

Sacroiliac Steroid Injections Do Not Predict Ablation Relief—Not a Surprise

Dear Editor,

We write to make some comments and pertinent observations regarding a recent presentation at the American Academy of Pain Medicine 28th Annual Conference by Cheng [1]. In an article titled "Sacroiliac Steroid Injections Do Not Predict Ablation Relief," he found in a retrospective analysis of 80 cases of sacroiliac joint (SIJ) pain that steroid injection into the joint did not predict the subsequent response to radio frequency ablation of the lateral branch nerves. There was pain reduction by 50% or more in 75% of patients receiving intra-articular steroids. However, the post-radio frequency pain relief of 50% or greater had no statistically significant relationship with patients who achieved greater than a 50% pain reduction after intra-articular steroid injection.

The hypothesized relationship that successful pain relief after intra-articular steroids could predict the response to lateral nerve ablation is based on the premise that all SIJ pain arises from within the joint. In the past, the reference standard for isolating the SIJ as a source of pathology had been the necessity of injecting local anesthetic into the joint to ameliorate symptoms, thereby confirming the diagnosis [2]. This is invasive and in many instances an unacceptable technique for establishing the diagnosis of pain arising from the SIJ. Laslett et al. [3] initially found clinical examination to be adequate in the isolation of the SIJ as a cause of symptoms relative to joint injection. Subsequently, the European guidelines for the diagnosis of pelvic girdle pain syndrome have established a battery of evidence-based clinical tests as the reference standard for the condition [4]. Intra-articular injection requires image guidance for accurate injection and exposes the patient to unnecessary radiation and discomfort.

Two further specific pieces of evidence have shown that joint injection does not rule out the SIJ as a cause of symptoms in a significant proportion of patients. This has been elegantly demonstrated by Murakami et al. [5]. This group injected 25 consecutive patients with established SIJ pain with intra-articular lidocaine and a further 24 with periarticular lidocaine into the posterior ligamentous structures. Responses to the injection were assessed by the restriction of activities of daily life scale (Japanese Orthopedic Association). Only 9 of 25 cases of intra-articular injection reported an effective improvement, while all 24 cases of posterior periarticular injection reported a good and significant response. Furthermore, all 16 patients without a response to intra-articular injection reported a complete response to posterior periarticular injection. The crossover nature of the study provides a strong case for the nociceptive innervation of the posterior sacroiliac ligaments as a significant part of the complex of SIJ pain.

There is some indirect evidence to support this in the study reported by Cheng [1]. He found that patients who reported pain with extension and axial rotation were less likely to respond to intra-articular steroid injection. This maneuver is likely to stress the ligamentous structures and stimulate pain that will not be affected by the intra-articular steroids. There is also preliminary evidence that prolotherapy of these posterior ligaments that stabilize the SIJ can significantly alleviate pain arising out of the SIJ complex [6].

Many of the conflicting reports on the basis of SIJ pain relate to fundamental problems about the anatomy of the nerve supply of the joint and its support structures. The nerve supply of the SIJ is problematic as the intra-articular nerve supply of the SIJ has not been described in detail. A plexus formed by the lateral branches of L5, S1, and S2 runs between the posterior sacroiliac and interosseous ligaments [7]. This plexus sends branches to the ligaments, skin of the medial and lower buttocks, and the joint. The roots of L3 to S1 and branches of the superior gluteal nerve (L5–S2) supply the anterior aspect of the SIJ [8]. We have developed an imaging test for SIJ dysfunction utilizing bone scintigraphy and X-ray computed tomography that demonstrates metabolic alterations in both the affected joint and the posterior SIJ ligaments [9]. It supports the assertion that posterior ligamentous pathology makes a significant nociceptive contribution to the condition, hence the importance of the nerve supply to the posterior SIJ ligaments.

While complex, there is enough evidence to suggest that the pain ascribed to the SIJ arises from both the joint and the posterior ligamentous structures. It offers a reasonable explanation for the findings of Cheng [1]. These findings should also bring into serious question the rationale of injecting steroids into the SIJ, for what is predominantly a biomechanical disorder.

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References

- 1 Cheng J. Sacroiliac steroid injections do not predict ablation relief (abstract 136). *Pain Med* 2012;13: 281–349.
- 2 Dreyfuss P, Michaelsen M, Pauza K, Mclarty J, Bogduk N. The value of medical history and physical examination in diagnosing sacroiliac joint pain. *Spine (Phila Pa 1976)* 1996;21:2594–602.
- 3 Laslett M, McDonald B, Tropp H, Aprill CN, Oberg B. Agreement between diagnoses reached by clinical examination and available reference standards: A prospective study of 216 patients with lumbopelvic pain. *BMC Musculoskelet Disord* 2005;6: 28.
- 4 Vleeming A, Albert HB, Ostgaard HC, Sturesson B, Stuge B. European guidelines for the diagnosis and treatment of pelvic girdle pain. *Eur Spine J* 2008;17: 794–819.
- 5 Murakami E, Tanaka Y, Aizawa T, Ishizuka M, Kokubun S. Effect of periarticular and intraarticular lidocaine injections for sacroiliac joint pain: Prospective comparative study. *J Orthop Sci* 2007;12:274–80.
- 6 Cusi M, Saunders J, Hungerford B, et al. The use of prolotherapy in the sacroiliac joint. *Br J Sports Med* 2010;44:100–4.
- 7 Standring S, ed. *Gray's Anatomy. The Anatomical Basis of Clinical Practice*, 40th edition. Edinburgh: Churchill Livingstone; 2008.
- 8 Solonen KA. The sacroiliac joint in the light of anatomical, roentgenological and clinical studies. *Acta Orthop Scand Suppl* 1957;27:1–127.
- 9 Cusi M, Saunders J, Van der Wall H, Fogelman I. Metabolic disturbances identified by SPECT-CT in patients with a clinical diagnosis of sacroiliac joint incompetence. *Eur Spine J* 2012; in press.