Letters to the Editor

The Role of Fluoroscopically Guided Intra-Articular Hip Injections in Potential Candidates for Hip Arthroscopy: Experience at a UK Tertiary Referral Center Over 34 Months

To the Editor:
We would like to comment and further expand on the article by Kivlan et al. published in Arthroscopy on the topic of diagnostic injections in patients with intra-articular pathology. It is well known that determining the underlying cause of symptoms in patients presenting with atypical hip pain can be challenging. This challenge is greater in young individuals who do not have frank signs of osteoarthritis (OA) on radiographs but have intra-articular soft-tissue abnormalities such as acetabular labral tears or tears of the ligamentum teres. History and clinical examination in these patients have limitations in their ability to accurately identify primary intra-articular sources of pain. Therefore, resorting to the use of intra-articular injections is a common technique in an attempt to accurately locate the source of pain and subsequently guide treatment. This has been shown to be useful when frank radiological signs of OA were suspected to be the cause of the pain; however, when other intra-articular pathologies are present, such as labral tears, the diagnostic accuracy of intra-articular hip injections becomes questionable.

We routinely use diagnostic hip injections in young patients who have intra-articular abnormalities on MRI scans but inconsistent symptoms, before proceeding with hip arthroscopy. However, the article by Kivlan et al. led us to audit our practice to see whether the positive responses from these injections are definitely associated with intra-articular pathology.

We retrospectively reviewed 67 patients with a mean age of 37 years who were referred to our unit. All complained of “hip pain,” with 6 complaining of concurrent back pain and 28 having mechanical symptoms such as locking, clicking, or clunking of the hip. All these patients underwent manipulation under anesthesia and fluoroscopically guided intra-articular hip injection with 10 mL of 0.25% levobupivacaine. The immediate and late responses to the injection were assessed on the ward and in the follow-up clinics. Any patient having at least some pain relief was considered a positive responder, and this was attributed to the intra-articular pathology seen on MRI. The results are shown in Fig 1.

The majority of the patients (n = 55) had a positive response to the injection, and 50 of these underwent hip arthroscopy. The rest of the responders (n = 5) either declined treatment (n = 2) or underwent total hip arthroplasty (n = 3). Of the 12 patients who did not respond, 7 underwent arthroscopy because of persistent symptoms and visible intra-articular pathology on the MRI scans with no other explanation for their symptoms.

Arthroscopy confirmed intra-articular pathology in all the 50 patients who had a positive response to the injection (pain relief). There were a total of 115 lesions found, with a mean of 2.3 lesions per hip joint. The most common finding was a labral tear, observed in 47 cases (94%), and chondral damage was found in 24 (48%). Ligamentum teres damage was seen in 4 patients. In addition, 2 patients were found to have loose bodies within the joint.

Interestingly, all 7 patients who did not respond to the intra-articular injection but still went on to have arthroscopy were also found to have similar intra-articular hip pathology. All patients were found to have a labral tear (100%), with 3 also having chondral damage (42%). In addition, of the non-responders, 1 required release of the iliopsoas tendon and another needed excision of a trochanteric bursa.

Therefore, from our results, the intra-articular findings in patients who did not respond to the diagnostic injection did not differ from those patients who responded to the injection. This implies that, even in the presence of chondral damage, there are some patients who will have false-negative results; thus this renders the results of this diagnostic technique not 100% reliable in this cohort of patients. We also think that even in situations in which patients respond positively to these injections, we cannot always attribute this to the underlying intra-articular abnormality visible on the MRI scan. This is particularly so when an iliopsoas bursa communicates directly with the hip joint. Injecting the hip joint will offer some pain relief in these situations. In the study by Kivlan et al., it was interesting to note that some patients who had similar extra-articular pathology also had up to 50% pain relief from the articular injection.

It is also possible that intra-articular pathology (visible on MRI scans) can result in pain outside the hip joint.
For example, evidence suggests that gait is altered in femoroacetabular impingement (FAI)\(^7\) and that some muscle groups are weaker in symptomatic FAI patients.\(^8\) Therefore FAI could exert extra strain on the muscles surrounding the hip, resulting in extracapsular pain. In this situation intra-articular anesthetic injections will have little effect.

