

Persistent Sacroiliac Joint Pain After Fusion Resolves with Radiofrequency Ablation of Lateral Sacral Nerve Branches

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Introduction

SIJ arthropathy is an important cause of low back pain. It most commonly presents as low back/buttock pain with radiation to the groin and upper thighs. Treatment of SIJ arthropathy can be categorized as surgical and nonsurgical. After 6 months of non-surgical treatment failure, a surgical option can be pursued. We report the case of a patient with SIJ pain who failed SIJ fusion and had not previously been treated with RFA of the lateral sacral nerve branches prior to surgical fusion. There is no current data regarding the efficacy of RFA of the lateral sacral nerve branches status post-SI joint fusion.

Case Report

Our patient is a 79-year-old female with a past medical history of hypertension, degenerative disc disease, Right SIJ arthropathy post-fusion in 2021, and L4-LS TILF/ALIF in 2022. Her primary symptoms were chronic right lower back and buttocks pain in the SIJ area. Post fusion she reported that she didn't experience any pain relief. A diagnostic block provided complete pain relief and so RFA was pursued.

The right sacroiliac joint was identified under fluoroscopy. At the right L5 dorsal ramus level, a needle entry point was identified. 1 cc of 1% lidocaine was injected at the skin level. Next a 20-gauge 10 cm 10 mm active tip Neurotherm insulated needle was inserted at that level. Gun barrel view was used under fluoroscopy to direct needle placement immediately lateral to the junction of the sacral superior articular process and sacral ala.

