

Editorial Commentary: The Indication and Technique of Iliotibial Band Release for External Snapping Hip During Hip Arthroscopy in Patients With Femoroacetabular Impingement Syndrome



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Abstract: Patients with femoroacetabular impingement syndrome (FAIS) often have extra-articular disorders, such as external snapping hip (ESH). We recommend that obvious ESH be addressed by endoscopic transversal iliotibial band (ITB) release during hip arthroscopy for FAIS because the residual serious snapping caused by ESH negatively affects the outcome of hip arthroscopy. However, for mild ESH without indications for severe trochanteric bursitis on magnetic resonance imaging, we still propose that physical therapy, extracorporeal shock wave therapy, or local injection be performed for pain relief. Surgical interventions for ESH including the Z-plasty technique and the modified Z-plasty technique for lengthening the ITB, as well as endoscopic cruciate or transversal incision in the ITB for release, have been reported with good results. Every technique has advantages and disadvantages, and we believe that surgeons should perform ITB release for ESH at the time of hip arthroscopy for FAIS based on their personal experience and inclination. In any case, excessive release of the ITB should be avoided. Finally, we wish to propose that more attention should be paid to the peri-greater trochanter (GT) space, an anatomic space between the ITB and the GT, which is similar to the subacromial space in the shoulder joint. Greater trochanteric pain syndrome (GTPS), related to the peri-GT space, is a spectrum of disorders, including trochanteric bursitis, abductor tendon pathology, and ESH. Precise diagnosis and proper procedures for concurrent GTPS during surgery may improve the outcome of arthroscopy in patients with both FAIS and GTPS.

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Aimed at pain relief and functional improvement, hip arthroscopic surgery to address intra-articular pathologies such as labral and/or chondral lesions and bony impingement has become popular for femoroacetabular impingement syndrome (FAIS) in recent decades. The complexity of the structures around the hip and core, combined with pelvic kinematic chain imbalance, often leads patients with FAIS to have extra-articular disorders, such as external snapping hip (ESH). According to our studies, the prevalence of ESH in FAIS patients undergoing hip arthroscopy is 4.9%.¹ With an

increased understanding of FAIS and the development of hip arthroscopy, surgeons are paying more attention to the diagnosis of and interventions for symptomatic ESH or trochanteric bursitis during hip arthroscopy, and this is a new area of active discussion in hip arthroscopy.¹⁻³

The study by Maldonado, Glein, Lee, Annin, Owens, Jimenez, Saks, Sabetian, Lall, and Domb⁴ entitled “Patients With Concomitant Painful External Snapping Hip and Femoroacetabular Impingement Syndromes Reported Complete Snapping Resolution With Release of the Gluteus Maximus and Iliotibial Band, and Comparable Minimum 2-Year Outcomes to a Propensity-Matched Control Group” makes an evidence-based case for addressing ESH during hip arthroscopy in patients with both FAIS and painful ESH. The authors retrospectively reviewed 21 patients (22 hips) who received endoscopic iliotibial band (ITB) release for painful ESH, including a transverse incision in the ITB and a longitudinal incision across the gluteus

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The authors report no conflicts of interest in the authorship and publication of this article. Full ICMJE author disclosure forms are available for this article online, as [supplementary material](#).

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0749-8063/22218/\$36.00

<https://doi.org/10.1016/j.arthro.2022.02.014>

maximus tendon (GMT) insertion, during primary hip arthroscopy for FAIS. They confirmed a 100% rate of resolution of ESH using patient-reported outcome measures. In addition, they benchmarked these minimum 2-year outcomes using a 1:3 propensity-matched control group, matched according to age, sex, body mass index, Tönnis grade, and preoperative lateral center-edge and alpha angles, to compare outcomes with those of FAIS patients without ESH.⁴ The methods in the study of Maldonado et al. are reasonable, and the data are credible. The results of this study are consistent with the findings of our previous study¹; both studies have shown evidence-based benefits of additional ITB release for ESH at the time of hip arthroscopy in patients with both FAIS and ESH. Despite the good outcomes of ITB release at the time of hip arthroscopy in patients with both FAIS and ESH, 2 important controversies remain: the indication for ITB release and the best technique for ITB release. Both are further discussed here.

The indication for ITB release at the time of hip arthroscopy is still controversial. Maldonado et al.⁴ performed ITB release to address painful external snapping at the time of hip arthroscopy for FAIS; this is similar to work at our institution.¹ Our previous work has shown that typical ESH may not improve without surgical intervention in patients undergoing hip arthroscopy. The residual serious snapping caused by ESH negatively affects the outcome of hip arthroscopy in patients with both FAIS and severe ESH. Similarly to Maldonado et al., we performed a study with follow-up of 23 patients undergoing endoscopic ITB transverse-incision release during hip arthroscopy from January 2014 to December 2018 and confirmed that the functional improvement, pain relief, recovery speed, and patient satisfaction were similar to those after pure hip arthroscopy in FAIS patients without ESH.⁵ On the basis of the results of the study by Maldonado et al.⁴ and our studies,^{1,5} we suggest that obvious ESH should be addressed by endoscopic transversal ITB release during hip arthroscopy for FAIS. However, for mild ESH without indications for trochanteric bursitis on magnetic resonance imaging, we still propose that physical therapy, extracorporeal shock wave therapy, or local injection be performed for pain relief.

