

Editorial Commentary: Evaluate for the Beighton Score and Additional Radiographic Signs of Instability Prior to Proceeding With Hip Arthroscopy in Patients With Combined Borderline Hip Dysplasia and Excessive Femoral Anteversion



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Abstract: Femoral version abnormalities have been increasingly recognized as a key factor in the pathogenesis of non-arthritic hip pain. Excessive femoral anteversion (EFA), defined as femoral anteversion greater than 20°, has been postulated to create unstable alignment of the hip, which is exacerbated in patients with concomitant borderline hip dysplasia (BHD). The optimal treatment algorithm for hip pain in EFA-BHD patients remains debated, with some surgeons advocating against arthroscopic procedures in isolation owing to the combined instability due to the femoral and acetabular abnormalities. When determining the treatment approach for an EFA-BHD patient, clinicians should discern whether the patient is presenting with symptoms due to femoroacetabular impingement versus hip instability. When addressing symptomatic hip instability, clinicians are encouraged to evaluate for the Beighton score and additional radiographic factors (other than the lateral center-edge angle) suggestive of instability, such as a Tönnis angle greater than 10°, coxa valga, and deficient anterior or posterior acetabular wall coverage. Because the combination of these additional instability findings with EFA-BHD may portend an inferior outcome after arthroscopic treatment in isolation, an open procedure such as periacetabular osteotomy can be a more reliable treatment option for symptomatic hip instability in this cohort.

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Seventeenth-century philosopher Baruch Spinoza proposed, “Nothing in nature is random. A thing appears random only through the incompleteness of our knowledge.” This is often evident in our growing understanding of patients with borderline hip dysplasia

(BHD). This cohort can present with a wide spectrum of complaints and examination findings, ranging from femoroacetabular impingement syndrome (FAIS) to hip instability symptoms.¹ Furthermore, the optimal treatment approach remains debated, with varying

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outcomes reported after arthroscopic surgery, as well as open procedures such as periacetabular osteotomy.^{2,3} Although differences in clinical presentation and outcomes between hips with BHD may seem “random,” these discrepancies may instead be attributed to an “incompleteness” in our understanding of the multitude of factors affecting BHD patients.

In the past decade, femoral version abnormalities have garnered increased attention as an additional factor that can exacerbate FAIS or hip instability.^{4,5} This concept has been elegantly investigated by Marland, Horton, Smythe, West, and Wylie⁶ in their article “Combined Borderline Acetabular Dysplasia and Increased Femoral Anteversion Is Associated With Worse Outcomes in Female Patients Undergoing Hip Arthroscopy for Femoroacetabular Impingement.” They observed that excessive femoral anteversion (EFA), defined as femoral anteversion greater than 20°, with BHD was associated with significantly worse iHOT-12 (International Hip Outcome Tool, short version) scores compared with control patients at 2 to 4 years’ follow-up after hip arthroscopy. Notably, patients with EFA or BHD in isolation also exhibited inferior outcomes, although to a lesser extent, compared with the EFA-BHD cohort. We commend these authors for a well-designed study that demonstrates the importance of recognizing the multiple factors that can contribute to hip symptoms.

Chaharbakhshi et al.⁷ observed a significant improvement in all patient-reported outcomes in EFA-BHD patients after hip arthroscopy. Although patient-reported outcomes in this group were lower than those in the control group both preoperatively and postoperatively, the EFA-BHD patients experienced a similar magnitude of improvement after surgery compared with the control group. Moreover, Chaharbakhshi et al. observed higher iHOT-12 scores at most recent follow-up in comparison to the findings of Marland et al.⁶ Rather than attributing this discrepancy to an element of “randomness” seen in clinical research, we believe that these differences between studies, once again, highlight the “incompleteness” in our understanding of the complex interplay of factors in this patient population. Some of these factors may be discernible on a closer look at these studies, with Marland et al. observing a higher average age and body mass index in EFA-BHD patients, applying a lower alpha angle threshold of 50° rather than 60° to define a cam deformity, and performing a T-capsulotomy rather than an interportal capsulotomy. However, other contributing factors that affect preoperative decision making were not reported in either of these studies, such as the Beighton score or additional radiographic factors of instability other than the lateral center-edge angle.^{8,9}

In our approach to EFA-BHD patients, we strive to take all the aforementioned factors into consideration prior to proceeding with arthroscopic treatment. We have a lower threshold for performing hip arthroscopy in EFA-BHD patients with a clinical picture consistent with FAIS, consisting of larger cam deformities (alpha angle > 60°), positive impingement test findings, and limitations in hip internal rotation. However, more caution is used for EFA-BHD hips presenting with clinical signs of instability, including positive apprehension test results, a large arc of movement from internal to external rotation, and laterally based pain consistent with abductor fatigue. In the presence of additional osseous and soft-tissue instability factors, such as a Tönnis angle greater than 10°, coxa valga, deficient anterior and posterior acetabular wall coverage (as measured by wall indices), or a Beighton score greater than 6, we may be more inclined to perform a periacetabular osteotomy to provide stability. In EFA-BHD patients with few or none of these additional instability factors, hip arthroscopy can be performed with caution, with the use of labral preservation techniques and judicious capsular management.¹⁰

The complexity of our treatment algorithm for EFA-BHD patients illustrates the challenge facing hip preservation surgeons in the current era, with numerous diagnostic tools and countless data points readily available. Clinicians must account for these abundant factors while also not becoming entangled in the minutiae. According to a maxim attributed to Albert Einstein, “Everything should be made as simple as possible. But not simpler.”

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