Five-Year Outcomes of Hip Arthroscopy in Adolescents with Femoroacetabular Impingement and Borderline Dysplasia: A Matched Cohort Study

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Disclosures: Haruki Nishimura (N), Eddie k. Afetse (N), Jarrod Brown (N), Joan Rutledge (N), Heath Melugin (N), Grant Dorman (N), Marc J. Philippon (International Society for Hip Arthroscopy: Board or committee member; AOSSM: Board or committee member; Seadman Philippon Research Institute: Board or committee member, Vail Health Services: Board or committee member; Vail Valley Surgery Center Governing Council: Board or committee member)

INTRODUCTION: The role of hip arthroscopy for the treatment of femoroacetabular impingement (FAI) in patients with borderline hip dysplasia (BHD) has been well reported on in the adult population but there is a lack of literature on adolescent patients. The purpose of this study to evaluate outcomes at minimum 5-year follow-up in adolescent patients with BHD who underwent hip arthroscopy for FAI.

METHODS: Patients <18 years old at time of surgery with lateral center-edge angle (LCEA) of 20-25 degrees and epiphyseal line remaining on preoperative radiographs who underwent primary hip arthroscopy for FAI with the senior author (M.J.P.) between February 2007 and December 2016 were included. A control group was matched in a 1:3 fashion by age ( +/- 1 year), BMI (+/-5), and alpha angle (+/-5 degrees). Minimum 5-year patient-reported outcomes (PROs) were collected, including Harris Hip Score (mHHS), Hip Outcome Score Activities of Daily Living (HOS-ADL) and Sport (HOS-Sport) subscales, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), and 12-Item Short Form (SF-12) Physical Component Score (PCS) and Mental Component Score (MCS), and compared between the BHD and non-BHD (NBHD) control group. Minimal clinically important difference (MCID) and patient acceptable symptom state (PASS) rates were calculated.

RESULTS: Of the 125 BHD patients who met inclusion criteria, 28 BHD patients were matched with 97 NBHD patients. Follow-up was completed for 23/28 (82%) BHD patients at median 6.2 years and 64/94 NBHD patients at median 8.4 years. One (3.6%) BHD patient and 8 (8.5%) NBHD patients have undergone a known subsequent surgery. There was no significant difference in post-operative HOS-ADL (96 vs 98, p=.10), BMI (+/-5), and alpha angle (+/-5 degrees). Minimum 5-year patient-reported outcomes (PROs) were collected, including Harris Hip Score (mHHS), Hip Outcome Score Activities of Daily Living (HOS-ADL) and Sport (HOS-Sport) subscales, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), and 12-Item Short Form (SF-12) Physical Component Score (PCS) and Mental Component Score (MCS), and compared between the BHD and non-BHD (NBHD) control group. Minimal clinically important difference (MCID) and patient acceptable symptom state (PASS) rates were calculated.

DISCUSSION: Outcomes following primary hip arthroscopy for FAI were not significantly different between adolescent patients with BDDH and those adolescent patients with normal acetabular coverage. Lower BMI, lower alpha angle and increased activity level are all predictors of successful outcomes in patients with BDDH. We are continuing our attempts to increase follow-up with routine patient outreach.

SIGNIFICANCE/CLINICAL RELEVANCE: Hip arthroscopy is a successful treatment for FAI. In this study, we are evaluating if hip arthroscopy is a good treatment for patients with borderline dysplasia.