Chronic sacroiliac joint pain in elderly treated with pulsed radiofrequency ablation

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Abstract

Chronic sacroiliac joint (SI) pain can cause disability in an aging society. Effective treatment of low back pain (LBP) originating from sacroiliac joints is difficult to achieve. We report the successful treatment of pulsed radiofrequency (PRF) ablation in a patient with chronic SI joint pain. There were no post-interventional complications. Clinical improvement reported after 12 months.

Keywords: *ablation, chronic pain, radiofrequency, sacroiliac joint.*

Introduction

Chronic low back pain is a major cause of disability in the United States. An average of 15-20% lower back pain originates from the sacroiliac joint.¹⁻⁶ This sacroiliac joint supports the unique curve-shaped diarthrodial joint, receiving innervation from the lumbosacral plexus. Neuro-physiologically, several studies have demonstrated that there are nociceptive and proprioceptive afferent nerves in the sacroiliac joint.^{1,3,7,8}

There are some ambiguities and difficulties that occur when evaluating and determining the right diagnosis and appropriate setting for therapeutic management. Patients are more likely to experience sacroiliitis and intervention therapy is very rare.⁹ Currently, there is an exponential development in the management of pain originating from the sacroiliac joint.

Pulsed Radiofrequency (PRF) ablation is one of the management options for chronic pain and refractory pain for sacroiliac joint pain.⁴ There are some variety of therapies including denervation, intraarticular injection using local anesthesia, corticosteroids, and surgery but none has been effective in reducing pain within longterm period.¹⁰

International Association for the Study of Pain diagnostic criteria for sacroiliac syndrome include: pain in the region of the sacroiliac joint with possible radiation to the groin, medial buttocks, and posterior thigh; reproduction of pain by physical examination techniques that stress the joint.²

Case Presentation

Patients are selected based on the criteria of persistent chronic pain from the sacroiliac joint, no respond with conservative therapy. Previously, all patients who had clinical suspicion of SI joint pain underwent diagnostic SI joint injections. Those with >50% pain relief from diagnostic injections were offered RFA. As with traditional RFA techniques, the patient is placed in the prone position under fluoroscopic guidance, the probe is inserted through the skin to contact the bony margin lateral to the S4 foramen (Figure 1 and 2). We followed the protocol, wherein each

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lesion is created uses radiofrequency current with short, high-voltage, the silent phase allows time for heat elimination, and generally keeping the tissue target below 42°C for 120 seconds.¹¹⁻¹³

Case I

A 57-year-old woman presented with a 3-year history of the predominant buttock and low back pain for more than six months. The pain started in the right buttock VAS 7 and was intermittently worse. Signs and symptoms of sacroiliac joint pain on physical examination; failure to achieve adequate pain relief with physical therapy or pharmacotherapy. The author using Magnetic resonance imaging (MRI) as diagnostic and demonstrated large subcortical erosions on both the sacral and iliac sides with bone marrow edema at the sacral side of the right SI joint. We performed the right SI joint PRF Ablation (Figure 1). VAS 2 achieved within 12 months after the procedure.

Figure 1. A) MRI T2WI coronal view showed grade III subchondral sclerosis (white arrow). B) Real-time anterior view fluoroscopy RFA. C) Lateral view fluoroscopy.

Case II

An 82-year-old woman presented with a 4-year history of refractory low back and buttock pain with VAS 7. The pain started in the right low back and intermittently worsen. Signs and symptoms of sacroiliac joint pain on physical examination; failure to achieve adequate pain relief with physical therapy or pharmacotherapy. The plain X-ray showed subcortical erosions and sclerosis at the SI joint. Magnetic resonance imaging (MRI) of the SI joint demonstrated subcortical erosions with bone marrow edema at the right SI joint. We performed the right SI joint PRF Ablation (Figure 2). VAS 2 achieved within 12 months after the procedure.

Figure 2. A) Plain X-ray showed sclerosis on the bilateral SI joint (white arrow). B) MRI T2WI coronal view showed subchondral sclerosis (red arrow). C) Real-time anterior fluoroscopy RFA. D) Lateral view fluoroscopy.

Discussion

Various literature mentions many treatment methods for dealing with low back pain originating from SI joints. Interventional treatments include sacroiliac joint, intra-articular joint injections, cryotherapy, and surgical treatment. Although all of these methods, pain relief is a challenge in many cases.^{1,2,5} Previous study reported that pulsed radiofrequency denervation of the L4 and L5 primary dorsal rami and S1-3 lateral branches provide significant pain relief and functional improvement compared to intra-articular injection.¹⁴

RF ablation in the sacroiliac joint is an action carried out based on the result of previous cadaver studies stating that there are anastomosed nerves with multiple dorsal primary branches around the neural foramen.⁶

The sacroiliac joint continues to be a source of chronic lower back pain even though there is still debate of pain source and its anatomical property. The innervation of the dorsal area of the sacroiliac joint (SI) has been widely reported based on the result of previous studies originating from L4 and L5 dorsal ramus and nerve S1,2,3 and a small portion of S4.¹⁻⁵

In this study, the authors prove that PRF ablation performed on the sacroiliac joints decreases >50% of pain scale and is followed by a reduction in the dose of analgesic in patients experiencing sacroiliac joint pain. This result was similar with previous studies.^{3,15}

PRF ablation has shown to be clinically effective in the management of SI joint pain but in this study also showed that in 9 months after procedure there was <50% reduction of the pain scale, this is due to the diffuse innervation of the SIJ extending from the L5 to S4 and large of subcortical bony erosion.⁶ The author gives additional non-steroid anti-inflammation drug.

One patient complaint sensation of pain and heat over the skin of the trajectory site post-PRF ablation. Hegarty *et al.*¹⁶ reported that the symptoms will decrease gradually by 60% within 7-months. The complaint had minimal effect for most patients requires no intervention.¹⁶ In our cases, this complaint reduced by analgesic.

Our results are unique because occurred in elderly with unilateral symptom and demonstrated the long-term efficacy of sacroiliac joint pain management. No serious complications or side effects were observed in our patients. Both patients showed a clinically relevant degree of pain relief.

But there are some limitations in the management of SI joint pain, extensive neurons and inconsistency of the technique used for RFA in SI joints. More extensive studies with large samples and longer observation times are needed.¹⁶

Conclusion

PRF ablation provides high and longer clinical effectiveness in chronic SI joint pain management in elderly patients who have been properly screened.

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