



Point/Counterpoint

Capsulotomy During Hip Arthroscopy: To Close or Not to Close

By Sherwin Ho, MD

Introduction:

As hip arthroscopy has become more widespread, anterior capsular release or capsulotomy has become more popular and well-accepted to allow for better access, visualization, and working space during labral repair and decompression. There remains controversy, however, regarding the pros and cons of repairing the capsule at the conclusion of the procedure. The following Point/Counterpoint discussion presents the opinions of the 2 hip surgeons from Chicago, both of whom are faculty members at their respective academic institutions.

Capsulotomy: to close or not?

By Sherwin Ho, MD

Counterpoint (why I don't routinely repair my capsulotomy): for the vast majority of patients with FAI, capsulotomy is therapeutic, increasing post-operative range of motion, and does not lead to instability.

I always perform a portal-to-portal (P2P) capsulotomy using an Arthrex reverse-cutting hook blade. In cases with evidence of iliopsoas snapping/capsular impingement, I extend the capsulotomy medially to expose the iliopsoas and release the tendon within the musculotendinous junction allowing it to slide (fractional lengthening) to relieve capsular impingement. Rarely, if visualization is still difficult, particularly in a case with a large

CAM lesion that extends further laterally, I will add a vertical "T" cut along the neck of the femur, which I will repair with non-absorbable #2 sutures in patients with generalized ligamentous laxity, normal or above normal abduction and external rotation (ABER), and/or marked femoral anteversion. I will only close the entire capsulotomy in patients with documented or suspected instability.

However, in my experience, the vast majority of my patients with a labral tear and FAI present with a thickened, tight and painful anterior capsule, decreased ABER rotation (increased knee-to-table distance), and have difficulty regaining normal motion and flexibility of the anterior capsule post-operatively, as opposed to developing symptomatic iatrogenic instability. A "water-tight" capsular closure will theoretically result in tightening of the capsule, even more so as capsular tissue is removed to gain better visualization. This iatrogenic tightening can lead to a reduced range of motion and flexibility post-operatively. While this may be beneficial in patients with hip laxity or instability, the majority of FAI patients present with decreased hip ABER, and a capsulotomy can be therapeutic, improving their capsular flexibility and range of motion. In our ongoing, prospective study of 50 consecutive labral repairs with capsulotomy and iliopsoas release, now at 2 years post-surgery, we have not encountered any cases with symptoms of instability or dislocation. I suspect that the athletic hip will prove to be

similar to the athletic shoulder who present with a posterior capsular contracture combined with anterior capsular laxity, while in the FAI hip in athletes we see just the opposite: an anterior capsular contracture and posterior capsular laxity.

Capsular Repair

By Shane J. Nho, MD

Over the past few years, the role of the hip joint capsule and management of the hip capsule has been debated. The surgeon that is performing hip arthroscopy has to understand the anatomic structure and function of the osseous and soft tissues being manipulated during surgery.

The iliofemoral ligament is the strongest ligament in the human body and is responsible for restraining hip extension and external rotation. It is clinically relevant as this is the ligament that is incised when capsulotomies are performed. There are wide variations in the location, size, and type of capsulotomy is performed, and therefore, all capsulotomies are not the same.

Biomechanical studies have recently demonstrated that the iliofemoral ligament is the primary stabilizer of the hip joint. After sectioning the iliofemoral ligament, the hip increases in external rotation and translation. Cadaveric studies have also demonstrated that repairing the iliofemoral ligament will restore the stability of the hip joint close to an intact hip at time zero.

There are several cases of hip



dislocation after hip arthroscopy in the published literature. Although this is thought to be a relatively rare complication, I believe it is a catastrophic complication, and the actual number of hip dislocations after hip arthroscopy is likely underreported. Some authors have described cases of iatrogenically induced microinstability after hip arthroscopy, and the number of cases are thought to be much higher.

Our institution has recently published our experience with partial repair of the hip capsule versus complete repair of the hip capsule during hip arthroscopy using a T-capsulotomy. In the partial repair group (repair of the vertical limb only), we had 4 of 32 patients that required revision hip arthroscopy. Although there was no statistically significant difference between activities of daily living between the two groups, we did see a significant difference in sports specific outcomes in the complete repair group at 6 months and 2 years after surgery.

Given the present technology and constraints of the hip joint, I do not believe that hip arthroscopy can be preformed without a capsulotomy. Over the years, I have changed my capsular intervention to make it is minimal as possible to allow me to address the chondrolabral pathology as well as the FAI pathomorphology. For my practice, I employ a comprehensive capsular management strategy that begins with a interportal capsulotomy between 2-4 cm in length from 12 - 2

o'clock at approximately 8 mm from the labrum. I identify the capsulolabral interval by debriding the capsular tissue adjacent to the labrum while leaving the majority of the capsular tissue intact to be repaired at the conclusion of the case.

In the peripheral compartment, my preference is to use a T-capsulotomy by using an arthroscopic scalpel perpendicular to the interportal capsulotomy and extend distally between the gluteus minimus and the iliocapsularis. The peripheral compartment can be visualized comprehensively from the lateral synovial folds to the medial synovial folds; therefore, allowing a complete femoral osteochondroplasty. The capsule can be closed using three high strength sutures to close the vertical portion of the T-cut. The interportal capsulotomy requires about two to three high strength sutures to provide a complete closure.

In summary, the hip joint capsular management is a critical component of hip arthroscopy. In order to address the intra-articular and peripheral compartment pathology, a capsulotomy is required for visualization and instrument mobility. Scientific studies are being published to characterize the biomechanical role of the iliofemoral ligament in terms of translation, rotation, and strain. Recent clinical studies are also demonstrating a faster recovery, more predictable return to athletic activities, and lower revision rate with complete capsular repair.
