43M took a bad step 2 weeks ago. Now swelling, pain, limited ROM.
Dorsal Defect of the Patella

(Atypical or traumatized?)
Dorsal Defect of the Patella: Well Known, But Not Well Understood
Dorsal Defect of the Patella (DDP): A Characteristic Radiographic Lesion

Dorsal Defect of the Patella

John Caffey, 1972

• Round, well-defined lysis

• Superolateral patella
  – Important for ddx and etiology!

• Extends to subchondral bone
  – Involves cartilage?

• May be symptomatic!
  – Pain, pop, giving way
  – Bone scan can be positive

• May spontaneously heal with sclerosis
  – Symptomatic cases respond to surgery
Differential

• Osteochondral lesion
  – Variable shape
  – Medial/central > lateral
  – Possible free fragments
  – Edema
  – Cartilage (?)

• Osteomyelitis / Brodie’s
  – Starts ventral

• Mass (epiphyseal, esp CBw, GCT)

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Epidemiology

- Ass’d with multipartite patella

Dorsal defect of the patella:

- Up to 1% of population
- Equal in males and females
- Bilateral in up to 1/3
- Usually young, but also cases in 50s
“There is an argument regarding the aetiology and pathology of the so called ‘dorsal defect of the patella’.”
Uncertain Histology and Origin

- Vastus lateralis
- Poor vasculature
- Trauma
- Ischemia (Osteonecrosis)

- Developmental
  - Bilaterality
  - Ass'd bipartite

- Non-ossifying fibroma
  - Goergen 1979: fibrosis
  - Caffey 1972
  - Haswell 1976

- Subchondral collapse
  - Sugita 1998
  - Subchondral bone collapse
  - Necrotic trabeculae
  - Empty osteocyte lacunae
  - Necrotic debris
  - Active remodeling

- Cartilage defect
  - Monu 1993

- Pain
  - Van Holsbeeck 1987
  - Sugita 1998
  - Van Holsbeeck 1987

- Van Holsbeeck 1987

- Denham 1984
- Van Holsbeeck 1987
“There is a paucity of literature describing the advanced imaging features of DDP.”

MRI Appearance

• Iso to slight hyper on T1WI/T2WI (Ho 1991)
  – With healing, sclerosis (dk/dk)

• “Soft tissue of similar signal intensity”;
  “cartilage-like soft tissue” (Huang 2004)

• “Ingrowth of articular cartilage” with lines of
  PD/T2 iso to slight hyper (Monu 1993)
“Initial descriptions of DDP reported normal overlying articular cartilage. Later authors have since reported associated cartilage abnormalities in some patients.”

Cartilage Involvement

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