The dilemma faced here is also compounded by the fact that we are not certain of which intra-articular pathologies cause pain (or when). For example, labral tears, chondral damage, and ligamentous teres tears are prevalent in asymptomatic persons.\(^9\) Some of these are thought to arise from a natural aging process. The study by Kivlan et al.\(^1\) also suggested that isolated labral tears did not respond to the hip diagnostic injection and therefore may not be the cause of symptoms. However, the question remains whether there is another pathologic process causing these labral tears (such as FAI) and therefore causing pain. As pointed out by Kivlan et al., McCarthy et al. proposed a gradual progressive intra-articular hip disease in FAI ultimately leading to frank osteoarthritic changes.\(^10\) Therefore, in the presence of a pathomechanical cause such as FAI, the presence of labral tears may herald further progression and damage to the labrum and articular cartilage. Even with the most sensitive radiological investigations, certain pathologies might not be apparent,\(^11\) and therefore it can be difficult to ignore isolated labral tears on the basis that these do not cause significant symptoms or the patient did not respond to the diagnostic injection, especially after exhausting all conservative management strategies in patients with persistent symptoms.

The decision whether to surgically intervene has to be taken within the context of other clinical parameters, radiologic findings, and the patient’s expectations. It is easy to justify arthroscopic surgery to treat intra-articular pathology after a positive response to a diagnostic hip injection. On the other hand, ignoring symptomatic patients who did not respond to a hip injection in the presence of an obvious MRI abnormality is difficult. In the absence of other extra-articular or spinal pathologies that can explain the symptoms, one can find oneself equally compelled to carry out a diagnostic arthroscopic examination at the very least. However, we should also stress that a concerted search for any other causes of the patient’s symptoms should be carried out, and certainly, an opinion from the sports physician should be sought before proceeding with arthroscopy. In addition, patients must be warned that arthroscopic surgical intervention is initially diagnostic and may not be able to abolish their symptoms completely.

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**Note:** The authors report that they have no conflicts of interest in the authorship and publication of this letter.

**References**

1. Kivlan BR, Martín RL, Sekiya JK. Response to diagnostic injection in patients with femoroacetabular impingement,


Authors’ Reply

We thank Mathews et al. for their thoughtful comments and additional information on the usefulness of diagnostic injection. Mathews et al. audited their practice to see whether positive responses from diagnostic injections were associated with intra-articular pathologic findings. Their results, we believe, support the results presented by Kivlan et al., as well as those presented by Martin et al. In the study by Martin et al., it was found that 41% (20 of 49) of those with a labral tear on an MRI arthrogram did not achieve greater than 50% relief with intra-articular injection. Kivlan et al. noted that 15% (11 of 72) had evidence of intra-articular pathologic conditions during surgery but did not have greater than 50% relief with intra-articular injection. Mathews et al. noted similar results in that 11% (7 of 62) had pathologic intra-articular hip conditions as observed during surgical examination but did not respond to diagnostic injection. The next logical question would relate to the outcome of these 7 individuals. In our clinical practice, we find surgical outcome directly relates to percent relief with diagnostic intra-articular injection. The information presented by Mathews et al., Kivlan et al., and Martin et al. support the belief that pathologic findings identified with imaging or during arthroscopic surgery may not be the primary source of the patient’s symptoms. Research studies are needed to see how well diagnostic injection predicts outcome after arthroscopic hip surgery in those with nonarthritic intra-articular hip pain.

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References


Regarding “Surgical Dislocation of the Hip Versus Arthroscopic Treatment of Femoroacetabular Impingement: A Prospective Matched-Pair Study With Average 2-Year Follow-up”

To the Editor:

We read with interest the article entitled “Surgical Dislocation of the Hip Versus Arthroscopic Treatment of Femoroacetabular Impingement: A Prospective Matched-Pair Study With Average 2-Year Follow-up.” This is a very interesting topic that has evolved significantly in