Arthroscopic Hip Capsule Repair Improves Patient-Reported Outcome Measures and Decreases the Risks of Revision Surgery and Conversion to Total Hip Arthroplasty: A Systematic Review and Meta-Analysis

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INTRODUCTION: The vast majority of hip arthroscopic surgeons prefer capsulotomy or capsular release to improve visualization and the accessibility of the scope and instruments; however, there is no cumulative evidence regarding whether the released capsule should be repaired or left released during hip arthroscopic surgery. We hypothesized that capsule repair results in improved risks of revision surgery and conversion to total hip arthroplasty (THA), and patient-reported outcome measures (PROMs) compared to capsule nonrepair in hip arthroscopy.

METHODS:

This review followed the guidelines from the Cochrane Handbook of Systematic Reviews of Interventions. We searched CENTRAL, MEDLINE, EMBASE, PubMed, and ongoing clinical trials (https://clinicaltrials.gov) on 9 April 2021. The eligibility criteria are clinical comparative studies of capsule repair and nonrepair in hip arthroscopy. We registered this protocol *a priori* on PROSPERO (identification number: blinded for reviewers). We chose the following key search terms: (Hip*) AND (arthroscopy OR arthroscopic OR arthroscop*) AND (capsule OR capsular OR capsul*).

RESULTS:

This review included 18 studies with a total of 3,245 patients (1,502 capsule repair and 1,743 nonrepair). The standard mean difference (SMD) in PROMs for capsule repair vs. nonrepair in the included studies with minimum follow ups of 2 years was 0.34 (95% confidence interval [CI], 0.02-0.66). A sensitivity analysis of randomized controlled trials achieved consistent results (SMD in PROMs 0.31 (95% CI 0.02–0.60)). Capsule repair significantly reduced the risks of revision surgery (risk difference -0.04, 95% CI -0.06 – -0.02: 53/1193 in capsule repair versus 93/1044 in nonrepair) and conversion to THA (risk difference -0.03, 95% CI -0.04 – -0.01]: 22/1131 in capsule repair versus 49/995 in nonrepair), despite capsule repair required a longer surgery time (mean difference 4.19 minutes, 95% CI 0.10-8.29). Interportal capsulotomy and T-shaped capsulotomy were the most prevalent techniques in capsule repair; however, subgroup analysis showed no significant difference in PROMs between these techniques (I^2=0%, p=0.49).

DISCUSSION AND CONCLUSION:

The current meta-analysis showed that capsule repair in hip arthroscopy was significantly superior to nonrepair in terms of PROMs, a finding which was maintained when the analysis was limited to RCTs only and to studies that followed patients for a minimum of 2 years. The risk of revision surgery was significantly higher with nonrepair than with capsule repair during hip arthroscopy, and the risk of conversion to THA was lower with capsule repair.

In conclusion, capsule repair in hip arthroscopy had lower risks of revision surgery and conversion to THA and provided better PROMs than capsule nonrepair, despite a 4-minute longer surgery time.