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Editorial Commentary: Surgeons Planning Hip Labral Arthroscopic Repair Should Have a Backup Plan of Labral Reconstruction or Augmentation Based on Intraoperative Labral Degeneration, Hypoplasia, or Ossification



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Abstract: The arena of hip arthroscopy has seen leaps in practices over the past decade, evolving from surgical debridement of the labrum to improvements in techniques which now allow repair, augmentation, and circumferential reconstruction. But as the operating theater continues to change its act, so too must the preoperative choreography. Recent advancements in the understanding of preoperative risk factors for failure of primary labral repair have identified the diminutive or hypoplastic labra on prescreening magnetic resonance imaging as a negative predictor of success. While this quantitative assessment predicts the anatomical coverage of the labrum, we are still limited in our ability to qualify the latter's tissue substance preoperatively. Ossified or degenerative labra may not have the inherent functional capacity to restore the suction seal of the hip in a primary repair setting. If the applause from the audience fails to reach a significant threshold, we must rethink our act, and that begins with the choreography. The next step in hip arthroscopy is determining if a primary augmentation or reconstruction, in lieu of primary repair, warrants further consideration. Until we develop reliable methods of quantifying and qualifying the labral tissue, both preoperatively and optimally, we should establish backup for surprises encountered while on the "stage."

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In a perfect world, every patient you see after an arthroscopic hip labral repair would be able to sing a ditty such as "you know my hips don't lie and I'm starting to feel it's right." Unfortunately, some patients never "feel it's right" postoperatively, leaving surgeons responsible for counseling patients who do not improve. The timing of when surgeons present information dictates whether patients perceive such counseling as prophetic or as merely making excuses for a poor outcome. This is why we are so interested to learn which factors predict poor outcomes in surgery, so as to get ahead of the eight ball as we coach patients

postoperatively. The article by Carreira, Shaw, Wolff, et al. titled "Labral Degeneration Predicts Inferior Mid-term Outcomes in Hip Labral Repair: A Multicenter Comparative Analysis" captures this essential information.¹ In this study, patients who were found to have greater than 50% labral degeneration intraoperatively were less likely to achieve clinically significant improvement in outcomes. At 2 years postoperatively, they also demonstrated poorer outcomes in general than those without labral degeneration. These findings beg the question of whether surgeons should prepare a backup plan for these patients, or proceed with planned primary repair and revisit the discussion of patient expectations and prognosis early during the postoperative course.

Hip arthroscopy is still in its infancy, and indications continue to evolve.^{2,3} Initial treatments for labral pathology mainly included surgical debridement, but soon thereafter a rapid increase was seen in the proportion of labral repairs being performed during hip

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arthroscopy. Identifying patients for arthroscopic hip labral repair is a difficult process, and several demographic, patient-centric, and anatomic factors must be considered. While solid indications based on preoperative workup may result in a planned primary arthroscopic hip labral repair, some intraoperative factors previously not recognized may make a patient more suitable for a reconstruction or augmentation.⁵ Considering that only one-half of the cases requiring these interventions can be predicted preoperatively, what happens to the others who are discovered intraoperatively?⁶

This study narrows the focus to a unique population of patients with labral pathology of the hip who are found intraoperatively to have labral degeneration greater than 50%.¹ By excluding patients with hip osteoarthritis (Tonnis Grade 2 or greater) and more advanced labral degeneration noted preoperatively on magnetic resonance imaging (MRI), this study isolates a subset of patients who are appropriately indicated for primary labral repair using the available current knowledge. Despite the labral degeneration cohort experiencing a mean improvement in International Hip Outcome Tool (iHOT)-12 scores (33 ± 17 vs. 66 ± 27), their scores remained significantly lower (66 ± 27 vs. 76 ± 23) than those of patients without labral degeneration two years postoperatively. Additionally, a whopping 26%, 40%, and 63% of patients in the labral degeneration group failed to reach minimal clinically important difference, patient acceptable symptom scale, and substantial clinical benefit, respectively, in terms of the International Hip Outcome Tool 12 scores. It is sobering to think that exhaustive preoperative workup still fails to identify characteristics of the labrum that can result in up to 63% of patients failing to improve. This situation highlights a call to action: to care for our patients optimally and achieve the best outcomes, we must improve our preoperative workup and discuss backup plans that can be resorted to intraoperatively.