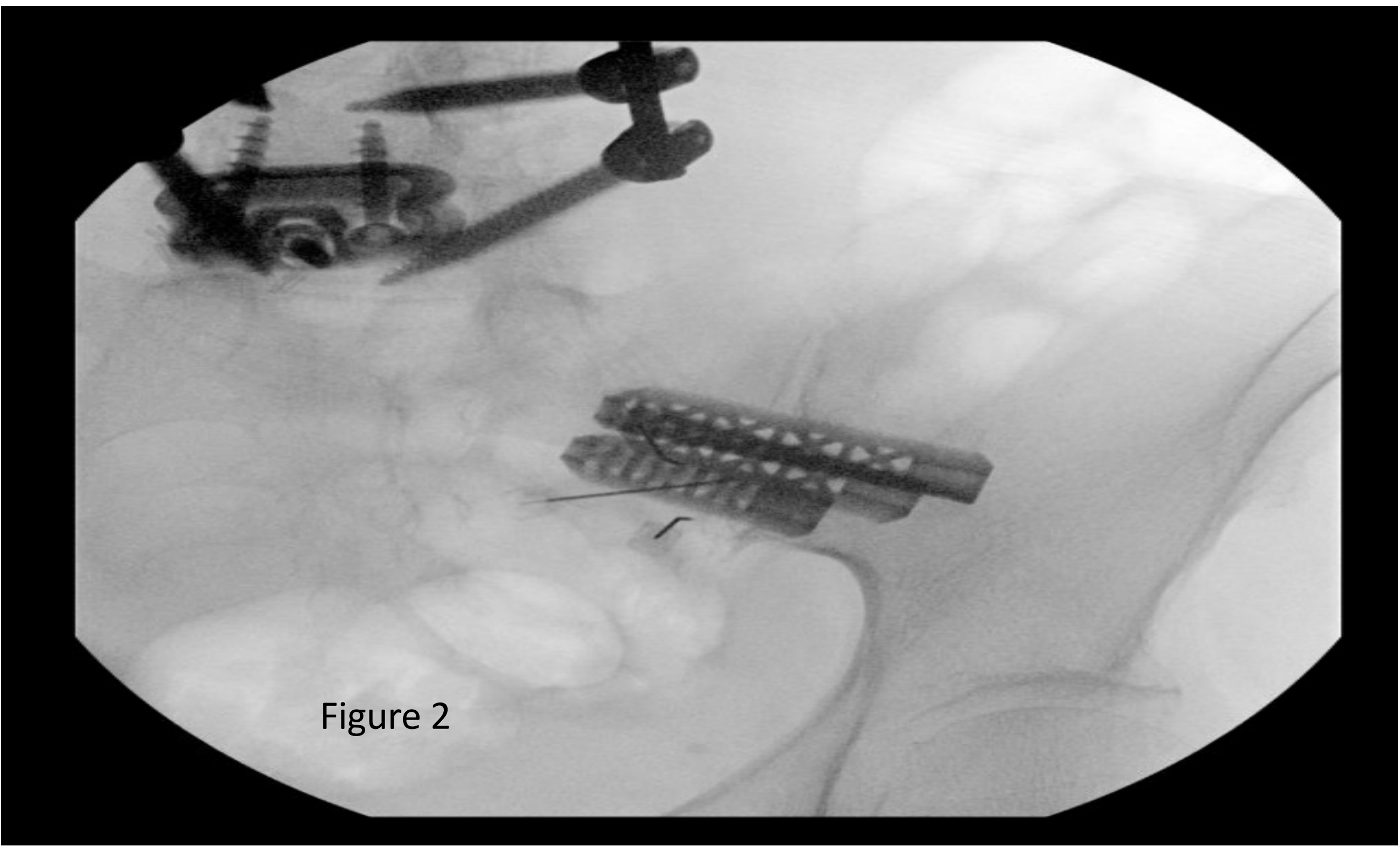
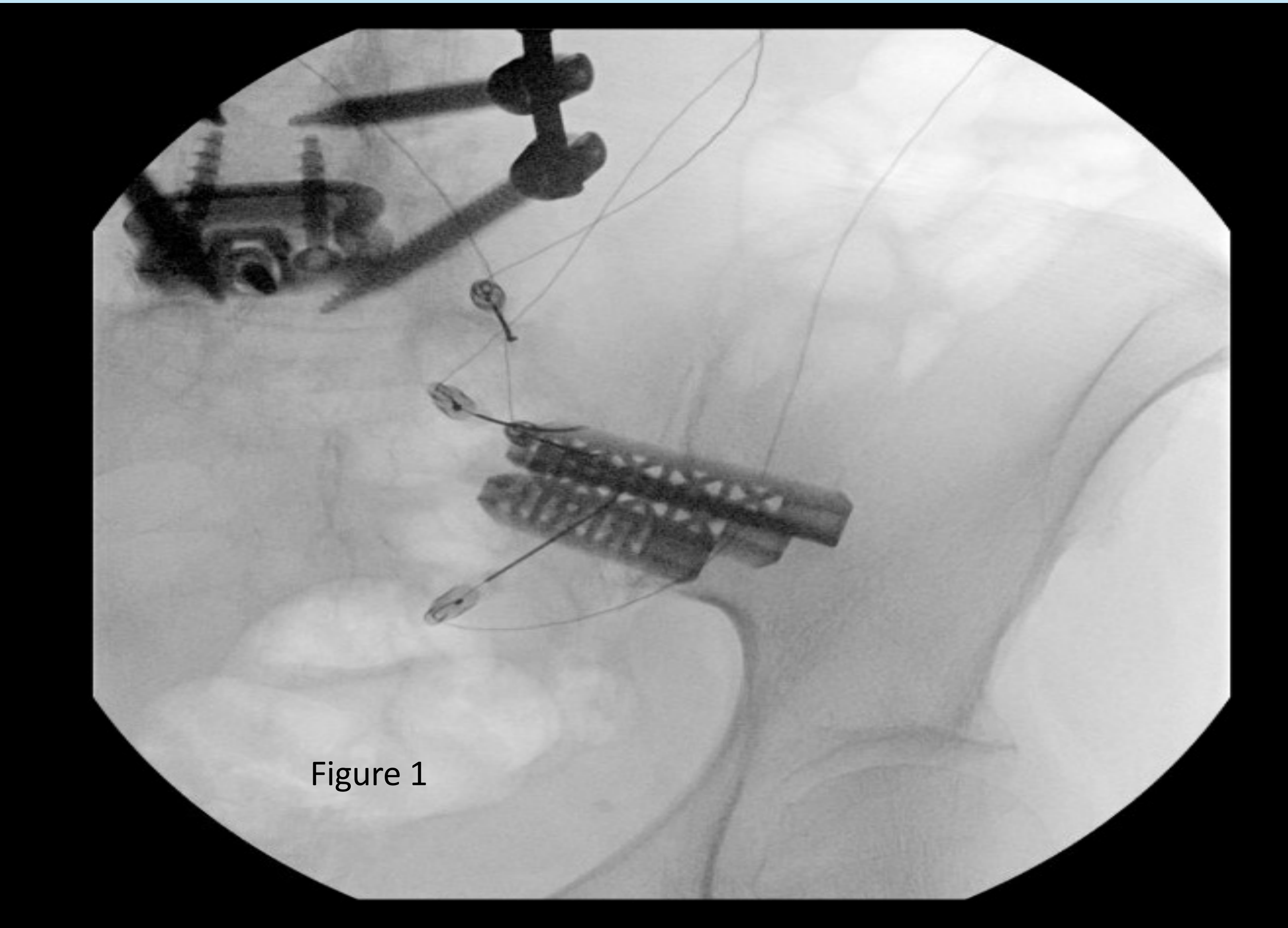
The right side posterior S1, S2 & S3 sacral foramina were identified. An entry point was marked at each level about 5 mm lateral to the most lateral portion of the foramina. The skin overlying the marked points was anesthetized with 1% Lidocaine using a 27-gauge needle.

