Prehabilitation and Rehabilitation Program for Patients Undergoing Arthroscopic Acetabular Labral Repair: Response

Authors' Response:

We thank Filan et al for their review of our publication, and we would like the opportunity to address the comments mentioned in their letter to the editor. In our article,[10] we aimed to highlight our own physical therapy (PT) program in patients undergoing acetabular labral repair via the puncture capsulotomy surgical technique of the senior author (S.D.M.).[4] Many enhanced recovery after surgery protocols emphasize early mobilization after orthopaedic surgery to prevent range of motion loss, stiffness, and muscle wasting. While more aggressive PT may be required after extended capsulorrhaphy ("T" or "interportal"), the combination of the puncture capsulotomy technique and our 5-phase prehabilitation and rehabilitation program limits the inflammatory burden that contributes to capsular stiffening, reduces the risk of iatrogenic instability, and allows immediate weightbearing with crutches to prevent deconditioning.[4,5,10] Additionally, our rehabilitation program does not require derotation braces to protect against instability issues or continuous passive motion to regain motion from scarring/heterotopic bone formation. Although we realize that the senior author's technique to preserve the hip capsule may limit generalizability, we believe that this protocol brings to light considerations that may benefit a patient's recovery by decreasing the likelihood of microinstability and heterotopic ossification at the repair site.

Regarding the effectiveness of the prehabilitation phase, a previous randomized controlled trial (RCT) conducted by this senior author demonstrated that 37% (16/44) of patients were shown to manage symptoms with this prehabilitation regimen alone and avoided crossing over to a surgical intervention altogether.[8] This rate aligns with another RCT evaluating PT versus arthroscopic interventions for femoroacetabular impingement (FAI), which reported up to 70% of patients crossing over to a surgical intervention after failing nonoperative treatment.[7] While it is expected that many patients may not achieve symptom resolution with nonoperative management alone, it is imperative to identify patients who do improve to spare them the risks associated with an invasive procedure.

Furthermore, it is important to clarify that some of the methodological issues raised with our study are reflections of the current system of health care in the United States and requirements imposed by private insurance payers. Each insurance company has coverage policies with specific criteria (eg, symptom duration at least 3-6 months, failure of nonoperative treatment, imaging studies, physical examination findings) that must be met before surgical interventions will be approved and covered. In a multicenter cohort study assessing the criteria for FAI surgery among major insurance providers, documented failure of nonoperative management was one criterion that was found to be uniform across all companies.[2] As such, all patients in the study in question underwent nonoperative treatment with PT and had a minimum symptom duration of at least 3 months before surgery. Additionally, if patients had previously undergone PT before their initial presentation to the senior author, they were still offered a prescription for formal PT up until their scheduled surgery date, which, on average, ranged from an additional 1 to 3 months (depending on the operative volume and scheduling constraints of the practice).

We agree with the cited literature that delaying hip arthroscopic surgery may result in poorer long-term outcomes; however, these studies are largely more indicative of the duration of the patients' symptoms before they sought a surgical consultation.[1,6] A meta-analysis of RCTs investigating PT versus arthroscopic surgery for symptomatic FAI found that equivalent outcomes could be achieved after a 3- to 6-month trial of nonoperative treatment when comparing patients who pursued surgery from the onset with those who crossed over from PT to surgery.[12] While an ideal system would allow for an earlier surgical intervention to be offered to patients with labral tears and objective FAI (eg, alpha angle, lateral center-edge angle), surgeons in the United States are tasked with meticulously navigating the criteria outlined by insurance providers to ensure that the financial burden is not passed to patients in the form of a denied claim. We continue to recommend a prehabilitation phase at this time, as it (1) may lead to symptom resolution in a select group of patients, (2) allows for integral strengthening of the hemipelvic and pelvic musculature that can aid the recovery process if the patient progresses to surgery, and (3) serves as evidence of failed nonoperative management required for insurance providers.

We acknowledge that our protocol may be interpreted as a more conservative approach; however, as mentioned in the article, our timeline matches other published rehabilitation protocols, allows for immediate weightbearing with an emphasis on maintaining a level pelvis, and is backed by a clinically significant improvement in patient-reported outcomes.[3,13] Furthermore, no restrictions are placed on the motion or position of the hip in the postoperative period. It must be highlighted that although a quicker return to play may be achieved with accelerated postoperative rehabilitation, our 5-phase program was designed to prioritize labral healing to halt the progression of osteoarthritis and

The Orthopaedic Journal of Sports Medicine, 10(8), 23259671221119820
DOI: 10.1177/23259671221119820

stave off the need for early arthroplasty. Since McCarthy et al[9] originally reported an association of labral lesions with degenerative chondral/articular damage, the literature has continued to be sparse regarding the healing potential of the labrum. Animal models have shown that only partial healing via fibrovascular scarring occurred by 12 weeks after arthroscopic labral repair.[11] Future studies are needed to identify the optimal time point for labral healing after repair and may even indicate that perhaps we are not being conservative enough. While symptom resolution is one goal of hip arthroscopic surgery, the senior author firmly believes that labral healing is of equal importance—especially in the United States, where value-based health care is increasing emphasized.

Patient compliance is a key to recovery after surgery. While we did not attempt to quantify levels of compliance, it is important to note that postoperative follow-up for all patients is coordinated at strategic time points (2 weeks, 3 months, 6 months, and 1 year). During these visits, the senior author routinely gauges patient adherence, provides education regarding activity progression until the next appointment, and distributes a new hard copy of the protocol. We appreciate this critique and will look to include metrics that evaluate patient compliance in future investigations.

Finally, this study was a retrospective case series with limitations that are commensurate with other observational studies. Despite these limitations, the addition of baseline and postoperative health-related quality of life progression exemplifies the impact and potential benefits of the proposed patient-guided protocol. We hope to continue to parse both the impact of the senior author's surgical approach and the impact of this patient-guided protocol in future prospective research.

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The authors declared that there are no conflicts of interest in the authorship and publication of this contribution. AOSSM checks author disclosures against the Open Payments Database (OPD). AOSSM has not conducted an independent investigation on the OPD and disclaims any liability or responsibility relating thereto.

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