PREVALENCE AND CLINICAL FEATURES OF BILATERAL OSTEOCHONDRTIS DISSECANS (OCD) OF THE KNEE IN PEDIATRIC AND ADOLESCENT PATIENTS PRESENTING WITH UNILATERAL SYMPTOMS

Joseph L Yellin MD1,2, Robert G Tysklind MD3, Zaamin B Hussain MD1,3, Evan T Zheng BA4, Benton E Heyworth MD1, Mininder S Kocher MD MPH1

1Boston Children’s Hospital, Boston, MA, 2Harvard Combined Orthopaedic Residency Program, Boston, MA, 3Department of Orthopaedic Surgery, Emory University School of Medicine, Atlanta, GA, 4Harvard Medical School, Boston, MA

Background: Osteochondritis dissecans(OCD) is an idiopathic condition primarily involving the subchondral bone with secondary articular cartilage changes, commonly occurring in the knee. The true prevalence of bilateral OCD in patients presenting with unilateral OCD symptoms is unknown.

Hypothesis/Purpose: The goals of this study are to determine the prevalence and characteristics of bilateral OCD in patients with unilateral symptoms and compare to those with unilateral disease.

Methods: An electronic medical record database was queried from 2003-2016 to identify and retrospectively review patients 18 years or younger presenting to a single pediatric institution with a diagnosis of OCD of the knee and strictly unilateral knee pain. Contralateral knee imaging of the asymptomatic knee within one year of initial presentation was required. Lesion characteristics were evaluated on both x-ray and magnetic resonance imaging(MRI) assessing size, location, and Hefti staging. Treatment(both surgical and non-operative) and outcomes were recorded. Patients with unilateral OCD were compared with those with bilateral disease using appropriate statistical analyses.

Results: Eighty consecutive patients, 63 males(79%) and 17 females(21%), average age of 13.1 years old (range:8-18), were included. 71% of symptomatic lesions were located on the medial femoral condyle and 14% on the lateral femoral condyle with 20 lesions(25%) deemed stable on MRI evaluation. A positive correlation was found between increasing lesion size and severity of MRI/Hefti grade(Figure-1). Twelve patients(15%) were found to have bilateral OCD on contralateral imaging, with five of the contralateral lesions(42%) considered stable on MRI. There was no significant difference in skeletal maturity between patients with bilateral vs. unilateral disease. Fifty-two patients(77%) with unilateral disease underwent surgical intervention, while 9(75%) of those with bilateral disease underwent a surgical procedure on either knee. In patients discovered to have an asymptomatic contralateral lesion, 67% ultimately underwent surgical intervention on the contralateral knee. Comparing patients with unilateral and bilateral disease, no statistical differences were found in terms of patient demographics or lesion characteristics.

Conclusion: In patients presenting with unilateral OCD symptoms, there was a 15% prevalence of bilateral disease. There was no difference in age, sex, physeal status or lesion characteristics between patients with unilateral vs. bilateral OCD lesions, and we found no difference in rates of surgical intervention. A consistent relationship between lesion size and Hefti classification was appreciated. Given the prevalence of asymptomatic contralateral lesions and required intervention, our study supports the recommendation for bilateral radiologic knee evaluation for pediatric and adolescent patients presenting with unilateral knee OCD.
Figure 1. Association between size (via volumetric analysis on magnetic resonance imaging [MRI]) of osteochondritis dissecans (OCD) lesions of the knee and Hefti classification