

# Pectoral Muscle Hydrodissection in Postherpetic Neuralgia: A Case Report

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## Abstract

**Background:** Postherpetic neuralgia is a debilitating neuropathic pain condition that is difficult to treat and can persist despite multimodal pharmacological therapy. Interventional approaches have limited benefits. Hydrodissection is a minimally invasive technique involving injection of fluid to separate fascial layers and release entrapped nerves and tendons. The use of pectoral hydrodissection as a treatment for postherpetic neuralgia has not been previously reported. **Methods:** Case Presentation: We present the case of an 80-year-old male with a two-year history of postherpetic neuralgia and primarily anterior chest wall pain. Pharmacological interventions had limited benefits. **Intervention:** The patient underwent ultrasound-guided pectoral muscle hydrodissection as a targeted approach to address perineural inflammation and nerve entrapment. A low concentration (5%) dextrose solution (20 ml) was used to free the muscle from surrounding scar tissue and muscle adhesions. The procedure was performed in a theatre setting. **Results:** Following the hydrodissection procedure, the patient experienced improvement in pain (8/10 NRS to 4/10 NRS) with sustained improvement at two months follow-up. Functional outcomes, including range of motion and daily activities, improved substantially. No complications were reported. **Conclusions:** This case supports the potential role of pectoral muscle hydrodissection as a minimally invasive treatment option in the treatment of postherpetic neuralgia. Hydrodissection offers an alternative to more invasive interventions and warrants further investigation in the management of postherpetic neuralgia.

## Keywords

Postherpetic Neuralgia, Hydrodissection, Pectoral Muscle, Ultrasound

## 1. Background

Postherpetic neuralgia (PHN) is a chronic neuropathic pain syndrome that occurs

following herpes zoster and is characterised by persistent pain and sensory disturbance within the affected dermatome. It disproportionately affects older adults and may persist for months or years after the initial herpes zoster episode [1]. In addition to persistent pain, PHN can substantially impair sleep, physical function, psychological well-being, and overall quality of life [2]. The underlying mechanisms of PHN are complex and not fully understood but hypotheses include central sensitisation and peripheral sensitisation, spinal deafferentation, and the ectopic pacemaker hypothesis [1].

Management of PHN can be challenging, particularly in older patients in whom treatment may be limited by adverse effects, comorbidities, and incomplete analgesic response. Commonly recommended pharmacological treatments include gabapentin, pregabalin, tricyclic antidepressants, and topical therapies such as lidocaine, while opioids and other analgesic agents may be considered in selected patients [2] [3]. Despite these options, a proportion of patients continue to experience clinically significant pain and functional impairment. Interventional treatments, including dorsal root ganglion destruction, peripheral nerve stimulation, paravertebral block, pulsed radiofrequency, spinal cord stimulation, and other neuromodulatory approaches, have been investigated for refractory PHN. However, the available evidence remains heterogeneous and the optimal interventional strategy is not established [4].

Ultrasound-guided hydrodissection is a minimally invasive technique primarily used in the management of peripheral nerve entrapment and neuropathic pain conditions. The procedure involves the injection of fluid under ultrasound guidance to separate a nerve from surrounding fascial or connective tissue planes. Proposed mechanisms include mechanical separation of tissues, reduction of local mechanical irritation, and improvement in the perineural environment [5] [6]. A range of injectates have been described, with 5% dextrose increasingly investigated because of its potential analgesic effects and favourable safety profile in peripheral nerve-related pain [6] [7]. Although evidence remains limited and heterogeneous, systematic reviews have reported potential benefits of ultrasound-guided hydrodissection in selected peripheral nerve entrapment syndromes [6].

