

Paper #29

**THE EFFECTS OF ACETABULAR DEPTH ON
CLINICAL OUTCOMES AFTER HIP ARTHROSCOPY
IN PATIENTS WITH FEMOROACETABULAR
IMPINGEMENT**

Graeme Whyte, Ernest Loumaine Sink, Struan H. Coleman
Hospital for Special Surgery, New York, NY, USA

FDA Status: Not Applicable

Summary: Acetabular depth, as a radiographic measure of acetabular coverage, has previously been used to predict degenerative changes of the hip joint. This study has demonstrated that decreases in measurement of acetabular depth results in poorer clinical outcomes in patients who undergo hip arthroscopic treatment of femoroacetabular impingement, independent of other acetabular coverage measurements.

Introduction: Acetabular depth was originally described as a radiographic tool which correlates with degenerative changes of the hip joint in cases of dysplasia. This tool may be a valuable radiographic measure that could be used in hip arthroscopy patients as a prognostic indicator. The purpose of this study is to describe the radiographic measure

of acetabular depth in patients with femoroacetabular impingement treated with hip arthroscopy, and to examine the effects of this measure on clinical outcomes.

Methods: A prospective registry of patients treated within the hip preservation department at our institution was reviewed to identify patients who had arthroscopic treatment for femoroacetabular impingement. Radiographic measurements of acetabular depth, lateral center-edge angle, and acetabular index were performed on preoperative pelvis AP radiographs and measurements of anterior center-edge angle were made on false profile radiographs. Clinical outcomes were evaluated using patient-reported tools that consisted of the modified Harris Hip Score (mHHS) and the Hip Outcome Score ADL and Sports subsets (HOS ADL, HOS Sports). Two clinical outcome groups were compared: patients who achieved the minimal clinically important difference (MCID) in score, and those who did not achieve the MCID. General linear modeling, controlling for the acetabular coverage measures of lateral center-edge angle, acetabular index, and anterior center-edge angle, was used to compare acetabular depth measurements between groupings of patients who did or did not achieve the MCID for each outcome instrument.

Results: Registry data were analyzed for 81 patients who underwent hip arthroscopy, with a mean age of 38.7 years (35 Male, 46 Female). The mean measurement of acetabular depth was $11.3 \text{ mm} \pm 2.7 \text{ mm}$. Acetabular depth was positively correlated with lateral center-edge angle ($r = 0.688$, $p < 0.001$) and anterior center-edge angle ($r = 0.608$, $p < 0.001$), and negatively correlated with acetabular index ($r = -0.578$, $p < 0.001$). Mean follow-up duration was 16.5 months (range 12 to 32 months). Mean mHHS, HOS ADL, and HOS Sports scores at final follow-up were 78.9 ± 16.8 , 83.9 ± 17.7 , and 68.6 ± 29.2 . Acetabular depth was significantly greater in those patients who achieved the MCID in score compared to those patients who did not achieve the MCID, according to the mHHS (12.4 mm vs 10.2 mm, $p < 0.001$), HOS ADL (11.7 mm vs 10.9 mm, $p = 0.001$), and HOS Sports (11.8 mm vs 10.8 mm, $p < 0.001$).

Conclusions: Patients with decreased acetabular depth are less likely to achieve significant improvements in clinical outcome after hip arthroscopy, independent of other acetabular coverage measures. Acetabular depth may be a valuable adjunctive radiographic prognostic tool in patients with femoroacetabular impingement where hip arthroscopy is being considered.