Successful Relief of Back Pain From Baastrup Disease (Kissing Spines) by Interspinous Radiofrequency Lesioning: A Case Report

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Baastrup disease is a condition where spinous processes form painful pseudoarticulations. We present a patient with midline axial back pain consistent with Baastrup disease confirmed by computed tomography, which revealed degenerative changes along the opposing surfaces of the spinous processes at L1–2 and L2–3. Local anesthetic and steroid interspinous injections lost their effectiveness over time. She underwent successful interspinous radiofrequency lesioning, which has not been previously described in the literature. At 4 months follow-up, she reported complete pain relief. (A&A Practice. 2018;11:79–81.)

Baastrup disease, also known as kissing spine disease, is an uncommon form of axial back pain. Here, we presented a patient who had long-standing interspinous pain, with a clinical diagnosis of Baastrup disease, who originally responded to local and steroid interspinous injections but these injections subsequently lost their effectiveness. Interspinous radiofrequency lesioning effectively and completely relieved this patient's long-standing interspinous pain secondary to Baastrup disease. To our knowledge, this is the first report in the literature.

The patient provided written permission to use her clinical information for this case report.

CASE DESCRIPTION

An otherwise healthy 55-year-old woman presented with a greater than 1-year history of progressively increasing midline, focal spine pain with midline tenderness over her midlumbar spinous processes. Her average and maximal daily pain scores were 6/10 and 8/10 on the numeric rating score. Physical examination revealed pain reproduction with lumbar spine extension and alleviated with lumbar spine flexion. Pain was reproducible by palpation over the L1–2 and L2–3 spinous processes. She denied any radicular symptoms. Standing anteroposterior and lateral plain radiographs revealed a sacralized L5, multilevel degenerative spondylosis at L4–5, and slight L3 anterolisthesis. Magnetic resonance imaging (MRI) did not reveal classic imaging characteristics for Baastrup disease. Due to high clinical suspicion, a computed tomography (CT) scan was performed and revealed degenerative changes and flattening along the opposing surfaces of the spinous processes at L1–2 and L2–3 levels consistent with Baastrup disease (Figure 1).

She was initially treated with physical therapy in addition to nonsteroidal anti-inflammatory medications. She subsequently was treated with local anesthetic and corticosteroid interspinous injections, ropivacaine 0.5% 2 mL and triamcinolone 10 mg, which eliminated her pain initially. The first 2 injections each lasted approximately 3–4 months. She received a total of 6 interspinous injections over the course of 2.5 years. Although the injections provided her with significant improvement, the duration of pain relief was shorter after each injection than the previous one. We discussed the option of surgical intervention or direct interspinous radiofrequency lesioning to ablate the terminal nerve endings at the levels of L1–2 and L2–L3. After discussion of its off-label application, she decided to proceed with the radiofrequency lesioning to ablate the peripheral nerve endings directly innervating the spinous processes.

She was positioned prone and draped in a sterile fashion. The patient received local anesthetic only. A blood pressure cuff and pulse oximeter were utilized for monitoring. A pillow was placed under the abdomen to reduce the lumbar lordosis which helps to open the space between the spinous processes. Fluoroscopy guidance was used to identify the L1, L2, and L3 spinous processes and the L1–2 and L2–3 interspaces. The skin and subcutaneous tissue overlying the injection sites at L1–2 and L2–3 were anesthetized with a 50/50 mixture of lidocaine 1% and bupivacaine 0.5% with 1:200,000 epinephrine. A 60-mm, 18-gauge radiofrequency cannula with a 10-mm active tip was placed between the L1–2 and L2–3 spinous processes using fluoroscopic guidance.

Lateral fluoroscopy was used to determine the depth (Figures 2–4). The initial needle placement was performed with the fluoroscope placed in the anteroposterior position to get a direct midline trajectory between the opposing spinous processes. Once a direct midline trajectory was assured, the fluoroscope was rotated to a lateral view position to determine cannula depth. The radiofrequency cannulae were advanced under intermittent lateral fluoroscopic guidance until the active tips were directly between the spinous processes. With Baastrup disease, the area of pathology is obvious because the opposing surfaces of the adjacent spinous processes have matching contours as can be seen in the accompanying radiographs.