The pectoral region represents a potential anatomical target for ultrasound-guided intervention in patients with thoracic or anterior chest wall pain. Pectoral nerve blocks have previously been described in the management of zoster-associated pain, demonstrating the potential relevance of targeting neural structures within the pectoral region in patients with herpes zoster-related neuropathic pain [8]. However, hydrodissection of the pectoral muscle as a treatment for established PHN has not been described in the literature identified for this report. We present the case of an 80-year-old man with a two-year history of refractory PHN presenting predominantly with anterior chest wall pain who underwent ultrasound-guided pectoral muscle hydrodissection using 20 ml of 5% dextrose. This case describes the clinical and functional response following this targeted intervention and highlights a potentially minimally invasive treatment approach for

selected patients with refractory PHN.

## 2. Case Presentation

An 80-year-old man was referred to our pain service with a two-year history of persistent postherpetic neuralgia following a previous herpes zoster infection involving the left thoracic region. His pain was predominantly localised to the left anterior chest wall in the T6/T7 dermatome and had persisted despite extensive conservative and pharmacological management. The pain was associated with neuropathic features, including areas of allodynia, and was sufficiently troublesome to interfere with sleep, with the patient reporting episodes of waking during the night because of pain. Other clinically relevant causes of chest-wall pain were considered.

The patient had a background of significant medical comorbidity, including coronary artery disease requiring coronary artery bypass grafting in 2019, hypertension, non-insulin-dependent diabetes mellitus, hypercholesterolaemia, and asthma. His surgical history also included a right ankle skin graft. He was taking aspirin as part of his cardiovascular management. He had no known drug allergies. Prior to referral, multiple analgesic strategies had been attempted without adequate symptomatic relief. These included tricyclic antidepressants and regular paracetamol. He had also undergone six courses of Qutenza (capsaicin 8%) therapy without significant benefit. At the time of assessment, he continued to use a topical lidocaine patch, which provided mild symptomatic relief, together with paracetamol. Given the limited response to multiple pharmacological and topical treatment modalities, his condition was considered refractory to conventional conservative management.

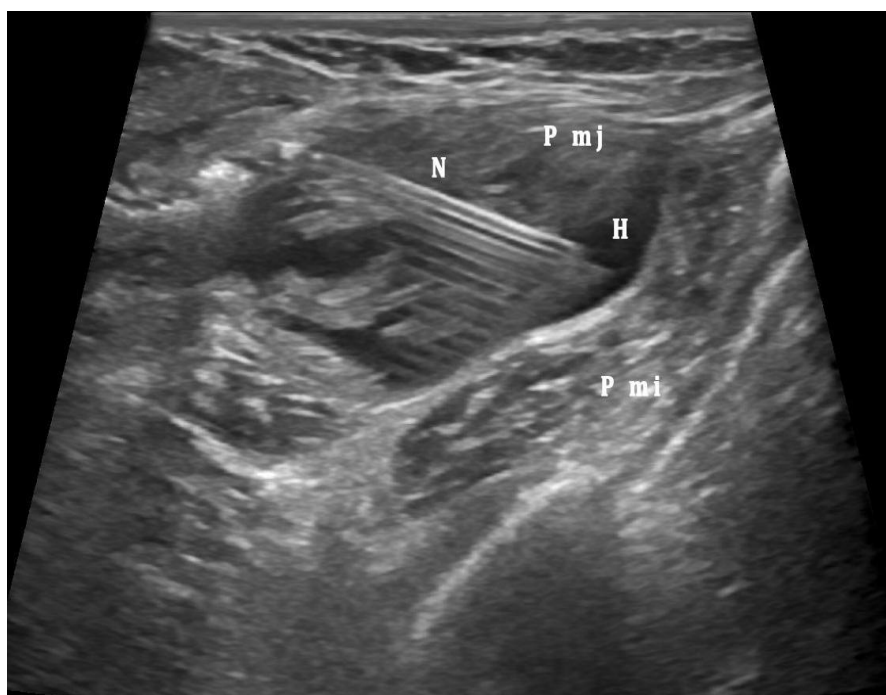
On clinical assessment, the patient's characteristic pain was reproduced over the affected left thoracic dermatome, with marked tenderness and areas of allodynia. The distribution of symptoms was consistent with his established diagnosis of postherpetic neuralgia. In view of the persistent focal nature of his symptoms and the limited response to previous treatments, an ultrasound-guided interventional approach targeting the pectoral region was considered. The rationale, potential benefits, limitations, and risks of the proposed procedure were discussed with the patient, and informed consent was obtained.

