Cam Lesion Size Predicts Severity of Chondral Labral Junction Breakdown

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INTRODUCTION: The chondral labral junction (CLJ) is where the acetabular labrum joins the articular cartilage and damage to this transition zone has shown to portend worse outcomes after hip arthroscopy. The purpose of this study was to explore the relationship of predictive variables to CLJ breakdown.

METHODS: This was a retrospective review of prospectively collected data for patients who underwent primary hip arthroscopy to treat symptomatic labral tears between 2015-2023. Patients were excluded if they had hip dysplasia, previous ipsilateral hip surgery, or missing preoperative symptom duration surveys. The examined preoperative variables included symptom duration, lateral center edge angle (LCEA), and alpha angle (AA). LCEA and AA were used to measure the extent of pincer and cam lesions, respectively. CLJ breakdown was stratified into two groups: mild (Beck classification≤2) and severe (Beck classification>2). Linear logistic models were used to correlate preoperative variables with CLJ breakdown. A minor cam lesion was defined as 55º≤AA<78º, a major cam lesion as AA≥78º, and AA<55º was normal. This study was approved by the IRB.

RESULTS: A total of 143 patients (age, 32.4±9.3) were included in the final analysis; 68 of whom are female, and 75 are male. The linear regression model displayed that AA was able to predict severe CLJ breakdown (OR 1.05, 1.03-1.08, P<0.0001). Symptom duration (OR 1.01, 0.99-1.02, P=0.164) and LCEA (OR 1.06, 0.99-1.13, P=0.092) did not have any significant results. This prompted further stratification of cam lesion size into minor and major groups, with the normal anatomy group being the reference. This displayed a statistically higher risk of severe CLJ breakdown for major cam lesions (OR 8.39, 2.70-32.24, P < 0.0001). Minor cam lesions (OR 1.49, 0.71-3.15, P=0.294) were not predictive of CLJ breakdown. Symptom duration (OR 1.01, 1.00-1.02, P=0.271) and LCEA (OR 0.95, 0.43-2.08, P=0.90) remained insignificant predictors of CLJ breakdown.CONCLUSION: Cam lesion size, measured by preoperative alpha angle, was a strong predictor of CLJ breakdown. Stratification into major and minor cam lesions revealed an eightfold increased likelihood of severe CLJ breakdown. These findings offer clinically valuable information that is otherwise only reliably obtained intraoperatively.

SIGNIFICANCE: These findings will help identify patients who may be at higher risk of worse outcomes and conversion to total hip arthroplasty.