A number of investigations have recently attempted to improve the preoperative workup for labral repair by categorizing the size and morphology of the hip labrum. Drager et al. defined a labrum <4 mm as hypotrophic as compared to a normal size of 4–7 mm, and they found that outcomes 1 year after primary labral repair were comparable between the two groups.⁷ Kaplan et al.⁸ went a step further and investigated our ability to identify these morphological characteristics preoperatively, finding that labrum width measured preoperatively via MRI showed strong agreement with intraoperative arthroscopic measurements. Their group then reviewed, retrospectively, 103 patients who had undergone primary arthroscopic labral repair, finding that those identified with hypoplastic labra on preoperative MRIs demonstrated significantly poorer outcome measures at 2 years postoperatively, which contrasts with the

aforementioned findings of Kaplan et al.⁹ These studies, among others, have stimulated discussion on whether preoperative assessment of labral width can influence whether patients will require augments or labral reconstruction in lieu of primary repair.¹⁰⁻¹² However, we must not confuse the hypoplastic labrum that may potentially have normal tissue quality with a degenerative one. Patients in this study classified as having labrum degenerated more than 50% were defined on the basis of calcification, ossification, and/or yellowish discoloration of at least 50% of the labral substance.¹ Considering the unique qualities of the labral substance that contribute to hip stability, the suction seal effect, and the maintenance of appropriate fluid mechanics within the hip joint, it is reasonable to question whether these mechanical properties may be jeopardized more in a degenerative labrum than in a hypoplastic one.^{4,10,13} Hence, are we even measuring the most important outcomes when evaluating iHOT-12 and other scores on other patient-reported outcome measures at 1 and 2 years postoperatively?

Nakashima and colleagues¹⁴ recently identified an age >45 as being a negative predictor of a salvageable labral tear in primary hip arthroscopy. In this study, patients in the labral degeneration group were significantly older (44 vs. 33 years old, $p < .001$), and while multivariate regression analysis did not identify age as a negative predictor of outcomes, it seems that we should be measuring whether these older patients with advanced labral degeneration actually have functionally salvageable labrums¹ (i.e., ones that would reconstitute the appropriate suction seal, joint stability, and fluid mechanics integral to joint preservation of the hip).^{4,10,13} Therefore, it would be interesting at 5-year follow up to learn the rates of revision surgery, the advancement of osteoarthritis, or conversion to arthroplasty in these patients, when their mean age approaches 50 and they are more likely to be indicated for hip arthroplasty than revision arthroscopy. Since 50% labral degeneration predicts that 26–63% of these patients will never reach clinical improvement, do we need an intraoperative backup plan?¹⁰⁻¹² This study challenges whether 50% labral degeneration discovered intraoperatively should be considered a relative contraindication for primary repair. Future ones should investigate whether repaired degenerative labra are capable of reconstituting the appropriate mechanical functions of the labrum by assessing outcomes of preservation such as advancement of osteoarthritis and conversion to arthroplasty.

While so much is still up in the air and still being learned, setting expectations for patients can determine their perception of their outcomes. Despite the solid indications utilizing the available best practice guidelines, intraoperative curveballs are thrown at every surgeon, and the elephant in the room is how to inform

patients on how these factors may influence their recovery. While an optimistic, wait-and-see approach does not burn any bridges, this study gives credence to intraoperative findings of labral degeneration predicting poorer outcomes in patients who undergo primary labral repair. Such findings warrant extra postoperative counseling and coaching, including setting realistic expectations. The surgeon should remember that “the hips don’t lie,” and these patients may never start to feel it’s right! Predicting which patients require more routine postoperative monitoring may help identify the failing labral repair as a reason to consider alternative treatments or salvage procedures.

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