

CASE REPORT

Erector Spinae Plane Block Combined with Subcutaneous Dextrose Prolotherapy for Gabapentin-Refractory Thoracic Postherpetic Neuralgia: A Case Report

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ABSTRACT

Background : Postherpetic neuralgia (PHN) can lead to chronic pain that significantly impacts a patient's quality of life. This condition often proves resistant to standard analgesic treatments.

Case Illustration : A 50-year-old female patient who came with a severe (8/10), persistent, burning stabbing, tingling pain in the right breast area after she had gotten a dermatologist-well-treated acute herpes zoster infection 2 months prior. She had been prescribed with escalated doses of Gabapentin for over two weeks by her dermatovenereologist, but her pain still remained. Physical examination revealed a redness-black crust lesion located in several areas of the right chest, axilla, and upper right back, allodynia and hyperalgesia in the right T3-T5 dermatome. Afterwards, she was diagnosed with PHN. A combination erector spinae plane block (ESPB) and prolotherapy was performed to relieve the pain symptom. The patient experienced significant pain relief (8/10 to 2/10), 15 minutes after the procedure had been done, and patient was given paracetamol 500 mg every 8 hours and gabapentin 100 mg every 8 hours for 7 days as the follow-up management, and amitriptyline 12.5 mg per 24 hours at night in addition because of her increasing pain by day 3. By day 14, patient felt her pain had significantly reduced; therefore she felt that she did not need to visit pain clinic anymore.

Conclusion : The management of postherpetic neuralgia (PHN) requires a multimodal approach. Prolotherapy with subcutaneous dextrose injection into the lesions, combined with ESPB, may offer a treatment option for patients who do not respond to conventional therapies.

Keywords: Dextrose prolotherapy; Erector spinae plane block; Postherpetic neuralgia.

INTRODUCTION

Postherpetic neuralgia (PHN) is neuropathic pain that persists for three months or more after herpes zoster. It is most common in older and immunocompromised patients, and it often disturbs sleep, mood, and daily function.¹ Recommended first-line drugs are gabapentinoids, tricyclic antidepressants, and topical lidocaine or capsaicin, but many patients obtain only partial relief or stop treatment because of side effects.^{1,2}

When medication fails, interventional options include nerve blocks, pulsed radiofrequency, and neuromodulation.¹ The erector spinae plane block (ESPB) is a simple ultrasound-guided fascial plane block. A meta-analysis of seven randomized trials found that adding ESPB to standard care reduced herpes zoster pain, although in established PHN the effect was clear only at four weeks.^{3,4} Dextrose injection is a newer option. Small case series report pain relief after intradermal, subcutaneous, or perineural dextrose in PHN, but no large randomized trial has been published and dosing is not standardized.⁵⁻⁷

We report a 50-year-old woman with thoracic PHN that did not respond

to two weeks of gabapentin titrated to 900 mg/day. She was treated with ESPB combined with subcutaneous 12% dextrose injection into the herpetic lesions. To our knowledge, this combination has not been reported before. This report aims to describe the technique and short-term outcome, and to discuss its rationale and limitations.

CASE ILLUSTRATION

The patient is a 50-year-old female who initially presented with an acute herpes zoster infection 2 months prior, which was managed with antiviral therapy. Although the rash resolved, she continued to experience severe, persistent pain in the right breast area. The pain is described as burning and stabbing, and it rates 8 out of 10 on the pain scale. In response to her symptoms, the dermatovenereologist prescribed gabapentin, starting with a dose of 300 mg per day and increasing to 900 mg per day over two weeks. Despite this regimen, the patient reported minimal pain relief, and her pain level remained at 8/10. Due to the inadequate response to gabapentin, a multidisciplinary approach was pursued, and the patient was referred to a pain clinic for further evaluation.

The patient presented with a redness-black crust lesion located in several areas of the right chest, axilla, and upper right back (Figure 1). She reported experiencing severe, tingling, and burning pain in the right T3-T5 dermatome, with an intensity rated as 8 out of 10 on the Numeric Rating Scale (NRS). Physical examination revealed allodynia and hyperalgesia in the affected area, confirming the presence of heightened sensitivity. Based on the clinical presentation and medical history, a diagnosis of postherpetic neuralgia was established.



Figure 1: Lesion observed on the patient's body.

Previous pharmacological treatments provided minimal relief for the patient's pain. As a result, a decision was made to initiate interventional pain management by combining an erector spinae plane block (ESPB) with prolotherapy.

The ESPB was chosen due to its efficacy and rapid onset in managing thoracic neuropathic pain, which had significantly impacted the patient's sleep quality. The procedure was conducted as follows: The patient was positioned in a prone position. Under ultrasound guidance, a high-frequency linear probe was placed at the level of the T4 transverse process. After identifying the erector spinae muscle and the transverse process, and infiltrating the skin, a 25-gauge spinal needle was inserted in-plane with the ultrasound beam. Once the needle tip was positioned between the erector spinae muscle and the transverse process, 15 mL of 0.2% ropivacaine was injected (Figure 2).

