Dupuytren's disease Anatomy, Pathology and Presentation

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Anatomy

Palmar fascial Complex (5 components)
- Radial aponeurosis
  Pretendinous band (PTB) to thumb: Very small
  Distal commissural ligament (DCL): Extension of natatory ligament (NT)
  Proximal commissural ligament (PCL): Extension of transverse ligament of the palmar aponeurosis (TLPA)
- Ulnar aponeurosis
  Abductor digiti minimi (ADM): soft tissue coalescence
- Central aponeurosis
  Three dimensional fiber orientation
    Longitudinal
    PTB: split distally. Split PTB terminates into 3 layers (McGrouther)
      - Superficial layer: Attaches in dermis
      - Middle layer: 1) Free in digit and 2) Continue as spiral band
      - Deep layer: Flexor and extensor mechanism
  Transverse
    NL: Continuous proximal border and U shape distal border. Contributes to formation of lateral digital sheet (LDS)
    TLPA: Deep to PTB, gives origin to septa of Legueu Juvara
  Vertical
    Grapow vertical fibers: Superficial to palmar fascial complex
    Legueu Juvara (L&J) septa: 8 septa, 7 components
- Palmodigital fascia
  Spiral band (SB) of Gosset: Along with soft tissue coalescence
    Contributes to the formation of LDS
- Digital fascia (neurovascular bundle surrounded by 4 ligaments)
  1. Gosset lateral digital sheet
  2. Grayson's ligament
  3. Thomine retrovascular fibers
  4. Cleland's ligaments
    Landsmere retinacular ligaments (transverse and oblique)
Pathology

Nodules: Palmar or digital
Cords: Palmar, palmo-digital or digital

Normal bands form pathologic cords
Cords cause tissue or joint contracture

-Dermopathology
  Grapow fibres → Micro-cords → Skin thickening
  1st layer of split PTB → Dermal cord → Skin pit

-Radial aponeurosis
  PTB → Pretendinous Cord → MP joint flexion contracture
  DCL → Distal commissural ligament cord → First web space contracture
  PCL → Proximal commissural ligament cord → First web space contracture

-Ulnar aponeurosis
  ADM coalescence → Isolated digital cord → PIP joint contracture
  Isolated digital cord components are similar to spiral cord without PTB

-Central aponeurosis
  PTB → PT Cord → MCP joint flexion contracture
  Septa L&J → Vertical cord → Stenosing tenosynovitis

-Palmodigital fascia
  NL → Natatory Cord → Web space contracture
  SB → Spiral Cord → PIP and MCP joint flexion contracture
  Spiral Cord components = PTB + SB + LDS + Grayson’s ligament (McFarlane)

-Digital fascia
  2nd layer of split PTB → Central Cord → PIP joint flexion contracture
  LDS → Lateral Cord → PIP joint flexion contracture
  Retrovascular fibers → Retrovascular Cord → PIP joint flexion contracture
Clinical Types

1. Typical Dupuytren’s disease

Caucasian male, northern European, 57 years of age, has bilateral progressive disease, and more than one digit involved. Family history is often present and genetic factors are important in the pathogenesis. Treatment is often surgical.

2. Non-Dupuytren’s disease

Ethnic diversity, no gender predilection, lack of family history, non-ectopic, non-progressive or regressive, unilateral, confined to the palm and in line with a single digit. Factors contributing to pathogenesis are: trauma, previous surgery and diabetes. Treatment is non-surgical.

The vast discrepancies in the disease prevalence (2-42%) and treatment outcome ie recurrence (0-71%) are probably related to lack of differentiation between these types. Future epidemiologic and outcome studies should take into account the types of palmar fascial contracture, typical DD and atypical DC.

Rayan G. OKO chapter on Dupuytren’s Disease, AAOS web site www.aaos.org.

Dupuytren’s Disease Textbooks