Does Capsular Closure Affect Clinical Outcomes in Hip Arthroscopy?: A Prospective, Randomized, Control Trial

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Abstract

Background: With a higher volume of hip arthroscopic procedures being performed, there is increasing concern of iatrogenic instability from excessive capsulotomy during surgery. As a result, greater emphasis is being placed on preserving the hip capsule during surgery. There are no large scale prospective blinded studies that address whether capsular closure has any detrimental effect on outcomes. Our goal is to evaluate the outcomes of repairing the interportal capsulotomy compared to outcomes when not repairing the capsule.

Hypothesis: Restoration of normal capsular anatomy with interportal repair will achieve similar clinical outcomes as the “no repair” group without functional deficits from over-constraint.

Methods: From November 2013 to March 2016, adult patients with femoral acetabular impingement indicated for hip arthroscopy were recruited. Subjects were randomized into either the capsular repair (CR) or no repair (NR) groups. Standard AP/Dunn view radiographs were evaluated and alpha angle (AA) /center-edge (CEA) angle measurements were performed for all patients preoperatively. All patients underwent standard hip arthroscopy with labral repair +/- CAM/pincer lesion resection. Primary clinical outcomes were measured via the Hip Outcome Score Activities of Daily Living (HOS-ADL) and Sport-Specific (HOS-SS) subscales at 3 months, 6 months and 1 year. Secondary outcome measures included the modified Harris Hip Score (mHHS), visual analog scale (VAS), the international hip outcome tool (iHOT-12), and the Veterans RAND 12 Item Health Survey (VR-12) scores.

Results: A total of 54 patients (56 hips) were included in this study (26 male, 30 females) with a mean age of 33 years. Radiographic measurements were similar between groups. The HOS-ADL score significantly improved over time in both groups from 69.7 +/- 18.2 to 80.1 +/- 14.8 in the CR group (p < .0001) and from 59.3 +/- 18.8 to 90.1 +/- 14.8 in the NR group (p < .0001) at 2 years. The HOS-SS score significantly improved over time in both groups from 41.1 +/- 25.8 to 76.4 +/- 34.8 in the NR group (p < .0001) and from 32.9 +/- 23.7 to 79.6 +/- 25.0 in the CR group (p < .0001) at 2 years. However, there were no significant differences in functional scores between groups at any time point. Functional improvement was noted for all secondary outcome measures, however there was no significant difference between the groups at any time point. The difference between the 1-year and 2-year outcome scores were significantly different between the NR and CR groups for HOS-ADL subsets (-1.21 ± 5.09 vs 4.28 ± 7.91, p = 0.044), mHHS (1.08 ± 10.04 vs 10.12 ± 11.76, p = 0.042), and VR-12 Physical subsets (-2.15 ± 5.52 vs 4.49 ± 7.30, p = 0.014).

Conclusion: Both groups show significant improvements from baseline scores after hip arthroscopy. Capsular closure appears to have no detrimental effect on functional outcome scores compared to patients who do not have capsular closure following hip arthroscopy. Long-term follow-up is needed to assess for potential decreased outcomes secondary to microinstability or overconstraint. We recommend restoration of native anatomy if possible when performing procedures that alter it for exposure.

Study Design: Randomized Controlled Trial, Level of evidence 1