Freiberg’s Infarction

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Introduction

• First described in 1914 by Freiberg as an infraction of the 2nd metatarsal head.

• 2nd MTPJ most common (70%).

• Can also occur in lesser metatarsals

• Of 275 reported cases, Katcherian found male-to-female ratio of 1:5 which is unusual amongst the osteochondroses
Infraction or infarction?

• Traumatic ie epiphyseal injury – infraction

• Vascular insufficiency – infarction
  – Diabetes, SLE, hypercoagulability

• Biomechanical factors
  – Morton’s foot type, 1\textsuperscript{st} ray instability, long 2\textsuperscript{nd} ray
  – 2\textsuperscript{nd} and 3\textsuperscript{rd} metatarsals are less mobile than others
    • Leads to repetitive microtrauma
Clinical Presentation

- May have no pain initially, which progresses to pain on walking
- Local pain with limp
- Limited ROM
- Pain on palpation of the met head
- Soft tissue swelling.
- DDx - Stress fx, Mortons neuroma, Synovitis, Plantar plate injury, Gout, RA
Clinical examination

- Clinical palpation of the MTPJ dorsal and plantar
- ROM of the MTPJ
- Lachman’s test for instability
Radiographic classification

Early stage

may see epiphyseal fracture and/or mild flattening
Stage II/III

Flattening of the articular surface
notice beginning of collapse of central portion of the met head
Stage IV

Continued flattening, collapse and loose fragments
Case study
Stage V

End stage DJD
MRI
Ultrasound
Non-Surgical Treatment
Orthoses

Images courtesy Dean Samaras
Orthoses

Images courtesy Dean Samaras
Successful orthoses prescription

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Surgical Management
Surgical management

cheilectomy +/- osteotomy
Joint replacement

Cartiva (PVA)
Joint resection +/- interposition

Images courtesy Andrew Kingsford
Conclusion

• Most likely multifactorial etiology - certain patients may be anatomically predisposed by mechanical, vascular, and developmental factors

• Identify early – Immobilise to reduce risk of progressive damage

• May present later in life as painful DJD

• Several surgical options based on individual presentation