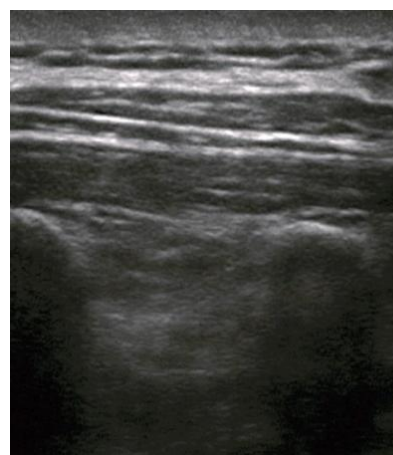


Figure 2: Ultrasound image of the patient during the ESPB procedure

For subcutaneous prolotherapy, a mixture of dextrose 12% (3 cc D40 + 2 cc lidocaine 2% diluted to 10 cc) was

injected into the crusts of the herpetic lesions using a 26-gauge needle. Approximately 0.5 cc per lesion was administered.

No adverse effects were reported during the treatment period. The patient experienced significant pain relief within 15 minutes of the procedure, with the pain scale reducing from 8/10 to 2/10. For follow-up management, paracetamol 500 mg every 8 hours and gabapentin 100 mg every 8 hours were prescribed for 7 days. Despite this, the patient reported an increase in pain by day 3 and requested additional analgesic support. In response, amitriptyline was prescribed at a dose of 12.5 mg per 24 hours at night.

By day 14, the patient communicated through a friend that her pain had significantly reduced and she felt there was no need for further visits to the pain clinic. She was able to resume normal daily activities with minimal discomfort.

DISCUSSION

Postherpetic neuralgia (PHN) is a chronic pain syndrome resulting from the reactivation of the varicella-zoster virus. This reactivation can damage nerve fibers and the skin, leading to persistent pain even after the resolution

of the shingles rash. The pathophysiology of PHN involves inflammation, nerve damage, and aberrant pain signaling. The persistent pain associated with PHN is often severe and debilitating, described as burning, stabbing, or shooting, and significantly impacts the quality of life of affected individuals.¹

The first-line pharmacological treatments for PHN include anticonvulsants such as gabapentin and pregabalin, tricyclic antidepressants (TCAs), and topical agents like lidocaine patches and capsaicin cream.^{1,2} Gabapentin works by modulating calcium channels and inhibiting excitatory neurotransmitter release to reduce neuropathic pain. However, as seen in this case, not all patients achieve adequate pain relief from gabapentin alone. The patient in this case reported minimal relief despite an appropriate trial and dosage adjustment, highlighting the variability in individual responses to pharmacotherapy and the need for alternative or adjunctive treatments.

Interventional techniques such as nerve blocks and pulsed radiofrequency are recommended for refractory PHN.^{1,4} ESPB delivers local anesthetic into the fascial plane deep to the erector spinae

muscle, from where it spreads to the dorsal and ventral rami.⁸ It is technically simple and avoids the neuraxial risks of epidural or paravertebral approaches. However, a network meta-analysis found paravertebral block more effective than ESPB for preventing PHN, so ESPB is best seen as a practical choice rather than the most effective block.⁴ We found no published report combining ESPB with dextrose prolotherapy. The closest evidence is a case series that combined steroid nerve blocks with intralesional 5% dextrose in refractory PHN.⁷ In our patient, ESPB provided rapid segmental analgesia, while dextrose targeted the painful lesions directly.

In musculoskeletal prolotherapy, hyperosmolar dextrose is thought to induce a brief local inflammatory and proliferative response that promotes tissue repair, although the mechanism is likely multifactorial.⁹ In neuropathic pain, a different mechanism is proposed: dextrose may modulate TRPV1 channels on peripheral nociceptors and reduce neurogenic inflammation.⁵ This remains a hypothesis. Published PHN reports mostly used 5% dextrose, whereas we used a 12% solution with lidocaine, so the two are not directly comparable.^{5,6}

This is a single case with short follow-up. The day-14 outcome was reported by the patient's acquaintance rather than assessed directly, and we did not record a validated measure of sleep or quality of life. Because ESPB, dextrose, and adjusted oral medication were given together, the effect of each cannot be separated. Controlled studies are needed before this combination can be recommended.

CONCLUSION

The management of postherpetic neuralgia (PHN) necessitates a comprehensive and multidisciplinary approach to address the intricate nature of neuropathic pain. Prolotherapy with subcutaneous dextrose injection into the lesions, combined with ESPB, may offer a treatment option for patients who do not respond to conventional therapies. Further studies and clinical trials are required to establish the efficacy and safety profile of this treatment modality.

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