Hip Capsule Thickness: Association with Outcomes After Hip Arthroscopy

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INTRODUCTION: The capsule is an important stabilizer for the hip joint. This study aims to evaluate the relationship between hip capsule thickness and functional outcomes for patients undergoing hip arthroscopy for acetabular labral repair.

METHODS: This prospective study included patients who, after failing conservative treatment, underwent primary hip arthroscopy for symptomatic labral tears secondary to femoroacetabular impingement by a single surgeon. Patients were enrolled for this study prior to surgery and completed surveys for modified Harris Hip Score (mHHS), international Hip Outcome Tool (iHOT-33), Hip Outcome Score Sports Specific Score (HOS-SSS), Hip Outcome Score Activities of Daily Living (HOS-ADL), and Non-Arthritic Hip Score (NAHS). Excluded patients were < 18 years of age, had Tönnis grade ≥ 2, hip dysplasia (LCEa ≥ 20°), and/or history of ipsilateral hip surgery or revision surgery. Using each patient's preoperative MRI arthrogram, two blinded board-certified musculoskeletal radiologists measured the hip capsule of the affected hip in the coronal (inferior and superior aspects) and axial (anterior and posterior aspects) planes. Multivariate linear regression were used to compare continuous variables, and categorical variables were compared using chi-squared tests. This study was IRB approved.

RESULTS: The present study included 115 patients (48.7% female; mean age±SD:35.0±11.55). Patients had a mean±SD follow-up of 3.47±1.21 years and body mass index(BMI) of 25.13±3.87 kg/m^2. The intraclass correlation coefficients(ICC) for all measurements indicated excellent rater reliability(ICC>0.9). Findings showed that inferoposterior capsular thickness had no significant association with baseline or postoperative outcomes up to 5 years ($p>0.05$). Multivariable linear regression analyses adjusting for demographic, radiographic, and intraoperative findings demonstrated that increased anterosuperior capsular thickness was significantly associated with superior postoperative mHHS, iHOT, HOS-SSS, HOS-ADL, and NAHS scores (all $p<0.05$) up to 5 years postoperatively but not with baseline PROMs(all $p>0.05$).

DISCUSSION AND CONCLUSION: Increased anterosuperior hip capsule thickness in arthroscopic acetabular labral repair patients is significantly associated with improved postoperative functional outcomes but is not associated with preoperative symptoms. These findings suggest maintaining capsular integrity during hip arthroscopy may minimize iatrogenic instability and promote superior patient outcomes.