

Assessment of Risk Factors of Osteochondritis Dissecans Coincident with Discoid Lateral Meniscus in Japanese Children

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Summary:

OCD of the lateral femoral condyle was associated with DLM in 23 of the 119 knees (19.3%). On logistic regression analysis, being male showed increased odds ratio with significance. Also increasing age showed the same with significance. In addition, odds ratio for type C coincidence of OCD was significantly higher than type N.

Abstract:

Objectives

Osteochondritis dissecans (OCD) of the lateral femoral condyle is relatively rare, and it is reported to often be combined with a discoid lateral meniscus (DLM). However, little is known about the relationship between OCD and shape of DLM. The purpose of the study is to assess risk factors of OCD coincident with DLM in Japanese children

Methods

From 2000 to 2014, 119 knees (105 patients aged 15 and under) were diagnosed with symptomatic complete discoid lateral meniscus. Out of 119 knees with complete discoid lateral meniscus, 54 were males and 65 were female. Their age range varied from 6 to 15 years with an average age of 11.6 years. All patients were Japanese. These included 24 conservative therapies and 95 arthroscopic surgeries. We evaluated these cases with radiography and MR imaging. OCD in the radiography were graded by Brückl classification and shapes of DLM on MRI were graded by the Ahn's classification. Based on Ahn's classification, DLM were divided into four types: no shift (N), anterocentral shift (AC), posterocentral shift (PC), and central shift (C). Then we assessed risk factors of OCD (age, sex, shapes of DLM on MRI) coincident with DLM.

Results

OCD of the lateral femoral condyle was associated with DLM in 23 of the 119 knees (19.3%). OCD were classified as Brückl's stage 1 in 6 knees, stage 2 in 12, stage 3 in 3, stage 4 in 1, and stage 5 in 1. OCD combined with DLM were classified as Ahn type AC in 6 of 21 knees (28.6%), type PC in 0 of 17 knees (0%), type C in 5 of 11 knees (45.5%), and type N in 12 of 70 knees (17.1%). On logistic regression analysis, being male showed increased odds ratio with significance. Also increasing age showed the same with significance. In addition, odds ratio for type C coincidence of OCD was significantly higher than type N.

Conclusions

Previous reports showed lower coincidence of OCD with DLM (11.3% to 12.8%). This may be due to younger cases in this study because age was inversely associated with OCD coincidence in our statistics. Between OCD and complete DLM, OCD was significantly more likely in conjunction with meniscal central shift. This may be due to increase of mechanical stress on lateral femoral condyles as the meniscus is absent. In coincidence of OCD, we think we should be aware of male and younger cases with DLM and type C on MRI.