PM R 7 (2015) 443-446

www.pmrjournal.org

Case Presentation

Treatment of Postherpetic Neuralgia Using a Thoracic Transforaminal Epidural Steroid Injection

Priyesh Mehta, DO, Patrick Maher, BS, Jaspal Ricky Singh, MD

Abstract

A 64-year-old male patient with a history of herpes zoster exposure presented with severe, constant, burning pain in the left T10 dermatome consistent with postherpetic neuralgia. Previous treatment included oral and topical medications as well as an intercostal nerve block; however, these treatment options did not provide significant relief. The patient was treated with a single-level T10 thoracic transforaminal epidural steroid injection for refractory postherpetic neuralgia. He reported complete resolution of his symptoms at 2- and 12-week follow-ups. This case illustrates transforaminal epidural steroid injections may be a successful treatment option for postherpetic neuralgia.

Introduction

Approximately 1 million cases of herpes zoster (HZ) occur in the United States each year [1]. HZ is the result of reactivation of latent varicella zoster virus after a primary infection in the form of chicken pox. Latent infection may persist for years in the dorsal root ganglia of cranial or spinal nerves after resolution of the original infection. Reactivation of latent infection in the form of HZ can result in significant morbidity, especially to elderly subjects and in those with decreased cell-mediated immunity [1,2]. The decrease in cell-mediated immunity allows the virus to transport along peripheral nerves producing an acute neuritis. Clinically, common symptoms of HZ include pain in a dermatomal distribution, pruritus, paresthesia, as well as development of a vesicular rash. The vesicular rash can persist for 3-4 weeks before resolving [1].

The most common complication of HZ is postherpetic neuralgia (PHN), for an estimated 120,000-200,000 cases are reported per year [3]. The risk of developing PHN after HZ increases with age. PHN frequently is defined as pain in the region of the affected dermatome that persists for 1 month after the resolution of the rash [3]. The pain of PHN can be severe and may result in anorexia, weight loss, fatigue, depression, as well as interfere with the ability to sleep, which in turn may have an effect on work, quality of life, activities of daily living, social activities, and employment. If not treated early, PHN can become chronic and persistent, posing significant challenges to the health care community [3].

Two main pathophysiologic mechanisms have been proposed to explain the symptoms of PHN [4]. First, there may be a peripheral sensitization in which pain receptors become sensitized after the acute tissue injury that occurs during the primary HZ infection [4]. This process leads to a supranormal response of the dorsal horn neurons to afferent signals, leading to allodynia. The second mechanism is deafferentation of central neurons or reorganization of central connections resulting in severe spontaneous pain without hyperalgesia or allodynia [5]. Nerve damage leading to neuropathic pain may be caused directly by reactivation of the varicella zoster virus in the dorsal root ganglion or as a result of inflammatory changes [3,4].

Multiple medical therapies have been described to prevent or treat PHN. These treatments range from antiviral medications, topical anesthetics, and medications aimed at treating neuropathic pain (gabapentin, amitriptyline, etc) [6]. For cases refractory to medical therapy, invasive treatment techniques have been used. Intercostal nerve blocks have been used in the treatment of acute HZ pain in the thoracic dermatomes and have demonstrated to have up to 80% improvement of

1934-1482/$ - see front matter
http://dx.doi.org/10.1016/j.pmrj.2014.11.009

symptoms at 1 and 3 months [6]. With the intercostal techniques, however, there is an associated risk of pneumothorax [6,7].

Intrathecal administration of corticosteroids had been used successfully in some studies. Kotani et al [8] randomized 270 patients to receive intrathecal steroids with lidocaine versus lidocaine alone versus no treatment. They found that patients in the intrathecal steroid group had more than 50% pain relief relative to the other groups at the end of treatment (90% versus 15% versus 5% of patients in each group). In addition, other randomized studies found greater symptom reduction in the intrathecal steroids; however, several authors have reported a risk of arachnoiditis [3,9]. The risk of this significant complication may limit widespread adoption of this technique in the treatment of medically refractory PHN.