The patient subsequently underwent ultrasound-guided left pectoral muscle hydrodissection performed by a consultant anaesthetist in a theatre setting under aseptic technique. Following hand hygiene and application of sterile gloves, the skin was prepared with 2% chlorhexidine and a sterile drape was applied. The ultrasound curvilinear low frequency transducer was enclosed in a sterile sheath containing ultrasound gel, with an additional layer of sterile gel applied between the covered transducer and the skin. Ultrasound guidance was used to identify the relevant anatomical planes between pectoralis major and minor muscles and facilitate targeted hydrodissection. A total of 20 ml of 5% dextrose solution was injected to separate the tissue planes and potentially reduce local mechanical re-

striction and perineural irritation (see **Figure 1**). The procedure was completed uneventfully without immediate complications, and the patient was provided with standard post-procedural discharge instructions and follow-up arrangements.

At telephone follow-up approximately one month after the procedure, the patient reported a noticeable improvement in his pain (8/10 NRS to 4/10 NRS) and expressed satisfaction with the outcome. Although he continued to experience some nocturnal symptoms, with pain occasionally waking him from sleep, the overall severity of his symptoms had improved. He continued to use a lidocaine patch and paracetamol as required.

Given the improvement following the initial intervention but persistence of a more localised area of pain, a further ultrasound-guided left pectoral hydrodissection procedure was subsequently undertaken, with the symptomatic area more specifically localised prior to the intervention. The repeat procedure was again completed without reported complication. A further telephone follow-up was planned for 6 weeks after the second intervention to assess the durability of the clinical response and the patient's functional outcome. At telephone follow-up, the patient reported a noticeable improvement in his pain (4/10 NRS to 2/10 NRS) and expressed satisfaction with the outcome. He reported no nocturnal symptoms.



N = Needle; H = Hydrodissection; P mi = Pectoralis Minor; P mj = Pectoralis Major.

**Figure 1.** Pectoral hydrodissection.

### 3. Discussion

This case demonstrates a clinically meaningful improvement in refractory postherpetic neuralgia (PHN) following ultrasound-guided pectoral hydrodissection.

The patient had persistent predominantly anterior chest wall pain for two years despite multiple pharmacological and topical treatments, yet reported improvement in pain, sleep, and daily function following the intervention. The response is particularly notable given the chronicity of symptoms and limited benefit from previous treatment. Although a single case cannot establish efficacy or causality, the clinical response supports further consideration of pectoral hydrodissection as a potential treatment in carefully selected patients with refractory thoracic PHN.

The anatomical target is an important consideration. Previous reports have described successful use of pectoral nerve blockade for zoster-associated pain, including in patients with intractable PHN, suggesting that the pectoral region may represent a relevant target for thoracic zoster-related pain [8] [9]. The present intervention differs from these approaches because the objective was not simply neural blockade, but separation of tissue planes within the pectoral region. The clinical response may therefore reflect alteration of local tissue mechanics or reduction of mechanical irritation affecting peripheral neural structures. However, this proposed mechanism remains hypothetical, as no discrete nerve entrapment or adhesions were demonstrated in this patient.

Importantly, a recent report described serratus anterior plane hydrodissection using 5% dextrose for refractory PHN [10]. Although the anatomical target differs from the pectoral region described in the present case, this report provides further support for the potential use of thoracic hydrodissection in zoster-related neuropathic pain. Together, these cases suggest that the choice of anatomical target may be an important consideration in developing targeted hydrodissection approaches for refractory PHN.