Once the cannulae were placed, then prelesion motor testing (2 Hz @ 3 volts) was performed and negative for lower extremity motor response. Then, lidocaine 2% 1 mL was injected through each cannula to anesthetize the area

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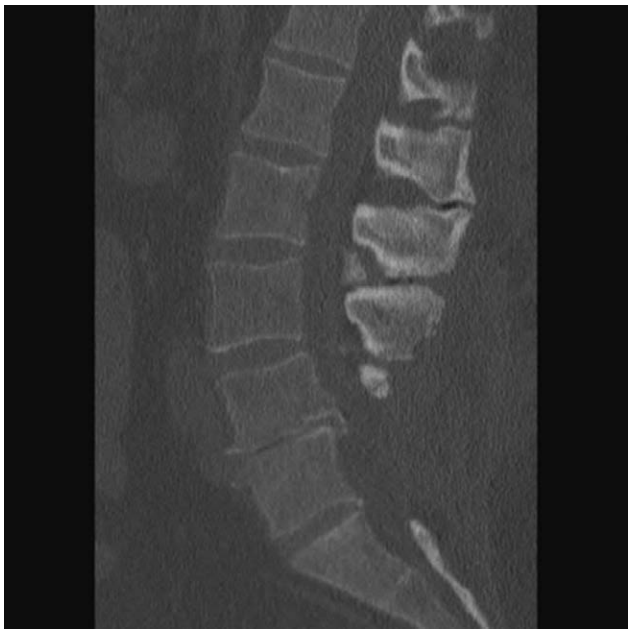

Figure 1. Sagittal computed tomography image demonstrating flattening along the opposing surfaces of the spinous processes at L1–2 and L2–3 levels.

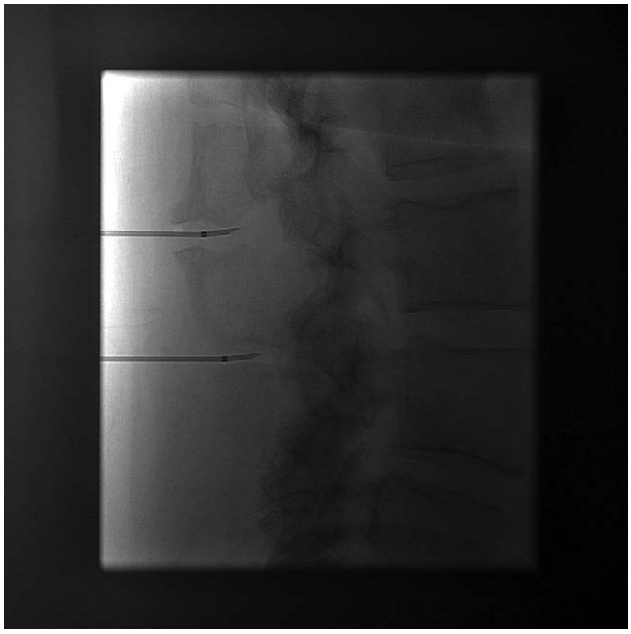

Figure 3. Lateral fluoroscopic image demonstrating radiofrequency cannula placed between the L1–2 and L2–3 spinous processes used to determine depth.

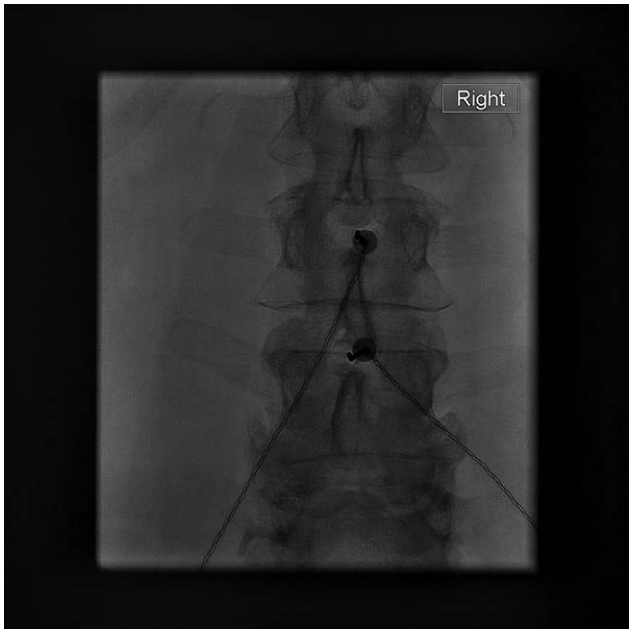

Figure 2. Anteroposterior fluoroscopic image demonstrating radiofrequency cannula placed between the L1–2 and L2–3 spinous processes.