Previous studies in which authors used an interlaminar epidural approach for the treatment of PHN have found mixed results. Van Wijck et al [10] reported a randomized controlled trial in which they examined medical treatment versus medical treatment with an interlaminar epidural injection for HZ. They found modest reduction in HZ pain at 1 month of follow-up but found no effect in reducing subsequent PHN. Perkins and Hanlon [11] reported on the use of an interlaminar approach for HZ and PHN. The authors reported substantial immediate and lasting pain relief in all HZ patients (70%-100% reduction immediately); however, in the patients with PHN, no patient reported greater than 50% pain relief at 1- and 5-month follow-up. From these results it appears that interlaminar administration may not be adequate to address PHN pain because it is not directly accessing the nerve root.

Herein, we report a case of PHN with medically refractory pain in the T10 dermatome that was treated successfully with a transforaminal epidural steroid injection.

Case Presentation

A 64-year-old male patient with no significant medical history reported having stripes of blisters consistent with shingles located in his left torso lateral to his umbilicus approximately 1.5 years before presentation. At that time, he received a 2-week course of oral steroids, which significantly helped resolve the outbreak.

At the time of initial presentation to the Spine Pain Center, he reported severe, constant, burning pain in the left T10 dermatome, with intermittent electrical shock-like sensations radiating to the mid-axillary line. The burning pain was 6 of 10 but occasionally reached 8 of 10 on the visual analog scale. On initial examination, the patient had skin discoloration and trophic changes in the left T10 dermatome, with hyperalgesia and allodynia. The pain greatly interfered with his ability to function and was worse with activity involving lifting overhead or playing basketball. Before presentation, the patient was treated with a number of oral and topical treatment options, including opioids, pregabalin, gabapentin, duloxetine, amitriptyline, lidocaine 5% patch, and capsaicin 8% cream. These treatment options did not provide adequate relief.

At this point, the decision to perform intercostal nerve blocks was made, and the patient underwent left T8 through T10 intercostal nerve blocks under fluoroscopic guidance. Each level was targeted and identified under fluoroscopic guidance and after negative aspiration; 3 mL of 0.25% bupivacaine and 3.3 mg of triamcinolone were injected at each level. The patient reported immediate relief of the burning sensation; however, after 2 weeks the original symptoms recurred.

Subsequently, as the result of severe refractory pain, a left T10 single-level thoracic transforaminal epidural steroid injection was performed under the guidelines of the International Spine Intervention Society [12]. The patient was placed in the prone position, and the region overlying the affected dermatome was identified at the left T10 vertebral body. True anteroposterior imaging was obtained by squaring off the inferior endplate of T10. The junction of the lamina and transverse process was identified as the "armpit" of the lamina. The skin of the back was prepped in sterile fashion and a 25-g, 1.5-inch spinal needle was inserted targeting the "armpit" of the lamina (Figure 1A). The lateral view was obtained to confirm posterior needle placement within the foramen (Figure 1B).

Once the target was attained, contrast medium was injected into the epidural space outlining the spinal nerve (Figure 2). Aspiration did not reveal any blood or cerebrospinal fluid. Digital subtraction angiography was performed to confirm the absence of intravascular contrast spread. Subsequently, a test dose of 1% lidocaine test dose was performed without any changes. Two minutes later, 20 mg of dexamethasone was injected.

The patient was seen at follow-up 2 weeks after injection, at which time he reported 100% relief of pain. He no longer felt burning, electric-like pain in the left T10 dermatome. In addition, he was back to playing basketball and activities as tolerated. The patient was later seen at 12-week follow-up; he reported pain of 1 of 10 and significant improvement in symptoms with no functional limitations.

Discussion

Medical management of PHN has proved inadequate for many patients [6]. Accordingly, several interventional procedures have been attempted for management of symptoms. Previous authors have described using an interlaminar epidural approach, stellate ganglion blocks, or using intrathecal administration of medication [3]. These techniques have been shown to