Mulligan mobilizations with movement improve range of motion in post-arthroscopic hip labral repair patient: An Exploratory Clinical CASE Report

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Background: This case report documents the post-arthroscopic labral repair rehabilitation of a patient with cam deformity femoroacetabular impingement (cam-FAI). A cam-FAI develops on the femoral head and produces painful limitations in hip flexion (normally 125°) and internal rotation (normally 45°), as well as shearing forces that can result in labral pathology. This condition is common to the male athletic population, especially in soccer, ice hockey, and baseball. Recently, FAI and labral pathology diagnoses are becoming less uncommon in the long-distance runner. Abnormal femoral-acetabular articulations, whether congenital or arthrokinematic error, can develop into a cam-FAI. FAI can be treated conservatively, depending on the severity, but surgical intervention is more common when FAI accompanies labral damage.

Patient: In March 2016, a 19-year-old male cross-country runner was diagnosed with right hip cam-FAI and labral pathology. Following an arthroscopic labral repair, the patient was prescribed a 4-phase rehab progression to regain hip function. Upon returning to school, he was comfortably walking and had advanced through 2 of 4 phases (10 weeks), with minimal pain. The athletic trainers’ preliminary evaluation revealed asymmetrical hip ranges of motion (ROM), specifically hip flexion (Right: 100°, Left: 120°) and internal rotation (Right: 23°, Left: 47°). By completion of phase 2, symmetrical ROM was a primary goal of the post-hip arthroscopy rehabilitation protocol. Therefore, the primary goal was to increase FLEX/IR-ROM to that of the contralateral side.

Intervention: A 5-day-weekly rehabilitation plan was implemented, based on the prescribed protocol, to enhance ROM. The initial treatment included Maitland grade 3-4 lateral-inferior glides (2 sets of 20), consistent with the physical therapist’s parameters. At post-measurement in week 11, the patient demonstrated no considerable change in ROM (FLEX: 100°, IR: 25°). Mulligan mobilizations with movement (MWMS) were utilized to effectually increase hip IR-ROM, 2 sets of 20. MWMS involve sustained, perpendicular joint distraction, while moving the patient through full, pain-free ROM. Four treatment days later (end of week 11), the patient’s IR-ROM increased to 34°. At week 12, the patient’s IR-ROM increased to 45°. In week 13, hip FLEX MWMS were added and three treatment days later, the patient’s right FLEX-ROM (110°) and IR-ROM (50°) increased. At week 13, the MWMS for IR were discontinued because symmetry had been achieved. The FLEX MWMS continued. By week 15, the patient’s right FLEXROM increased to 125° (compared to 120° left FLEX-ROM) and IR-ROM maintained at 51° (compared to 48° in the left).

Comparative Outcome: Compared to the recorded changes in FLEX/IR-ROM from the Maitland mobilizations, the MWMS successfully achieved the goal of bilateral ROM symmetry. The MWMS outcomes demonstrated ROM changes based on technique, because both treatment strategies used the same dose (2 sets of 20 glides).

Conclusions: Following arthroscopic hip labral repair, patients experience ROM deficits, and common treatment recommendations advise joint mobilizations. During initial treatment (week 10), lateral-inferior Maitland mobilizations yielded no substantial ROM increases. Mulligan MWMS replaced the Maitland mobilizations for the remaining 5 treatment weeks. Combining joint mobilization with passive motion allowed the patient to move through full, pain-free ROM and gain lasting increases in ROM, which permitted the patient to progress into more advanced rehab phases. Since the achievement of symmetrical ROM, the patient is satisfied with his care and reports no issues. Considering the results of this case study, Mulligan MWMS may be a more effective strategy in increasing ROM, in post-arthroscopic labral repair patients, compared to basic joint mobilizations.

Clinical Bottom Line: When encountering hip ROM restrictions, specifically FLEX and IR, MWMS is a superior intervention, compared to the Maitland technique. This is most applicable to labral repair patients without ROM symmetry, prior to entering advanced rehabilitation phases. Word Count: 600