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Periarticular Steroid Injection in Sacroiliac Joint Pain Patients with Ultrasound Guidance: A Case Report

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ABSTRACT

Introduction: Pain in the sacroiliac joint area is pain below the level of the sacroiliac joint. L5 without symptoms of numbness or paresthesias and lower back pain that is aggravated after prolonged sitting, bending forward, and transitioning from sitting to standing. This study aims to describe cases of sacroiliac joint pain treated with periarticular steroid injection. **Case presentation**: A man, 47 years old, came with a complaint of pain in the right buttock area. The pain has been felt since 1 month ago. The pain is felt continuously and gets worse when standing for a long time while working. The pain radiates to the right thigh and calf. The patient was diagnosed with sacroiliac joint pain. The patient is then prepared for an ultrasound-guided steroid injection. The drugs injected were triamcinolone 40 mg 1 mL and Bupivacaine 0.5% 3 mL with the help of a linear ultrasound probe **Conclusion:** The procedure of sacroiliac joint injection provides a significant pain reduction response in sacroiliac joint pain.
Keywords: corticosteroid, local anesthesia, pain, sacroiliac joint.

Introduction

Sacroiliac joint pain is defined as pain originating from the movement of the sacroiliac joint structures. Pain triggered by sacroiliac joint dysfunction can cause a variety of disorders, including persistent pain accompanied by a limited range of motion. About 13% of cases of chronic low back pain are caused by sacroiliac joint pain. Women have a 3-4 times higher risk of suffering from sacroiliac joint pain than men.[1-5]

Pain in the sacroiliac joint (SIJ) usually presents with pain below the L5 level in the absence of numbness or paresthesias and low back pain that is exacerbated after prolonged sitting, bending forward, and transitioning from sitting to standing. Pain can also be made worse by weight-bearing exercises, including climbing stairs or even long walks. There is no gold standard for the diagnosis of SIJ pain. The combination of physical examination and provocative tests (FABER test, Gaenslen test, thigh thrust test, compression test, distraction test, and Yeoman test) is an important component to determine the presence of disruption of the sacroiliac joint ligament. The diagnosis of pain caused by inflammation of the sacroiliac joint can be challenging because its clinical manifestations are similar to those of other spinal pain. Radiological examination, which usually helps rule out other musculoskeletal disorders, has been shown to have low specificity and sensitivity in diagnosing sacroiliac joint pain, which is unlikely to reveal abnormalities. The sacroiliac joint block technique has long been considered the gold standard procedure for diagnosing sacroiliac joint pain, where pain relief after injection of local anesthetics and steroids determines the location of the joint causing the pain.[6-8]

Due to the complex anatomical structure of the sacroiliac joint, injection into this joint using palpation/marker techniques often results in poor accuracy. Administration of steroid injections with the help of ultrasound can increase the accuracy of the action and the effectiveness of treatment.[9] This study aims to describe a case of sacroiliac joint pain treated with periarticular steroid injection.

Case Presentation

A man, 47 years old, working as a paramedic, came with a complaint of pain in the right buttock area. The pain has been felt since 1 month ago. The pain is felt continuously and gets worse when standing for a long time while working. The pain radiates to the right thigh and calf. At first, pain appears after doing excessive pelvic exercise movements.

Physical examination showed vital signs within normal limits. There is pain when changing positions from sitting to standing, there is no difference in the length of the left and right legs, and there are no signs of injury (bruises/scars) around the painful area. The provocation test for thigh trust, FABER test, Gaenslen's test, and distraction test were positive. The patient also demonstrated the Fortin finger sign by pointing to the location of the pain in the right buttocks area with one finger. There were no abnormalities on laboratory examination. The patient was diagnosed with sacroiliac joint pain.

The patient is then prepared for an ultrasound-guided steroid injection. The drugs injected were triamcinolone 40 mg 1 mL and Bupivacaine 0.5% 3 mL with the help of a linear ultrasound probe. The steroid injection technique at the sacroiliac joint is as follows; the patient was in the prone position, and the patient's waist was propped up with a void so that the pelvis visualization was clearer on ultrasound. Then, sterilize the injection site. The convex transducer is placed in a transverse orientation to identify the sacral hiatus first. After identifying the sacral horn, the transducer is moved laterally until the lateral edge of the sacrum is visible. With the transducer held in a transverse orientation, it is then moved cephalad or upward until the bony contour of the ileum is identified. The gap between the bony contours of the sacrum and ileum represents the posterior aspect of the sacroiliac joint. By tilting the transducer caudally, the lower third of the SI connection can be identified. Insert the Spinocan needle in an inline direction from the convex transducer. After the needle is visible on the screen, place the tip of the needle in the sacroiliac ligament. Then, inject triamcinolone 40 mg 1 mL and Bupivacaine 0.5% 3 mL using a 25 G Spinocan needle, showing a hypodense picture when the drug covers the sacroiliac ligament area. Because of its synovial component, the lower third of the SI joint is the portion of the entire SI joint where the injection should be made. A medial-to-lateral approach is preferred for ultrasound-guided injection of the sacroiliac joint. One study suggested that although the injection was not given accurately into the sacroiliac joint, ultrasound guidance at least confirmed periarticular deposition of the injection into the lower third of the SI joint. Periarticular steroid deposition is believed to be effective also in reducing pain caused by sacroiliitis. Evaluation of pain after steroid injection can be seen in Table 1.

Table 1. Follow-up pain based on visual analogue scale (VAS).

Day to-	VAS while moving	VAS at rest
Before procedure	7/10	5/10
Day 1	3/10	2/10
Day 3	3/10	2/10
Day 7	3/10	2/10

Discussion

Low back pain affects the quality of life of individuals and is often the cause of significant physical and psychological health problems. Low back pain also affects performance and social responsibilities, such as family life, and is increasingly becoming a major factor in increasing healthcare costs. Based on previous research, it is known that low back pain affects at least 40% to 60% of the productive age population and affects their quality of life due to long-term disorders. A study conducted in Asia also showed that over a 4 year period, 30% of the 42,785 subjects involved experienced low back pain. Pain caused by sacroiliac joint syndrome also occupies a percentage of the incidence, where the figure reaches 15-20% of the incidence of spinal pain.[10-13]

Physical examination of sacroiliac syndrome with several provocative tests, such as the FABER test, compression test, distraction test, thigh push test, and Gaenslen test, has high sensitivity and specificity in diagnosing sacroiliac pain syndrome. Radiological examination apparently has little information in diagnosing this disease but needs to be done as information about the infection, trauma, tumors, fractures, and neurological deficits.[14-16]

In this case study, the injection of steroids and local anesthetics produced a good response, where the immediate pain scale was reduced by 50% than before the injection. Corticosteroids reduce the joint inflammatory process, so as a pain reliever, the effect can last up to several months when injected directly into the sacroiliac joint. However, keep in mind that steroid injections and local anesthetics only serve to relieve symptoms, not improve the mobility of the sacroiliac joints.[17.18]

An understanding of anatomy is very important in carrying out ultrasound-guided injections because it will be very helpful in imagining which position of the body the transducer is aiming for. The use of ultrasound as a guide in performing interventional techniques has

been shown to be successful in reducing the risk of complications of nerve injury or trauma to other tissue structures. The use of ultrasound has also been shown to have a high accuracy and success rate in intervention techniques, real-time procedure times, and the absence of radiation effects when compared to its use with fluoroscopy and CT-Scan.[19,20]

Conclusion

The procedure of sacroiliac joint injection provides a significant pain relief response in sacroiliac syndrome.

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