Imaging of Osteochondral lesions

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Outline

1. Osteochondritis dissecans
2. Normal femoral condylar irregularities
3. Acute osteochondral fractures
4. Osteochondritis dissecans as a secondary process
1. Osteochondritis dissecans

• Etiology
  - Repetitive microtrauma and/or ischemia:
    • Spherical growth plate
    • Articular cartilage
Normal

Osteochondritis dissecans
Location in knee

• Lateral aspect of the medial femoral condyle
• Lateral femoral condyle
• Trochlear fossa
• Patella
14 yo
IV. Osteochondral lesions

• Osteochondritis dessicans

• Stable versus unstable (applies to adolescents!)
  - Unstable:
    • Fluid insinuation between osteochondral lesion and parent bone
    • Junctional cyst >5 mm
    • Overlying cartilage thinning
    • Loose bodies

• These rules do not apply to pre-adolescents!
Osteochondritis dessicans - unstable

16 yo
Osteochondritis dissecans-unstable with loose bodies
Osteochondritis dessicans-stable

13 yo
Unstable osteochondritis dissecans with Marrow edema

Stable osteochondritis dissecans with minimal marrow edema
Checklist for osteochondritis dissecans

• Stable versus unstable

• Localize loose bodies

• Marrow edema/absent marrow edema
Normal femoral condylar irregularities

• Up to 66% of boys and 41% of girls 3-13 year may have normal fragmentary appearance of the femoral condyles (Caffey 1958)

• Osteochondritis dissecans and normal femoral condylar irregularities likely represents spectrum of normal development/microtrauma
Normal femoral condylar irregularities

10 yo
Normal femoral condylar irregularities

10 yo
Femoral condylar irregularities
Osteochondritis dessicans?

Normal femoral condylar irregularity?

Osteochondritis dessicans
Acute cartilage injury

- Partial thickness
- Full thickness
- Delamination injury
Acute cartilage injury - partial thickness injury

12 yo
Full-thickness cartilage injury

14 yo
Acute cartilage injury - delamination injury

17 yo
Acute chondral injury

Osteochondritis dessicans
Osteochondral lesions may occur as a result of a primary insult

- Perthes

- Developmental dysplasia of the hip
Osteochondral lesion related to Perthes
9 year old
Osteochondral lesions related to DDH
17 year old
Summary

• Osteochondritis dissecans and normal femoral condylar irregularities are likely a spectrum of the same disorder
Summary 2

• When osteochondritis dissecans is present define:
  - Stable versus unstable
  - Marrow edema
Summary 3

• Osteochondritis dissecans is a chronic injury, and different from an acute chondral or osteochondral fracture
Summary 4

• Osteochondritis dissecans may occur as a secondary process, such as DDH and Perthes
Thank you for your attention!