

Editorial Commentary: Femoroplasty May Not Be Necessary in All Patients With Hip Femoroacetabular Impingement, But Cam Lesions Should Not Be Ignored in Patients With Significant Femoral Head-Neck Offset



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Abstract: Our knowledge of appropriate arthroscopic management of femoroacetabular impingement (FAI) continues to evolve. However, few studies exist evaluating mid- to long-term surgical outcomes to guide optimal treatment. The recent focus has been on the importance of cam femoroplasty in addition to labral treatment; however, studies have shown that correction of the alpha angle to normal does not correlate with patient outcomes. Furthermore, in cases of mixed impingement, an optimal degree of acetabuloplasty as measured by the lateral center-edge angle has not been determined. Few studies have evaluated isolated pincer decompression with omission of cam treatment. In select patients with small or negligible cam lesions who do not have acetabular dysplasia, a small, isolated acetabular rim resection of 1 to 3 mm may provide adequate FAI decompression as well as reduce surgical time and complications. Nonetheless, individualized FAI treatment is necessary that includes a comprehensive 180° femoroplasty in patients with sizable cam lesions to prevent future labral and chondral damage. An intraoperative dynamic examination is important to determine sufficient resolution of FAI. Predictive modeling may play an increasingly important role to ensure appropriate bony resection and to optimize long-term patient outcomes.

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I commend the efforts of Hartwell, Morgan, Nelson, Fernandez, Nicolay, Sheth, Tjong, and Terry,¹ who performed an evaluation of 86 patients with femoroacetabular impingement (FAI) who underwent isolated acetabuloplasty with 1 to 3 mm of resection without femoroplasty in their article entitled “Isolated Acetabuloplasty for Femoroacetabular Impingement: Favorable Patient Reported Outcomes and Sustained Survivorship at Minimum 5-Year Follow-Up.” This article is thought-provoking, albeit controversial, and challenges our thought process regarding appropriate FAI treatment.

Despite arthroscopic FAI surgery showing excellent outcomes in most appropriately indicated patients, the

long-term outcomes of hip arthroscopy are limited.² The recent focus has largely been on the femoral head-neck offset as the most essential bony pathology to address. However, Briggs et al.,³ in a study of 230 patients at 5-year minimum follow-up, illustrated that the postoperative alpha angle did not correlate with patient-reported outcomes (PROs), showing that an intraoperative dynamic examination, rather than a specific postoperative alpha angle, was most important for adequate decompression. Furthermore, Johannsen et al.⁴ evaluated the postoperative lateral center-edge angle (CEA) and found no correlation with postoperative outcomes or conversion to arthroplasty. Before the publication of the current study, the literature regarding isolated acetabuloplasty was limited to a single study from the same group: Tjong et al.⁵ evaluated isolated acetabuloplasty with labral repair, in what appears to be a similar cohort, at 2-year minimum follow-up and reported good to excellent PROs.

In the current study, Hartwell et al.¹ provide a well-designed analysis of patients who also underwent

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isolated acetabuloplasty with labral repair or debridement at mid-term follow-up of a minimum of 5 years and an average of 7.4 years. The results were good to excellent, with 72.1% of patients achieving the patient acceptable symptomatic state and rates of revision and conversion to arthroplasty of 3.5% at 25.0 months and 5.8% at 21.4 months, respectively. On the basis of our increase in knowledge over the past 5 years, the 7% of patients with Tönnis grade 2 included may not be ideal hip arthroscopy candidates. Furthermore, the 5.8% of patients who underwent labral debridement is too small of a number to draw conclusions about suitable labral treatment. This study adds to the essential—relatively small—growing body of literature on the much-needed longer-term follow-up of our hip arthroscopy patients.

So, should we ignore the cam deformity and perform a 1- to 3-mm isolated acetabuloplasty in all our patients? The simple answer is no. My opinion is that we cannot take the study by Hartwell et al.¹ too superficially because this does not appear to be a consecutive series of all patients undergoing hip arthroscopy during a specific period but rather is likely a study of patients in whom femoroplasty was not necessary. The average alpha angle was 54.3° as measured on frog-leg lateral views, with female patients, who typically have less severe cam deformities, making up 70.9% of patients. To me, these numbers indicate that isolated acetabuloplasty may be a good option in patients with small or negligible cam morphologies but not in those with significant head-neck offset issues.

Additionally, the analysis of acetabular morphology performed by Hartwell et al.¹ was limited to the preoperative lateral CEA with a dysplasia cutoff value of less than 20°. One must appreciate the nuances of the patient's individual acetabulum because it is more complex than the parameters typically used by many of us and those used in this study. The Tönnis angle, upsloping of the lateral sourcil, the femoro-epiphyseal acetabular roof (FEAR) index, the Sharp angle, the anterior CEA, the extrusion index, the anterior wall index, acetabular version, and ligamentous laxity all likely play a role, about which we are still learning. Furthermore, evaluation and treatment of subspine impingement must be considered. Readers, therefore, must not take the results of this study as a ticket to perform an isolated acetabuloplasty of 1 to 3 mm in every patient without proper evaluation of the femoral head-neck offset. A combined evaluation of cam, pincer, and subspine impingement is essential because isolated treatment may risk inadequate decompression and/or creation of iatrogenic acetabular dysplasia in certain circumstances. I believe that the future will likely involve computer simulations based on individual patient imaging to determine the appropriate location and amount of bony work required. Computer

navigation or robotics may provide intraoperative assistance to determine this essential location to help create the most ideal impingement-free motion.

I commend Hartwell et al.¹ for pushing the envelope regarding treatment options for our FAI patients at mid-term follow-up in this compelling study. My opinion is—and I believe the authors may agree—FAI is typically a conflict with contributions from both the ball and socket, making femoroplasty essential in patients with sizable cam deformities. We should not minimize the importance of the cam deformity because it has been established that the alpha angle correlates with the amount of intraoperative cartilage and labral injury.⁶⁻⁸ However, I believe this mid-term follow-up study shows compelling evidence that, in patients with minimal or negligible cam morphologies and appropriate acetabular coverage, an isolated acetabuloplasty of 1 to 3 mm can be considered and will likely result in good to excellent PROs. This is an exciting time in hip arthroscopy because we are just scratching the surface, and commendable mid-term follow-up studies like this provide an excellent addition to this rapidly growing body of literature.

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