POSNA

The Core Curriculum

Osteochondritis dissecans

Objectives

1. Define osteochondritis dissecans
2. List sites reported osteochondritis dissecans in the lower extremity
3. Describe the pathology of osteochondritis dissecans
4. Discuss the natural history of osteochondritis dissecans in the skeletally immature and the skeletally mature
5. Discuss imaging studies useful in planning treatment for osteochondritis dissecans
6. Discuss treatment approaches to osteochondritis dissecans

Discussion

1. Would lesions successfully treated with drilling in the skeletally immature patients have healed just as well with rest and immobilization?
2. How would you organize a prospective study to settle the effectiveness of various treatments used for osteochondritis dissecans?

Discussion

Osteochondritis dissecans is a relatively common disorder of the immature skeleton. It can range in severity from an asymptomatic incidental radiographic finding to a large displaced fragment several cms in diameter. In the lower limb, it has been reported in the femoral head (largely following Legg Perthes syndrome), the medial and lateral distal femoral condyles, the patella, the medial and lateral talus, and the metatarsal heads. Osteochondritis dissecans is characterized by an interruption of the subchondral bone with or without a defect in the overlying articular cartilage. The etiology remains obscure despite a mountain of literature. Repetitive trauma (especially) and/or vascular anomalies are predominant. The behavior of osteochondritis dissecans varies from site to site. Medial distal femoral lesions, in general, fare better than lateral. Lateral talar lesions fare better than medial. The hip seems less prone to osteoarthritis than the knee. Skeletal immaturity is a definite advantage in prognosis. Younger skeletally immature patients fare better than older. Smaller lesions heal better than large. Stable lesions (with intact overlying cartilage) have a better outlook than unstable (with a defect in the overlying cartilage). Little wonder it is hard to compare results of treatment. The classic paper on the subject that of Green and Banks, who reported results of treatment of 19 children, mostly with medial femoral condylar lesions. Lateral femoral lesions have been linked with discoid menisci. Talar lesions appear largely secondary to trauma, as they often follow a sprain. It is theorized that impingement of the talus on the fibula when the lateral ligament has not failed can produce this lesion.

Physical findings are sometimes nonspecific; effusion may be present in advanced lesions. Tenderness over the lesion may be elicited if the affected portion of the knee is accessible. The Wilson sign, pain with internal rotation of the tibia and flexion of the knee, is designed to impinge the tibial spine on the medial condylar lesion. Plain radiography is the standard imaging technique. Cahill uses bone scintigraphy extensively in following skeletally immature patients with osteochondritis dissecans. MRI has been touted as helping in decision-making. CT scanning is favored by some for talar lesions, MR imaging is more sensitive for bone bruising.

For osteochondritis dissecans of the knee, treatment by Green with plaster immobilization resulted in healing in an average of 7 months. Other authors have modified the casting to application of a knee immobilizer. We do not know whether this makes a difference. Surgical strategies, primarily arthroscopic include antegrade and retrograde drilling in situ, stabilization of fragments with screws or bone pegs, replacement of fragments with stabilization, and osteochondral allografts and allografts. Indications for surgery are not always clear. Generally, most aurthors attempt a period of nonoperative management first. An unstable lesion is an indication for open treatment. Open bonegrafting may be performed through an epiphyseal nonarticular window. Results are reasonable in the skeletally immature with most methods, there are few reported cases of osteochondral grafts in children; it is probably rarely indicated.

For talar lesions, the classification of Berndt and Harty is still used in many papers. Results in children are good enough that intervention has been suggested only for Type IV (completely displaced) fragments. Similar methods of treatment to those used in the knee can be performed arthroscopically.

Longterm results of osteochondritis dissecans of the knee in skeletally immature patients is generally good. However, displaced lesions, especially larger lesions and those on the lateral femoral condyle, have a poorer prognosis. Excision of a fragment without some effort at filling the defect, is associated with a poor outcome.

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