

Editorial Commentary: Myth Buster—Is Femoral Retroversion a Contraindication to Hip Arthroscopy in Femoroacetabular Impingement?



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Abstract: Hip arthroscopy can effectively address cam and pincer impingement by reshaping bone prominences or bone edges. However, hip arthroscopy cannot be used to correct severe bone torsion abnormalities such as acetabular or femoral retroversion. As a result, some surgeons contraindicate hip arthroscopy in patients with femoral retroversion absent correction of the torsion abnormalities. However, recent research has suggested that hip arthroscopy absent osteotomy, with a focus on labral preservation and thorough correction of underlying cam and pincer bony abnormalities, achieves positive outcomes. Still, although femoral retroversion should not be considered a contraindication for hip arthroscopy, patients should be carefully counseled about residual symptoms.

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Hip arthroscopy has rapidly gained widespread use with widening indications and an increasing volume. The boundaries of hip arthroscopy are being redefined to treat a wide variety of hip pathologies, with the aim of alleviating pain and preserving the native joint. Hip arthroscopy can reshape the edges or prominences of the bone and therefore can be very effective in pincer and cam femoroacetabular impingement (FAI). However, hip arthroscopy cannot change the orientation of the femur or acetabulum and consequently has limitations in treatment of severe hip dysplasia and severe abnormalities of femoral or acetabular version. These severe structural pathologies require reorientation osteotomies (periacetabular osteotomy and femoral anteverting osteotomy) for correction. Severe acetabular dysplasia has been established as a contraindication for labral debridement^{1,2} and is generally treated with periacetabular reorientation osteotomy. Prior studies have suggested that femoral retroversion causes pincer-type impingement, cartilage wear, osteoarthritis,³ and less clinical

improvement with hip arthroscopy.⁴⁻⁶ As a result, femoral retroversion is generally considered a negative prognostic factor for outcomes of hip arthroscopy.

In the article entitled “Does Femoral Retroversion Adversely Affect Outcomes After Hip Arthroscopy for Femoroacetabular Impingement Syndrome? A Midterm Analysis,” Lall, Battaglia, Maldonado, Perets, Laseter, Go, and Domb⁷ challenge this notion. They report a retrospective comparative study of 59 patients with femoral retroversion ($<0^\circ$) versus 59 matched (for age, body mass index, and sex) patients with “normal” version (10° - 20°) undergoing hip arthroscopy for FAI. They performed comprehensive arthroscopic treatment of labral tears, pincer and cam impingement, and ligamentum teres tears, along with capsular repairs, as indicated. They took a “labrum-friendly approach” with limited debridement of labral tears, labral repair when possible, and reconstruction when repair is not possible. They performed thorough correction of underlying cam and pincer impingement as indicated. At minimum 5-year follow-up, both groups showed clinically significant improvements, with no intergroup differences in multiple patient-reported outcomes and the need for revision surgery or total hip replacement. Lall et al. concluded that femoral retroversion should not be considered a contraindication for hip arthroscopy but it should be carefully considered as a factor in patient selection and surgical planning.

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I commend Lall et al.⁷ for this valuable study that challenges the myth of poor outcomes of hip arthroscopy in patients with femoral retroversion. This gives hope to the over 13% of FAI patients with retroverted femora⁸ and enables surgeons to appropriately counsel these patients about midterm benefits and expectations from hip arthroscopy.

As is inherent in the FAI literature, there is significant heterogeneity in the treatment of the labrum, joint capsule, ligamentum teres, and psoas tendon performed by Lall et al.⁷ With such heterogeneity, it is hard to determine predictive associations without a multiple regression analysis, which is missing in the current article.⁷ Femoral version is a continuous variable and has been analyzed as a categorical variable with limited categories, which may miss the effect of outliers. The magnetic resonance imaging–based version measurements used by Lall et al. are acceptable, but the gold standard for measuring version is based on a 3-dimensional computed tomography model.⁹ Besides, these excellent outcomes from experienced surgeons at a dedicated hip arthroscopy center may not be generalizable to community practice. Despite these shortcomings, this study does prove that patients with femoral retroversion can benefit from comprehensive hip arthroscopic treatment.

Future studies should consider limiting or controlling the inherent heterogeneity in FAI research and consider multiple regression analysis as a robust way to determine associations. Future studies should also evaluate the impact of combined femoral and acetabular version (McKibbin index^{4,10}) on outcomes because this may be more representative of the functional hip state.

In summary, femoral retroversion should not be considered a contraindication for hip arthroscopy, but patients should be carefully counseled about residual symptoms. Intraoperatively, comprehensive arthroscopic treatment including a “labrum- and capsule-friendly approach” coupled with correction of underlying cam and pincer impingement appears to be the key to success.

This approach may provide significant clinical improvement in patients with retroverted femora without undergoing a femoral anteverting osteotomy.

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