A 20-gauge 10 cm 10 mm active tip Neurotherm insulated needle was inserted at that level and was advanced under fluoroscopic guidance.

At the S1 level, three 20-gauge 10 cm 10 mm active tip Neurotherm insulated needles were inserted in close proximity to each other at the lateralmost portion of the foramen. (Figure 1)

A lateral view was used to confirm the needle tips were at the appropriate depth and not in the corresponding foramen. Impedance was checked and was between 250 and 300 ohms. Next, at all 4 levels (Right L5 dorsal ramus and three needles lateral to S1 foramen) sequentially sensory stimulation was applied at 50 Hz up to 3V and motor at 2 Hz up to 3V with appropriate response. Next, 0.5 cc of 2% lidocaine was injected at each level. A lateral view was obtained again to confirm the needles did not move. Next, radiofrequency lesioning was performed at each level to a temperature of 80 degrees Centigrade for 90 seconds.

Lastly, approximately 1 cc of a solution containing 9 cc 0.25% Bupivacaine and 40 mg Kenalog was given at each of the 4 levels. The needle was flushed with 0.5 cc of 1% lidocaine and then removed. This same process that was used at the S1 level was repeated at the S2 (Figure 2) and S3 levels.



Discussion

The reported failure rate of SIJ fusion surgery requiring revision surgery is low. Some notable causes of surgery failure include hardware irritation, infections, hematoma, and hardware migration. There is a lack of reported evidence for treatment options for persistent pain after SIJ fusion. The treatment of failed SIJ fusion is primarily managed with an additional salvage surgery and continuing symptom management with medications. In our case report the use of RFA post-fusion as a treatment strategy to avoid additional invasive procedures proved to be successful.

RFA is an interventional pain procedure that is performed by introducing needle electrodes into close proximity to target tissues and cauterizing them using heat generated through radio waves. The procedure is minimally invasive and can be used to potentially avoid undergoing surgery. RFA for SIJ pain has a high success rate of reducing SIJ for months after the procedure. Despite its utility in potentially preventing the need for initial SIJ fusion surgery, it has not been utilized as a non-invasive treatment modality to trial before considering salvage surgery. No case reports documenting the use of RFA to treat persistent SIJ pain after fusion could be found. This novel technique may provide a more long-term non-surgical and opioid-sparing solution for controlling pain.

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