We were honored to have Dr. Marc Philippon, a leading professor in the field of hip arthroscopy, and his colleague³ comment on our study. In their commentary, they concurred with the methods and results of our study. They also noted that lateral hip pain is a common problem in patients with FAIS and stressed the importance of identifying patients in whom lateral hip pain has developed as a result of compensation owing to their intra-articular pathology versus those in

whom a separate pathology has developed that is unlikely to improve with hip arthroscopy alone. Gruskay and Philippon³ emphasized that the indication for ITB release has narrowed over time but that symptomatic ESH remains the main indication for ITB release in their practice. In summary, if patients undergoing hip arthroscopy for FAIS also have severe ESH, we suggest 1-stage ITB release at the time of hip arthroscopy.

The second open question regards the ITB release technique to use for ESH. Surgical interventions for ESH have been developed over several decades. The Z-plasty technique and the modified Z-plasty technique for lengthening the ITB, as well as endoscopic cruciate or transversal incision in the ITB for release, have been reported to have good results.⁶⁻⁸ In another study by Maldonado et al.,⁹ they described a combination of a transverse incision in the ITB at the level of the tip of the greater trochanter (GT) and a longitudinal incision across the femoral insertion of the GMT—a technique described by Polesello et al.¹⁰ for ESH. This technique for ITB release is more aggressive than ours. For ITB release in our practice, using the anterolateral portal as a viewing portal and the distal anterolateral portal as the operating portal, we bluntly dissect and clean the overlying soft tissues on the ITB with a radiofrequency blade. Once the anterior and posterior borders of the ITB are confirmed, a complete transverse incision is made in the ITB with a radiofrequency blade at the prominence of the GT. More recently, we have modified this technique to put the camera and radiofrequency blade into the peri-GT space between the ITB and the GT first; we then incise the ITB with a radiofrequency blade. Under this modified technique, hemostasis is simpler and the surgical time is reduced.

Vap et al.² previously performed cruciate release of the ITB located along the posterior one-third of the structure for trochanteric bursitis in patients with FAIS. In their commentary on our study, Gruskay and Philippon³ expressed concern that a complete transverse release may lead to overstretching or weakness of the lateral hip stabilizers and increased strain across the abductors. No patients had complaints of weakness or instability of the lateral hip after ITB transverse incision for ESH in our study.¹ In patients with severe gluteus maximus contracture, a hip disease with a higher incidence rate in China, we perform a transverse incision in the ITB and extend the incision posteriorly and superiorly to release the conjunction between the gluteus maximus and the ITB but not the femoral insertion of the gluteus maximus.¹¹ This release technique optimally addresses the gluteus maximus contraction, and no patients in the study have complained of weakness or instability of the lateral hip.

However, we had no objective evidence to prove that neither occurs. Thus, we performed follow-up research in our institution that was published in 2021.⁵ Abductive force of the affected hip in 23 patients undergoing endoscopic ITB transverse-incision release during hip arthroscopy from January 2014 to December 2018 was tested in our further follow-up study. At 3 months after surgery, the abductive force of the operated hip in patients undergoing ITB release was significantly smaller than that in the pure FAIS group (82.4 ± 12.4 N vs 91.9 ± 16.1 N, $P < .05$), but there was no significant difference at 24 months after surgery (101.6 ± 14.9 N in the ITB release group vs 106.5 ± 13.7 N in the pure FAIS group, $P > .05$). Thus, no significant mid- to long-term effect of transverse ITB release occurred. We hypothesize that scar adhesion of the ITB and compensation of the hip abductors allow the hip to recover its abductive force strength. Thus, on the basis of our studies, the ITB transverse-incision release technique for ESH during hip arthroscopy is effective and safe in patients with both FAIS and severe ESH.^{1,5}

The technique for ITB release used in the study of Maldonado et al.⁴ seems more aggressive. Although a recent study revealed no functional or strength impairment after GMT release in patients with symptomatic ESH,¹² the authors confirmed a significant reduction in limb circumference compared with the contralateral side (3.7%). It is unclear whether this technique, composed of a transverse incision in the ITB and GMT release, will have an adverse effect on the involved hip, such as reduced extension and external rotation strength of the GM and reduced abductive strength of the abductors. Every technique has advantages and disadvantages, and we believe that surgeons should perform ITB release for ESH at the time of hip arthroscopy for FAIS based on their personal experience and inclination. In any case, excessive release of the ITB should be avoided.

Finally, we wish to propose that more attention should be paid to the peri-GT space, an anatomic space between the ITB and the GT, which is similar to the subacromial space in the shoulder joint. There are important structures around it, including the GT bursa, the ITB, and the tendons of the gluteus maximus, medius, and minimus. Besides these, the femoral insertion of the GM in the peri-GT space is a critical landmark for entering the deep gluteal space to perform sciatic nerve exploration. A group of disorders including trochanteric bursitis, abductor tendon pathology, and external snapping around the GT was recently called "greater trochanteric pain syndrome" (GTPS).¹³ Although these disorders are traditionally treated by conservative or nonsurgical methods, the outcome may

be improved by performing 1-stage surgical interventions through the peri-GT space for these disorders at the time of hip arthroscopy for FAIS, just like the ITB release for ESH that we are discussing here. Besides, gluteus medius tendon repair can be performed for concurrent gluteus medius pathology, and exploration of the sciatic nerve can be performed for concurrent deep gluteal space syndrome.¹⁴

All in all, GTPS including ESH related to the peri-GT space of the hip needs to be more thoroughly studied. Precise diagnosis and proper procedures for concurrent GTPS during surgery may improve the outcome of arthroscopy in patients with both FAIS and GTPS.

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