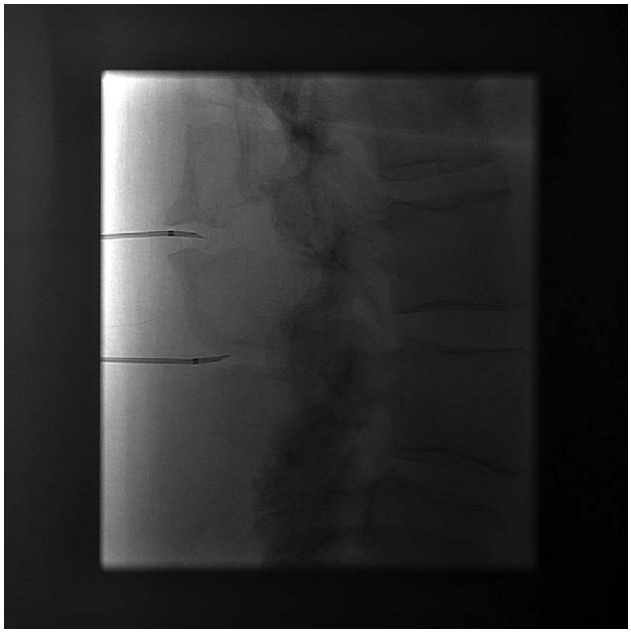

Figure 4. Lateral fluoroscopic image demonstrating radiofrequency cannula placed between the L1–2 and L2–3 spinous processes withdrawn 1 cm for second radiofrequency lesioning.

to be lesioned. A 75-second and 80°C radiofrequency lesion was created at each site. Then the radiofrequency cannulae were withdrawn 1 cm each to be sure the entire surfaces of the opposing spinous processes were lesioned, and a second 75-second, 80°C radiofrequency lesion was created. The needles were subsequently removed.

The patient was subsequently taken to the recovery room in stable and satisfactory condition. On recovery, the patient rated her pain at 0/10. She related no pain to her interspinous ligaments for the 4 months after the procedure and is now working full time again. There were no complications or side effects reported by the patient after the procedure.

DISCUSSION

Baastrup disease is a condition where spinous processes form painful pseudoarticulations.[1] These pseudoarticulations occur because of the close proximity of adjacent spinal processes in the lumbar spine secondary to degeneration and inflammation.[2] The most common level for Baastrup disease to occur is at L4–L5.[2,3] Patients typically report symptoms

that include midline back pain that is aggravated by extension and palpation and alleviated by flexion. On standard, lateral plain x-rays, the close approximation and contact of adjacent spinous processes with sclerosis of the articulating surfaces is often seen.[4] Classic MRI findings include inflammation and/or edema of the spinous process and surrounding soft tissues, cystic lesions, sclerosis, flattening, and enlargement of the articulating surfaces, bursitis and occasionally epidural cysts or midline epidural fibrotic masses.[5–8] CT images illustrate close approximation and contact of adjacent spinous processes with additional sclerosis, flattening, and enlargement of the articulating surfaces or the articulation of the 2 affected spinous processes.[6] Diagnosis of Baastrup disease relies on clinical presentation, examination, and imagining studies. Current treatment options most commonly include chiropractor care and physical therapy.[9–12] Fluoroscopically guided interspinous injections have been previously described in treating this type of axial back pain as well.[12–15] As a last option, patients may also undergo surgical resection of the involved spinous processes.[5]

Baastrup disease can be a radiographic diagnosis without clinical symptoms or a clinical presentation with radiographic findings. In this report, the patient presented with clinical symptoms of Baastrup disease but she did not exhibit the classic MRI findings. Due to high clinical suspicion, a CT scan was performed and illustrated degenerative changes along the opposing surfaces of the spinous processes at L1–2 and L2–3 levels consistent with Baastrup disease. The location of the radiographic changes corresponded precisely to the location of her area of pain and tenderness.

Treatment of Baastrup disease includes conservative management utilizing physical therapy and nonsteroidal anti-inflammatory medications. Interventional and surgical therapies previously described included local anesthetic with corticosteroid interspinous injections and decompressive laminectomies. In this report, interspinous radiofrequency lesioning effectively and completely relieved this patient's long-standing pain secondary to Baastrup disease. This has not been previously described in the literature. Because this is only a case of 1 patient, future studies are indicated regarding the effectiveness of interspinous radiofrequency lesioning in patients with Baastrup disease. The true mechanism of pain relief is not known, and therefore further research is necessary to further understand this mechanism.

In conclusion, interspinous radiofrequency lesioning effectively and completely relieved this patient's long-standing pain secondary to Baastrup disease. The off-label application of this procedure should be considered in the future for patients presenting with resistant Baastrup disease–related axial back pain.

DISCLOSURES

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Contribution: This author helped draft and revise the manuscript.
Name: Tim J. Lamer, MD.
Contribution: This author helped draft and revise the manuscript.
This manuscript was handled by: Raymond C. Roy, MD.

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