. Stephen MPJ. Dupuytren contracture. 2012 Current medical diagnosis and treatment; 20:815–7.
2. Parvizi J. High-yield orthopedics. Philadelphia: Saunders; 2010.
3. Shah KN, Sobel AD. Sclerodermia (Systemic Sclerosis). In: Ferri's clinical advisor 2018. 1st ed. 2017. p. 412.e5–412.e7.
4. Wolfe SW, Hurst L. Dupuytren's contracture. In: Wolfe Green's operative hand surgery. 6th ed. vol 5. 2010. p. 141–58.