Juvenile Osteochondritis Dissecans of the Knee: Cohort Study of 25 Trochlear Lesions

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OBJECTIVES

• Evaluate the clinical characteristics, radiographic findings, and outcomes of pediatric patients with juvenile osteochondritis dissecans (JOCD) of the trochlea

• To our knowledge, this is the largest cohort reporting JOCD lesions in this unusual location

• We hypothesize that trochlear JOCD lesions have a distinct presentation and higher surgical rates than condylar lesions

METHODS

• Retrospective cohort study of 25 trochlear JOCD lesions in 22 patients (Patients with history or images consistent with patellar dislocation or osteochondral fractures were excluded)

• Demographic data, sports played, comorbidities, surgical procedures, and clinical data were extracted from charts

• Magnetic resonance images (MRIs) were evaluated to confirm location and determine size of the lesions

• Healing at 12 month follow up was indicated by evidence of bony incorporation in successive postop MRIs; clinical symptoms such as pain were also evaluated

RESULTS

Epidemiology

• N=25 trochlear JOCD lesions (22 patients), 18 boys and 4 girls

• Average age at diagnosis was 13.8 years (9.4-16.7)

• Majority of patients were active (90.1%); soccer (54.5%) and basketball (50%) most commonly played sports, with only 6 patients not playing either

• The area of the lesions averaged 2.75 cm² (.18-6.30 cm²)

Surgical Data

• Eleven knees (50%) underwent operative treatment

• At the time of surgery, all patients had open physis.

• Most common surgical procedure was fixation (6/11) with 1.6 mm bioabsorbable nails, with an average of 5 nails (4-8) (Figure 1)

• Other procedures included removal of loose body and microfracture (2/11), trans-articular drilling (1/11), removal of loose body and application of juvenile particulated cartilage allograft (1/11), and partial fixation with subsequent microfracture of the remnant defect (1/11)

• Half of the surgical cases were performed all-arthroscopic (6/11) and the rest required a mini-arthrotomy (5/11)

• No patients needed revision surgery

• Ten patients reached clinical and/or radiological follow-up of at least 12 months, with an average follow-up of 21.4 months (12.17-33.8)

• All patients showed radiological and/or clinical indications of healing

• Surgical patients averaged a radiological follow-up of 15.2 months (8.7-25.1).

DISCUSSION

• Patients with trochlear lesions were mainly teenage boys who participated in jumping and cutting sports

• 81.8% of patients played either basketball or soccer

• We had a surprisingly high rate of surgical success in this small cohort of young patients

CONCLUSIONS

• In this study, we examined a large cohort of patients with lesions in a unique location

• This population tended to have a high surgical rate, where half of patients underwent operative treatment

• Surgery produced good outcomes at short-term follow-up, without the need for subsequent procedures in this cohort of skeletally immature patients

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Figure 1. Example MRIs of a trochlear OCD lesion before surgery (a) and after fixation with bioabsorbable nails (b)