The choice of 5% dextrose is supported by an expanding evidence base for hydrodissection in peripheral neuropathic conditions. A systematic review found 5% dextrose to be among the most commonly investigated injectates, with evidence of clinical benefit and a favourable safety profile in peripheral nerve entrapment syndromes [6]. More recent evidence has strengthened this literature: a 2025 prospective randomised double-blind trial found that ultrasound-guided hydrodissection with 10ml of 5% dextrose produced greater improvement in pain than saline hydrodissection in carpal tunnel syndrome [11]. A 2026 randomised controlled study has also reported short-term clinical benefit from 5% dextrose hydrodissection in mild-to-moderate carpal tunnel syndrome [12]. These findings provide increasing support for 5% dextrose as an injectate; however, they cannot be directly extrapolated to PHN, where the underlying pathology differs from a focal peripheral nerve entrapment.

The recent AANEM clinical perspective on hydrodissection also emphasised that evidence remains condition-specific and that the optimal injectate volume and patient selection have not yet been established [7]. This is relevant to the present case, in which 20 ml of 5% dextrose was used to separate the pectoral tissue planes. The appropriate volume for pectoral hydrodissection is unknown, and the

volume used in this case should not be interpreted as an established therapeutic dose. Further studies are required to determine whether treatment response is related to the mechanical effect of hydrodissection, the dextrose injectate, the volume administered, or a combination of these factors.

The patient's functional improvement is also clinically relevant. PHN can have substantial effects on sleep, physical activity, and quality of life, and recent European consensus recommendations continue to highlight persistent unmet needs in PHN management despite available treatments [13]. In this case, improvement extended beyond pain reduction to daily activities and range of movement, although residual nocturnal symptoms required additional gabapentin and a subsequent hydrodissection procedure. Consequently, the observed improvement should be interpreted as part of a multimodal treatment strategy rather than evidence that hydrodissection alone provided complete symptom resolution.

The principal limitations are those inherent to a single case report. There was no control intervention or blinded assessment, and the contribution of concurrent medication, placebo response, regression to the mean, and natural fluctuation in chronic pain cannot be excluded. In addition, follow-up was limited and objective validated measures of pain and functional outcome were not extensively recorded. The absence of demonstrable nerve entrapment or adhesions also limits conclusions regarding the mechanism of action. Nevertheless, to our knowledge, pectoral muscle hydrodissection for established PHN has not previously been reported. This case therefore provides an initial clinical observation that warrants prospective evaluation, particularly in patients with focal anterior chest wall PHN who have not responded adequately to conventional treatment.

## 4. Conclusion

This case suggests that ultrasound-guided pectoral muscle hydrodissection with 5% dextrose may be a feasible, minimally invasive treatment option for selected patients with refractory PHN. Further prospective studies are required to establish its efficacy, optimal technique, safety, and durability of benefit.

## Acknowledgements

We would like to extend our gratitude to the patient for his consent to publish this report.

## Availability of Data and Material/Data Transparency

This case report is an honest, accurate, and transparent account of the case being reported. No important aspects of the report have been omitted. Any queries should be directed via email to the corresponding author. Requests for reprints should also be addressed to the corresponding author.

## Ethics Approval

This study is fully compliant with the ethical guidelines of the Research Ethics and

Clinical Trials Committee of the University of Limerick Hospitals Group.

## Consent to Participate

The patient described consented to participation and publication of the report as described.

## Consent for Publication

The corresponding author has the right to grant on behalf of all authors and does grant on behalf of all authors, an exclusive licence to PAIN Practice to permit this case report (if accepted) to be published in PAIN Practice editions.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- [1] Tang, J., Zhang, Y., Liu, C., Zeng, A. and Song, L. (2023) Therapeutic Strategies for Postherpetic Neuralgia: Mechanisms, Treatments, and Perspectives. *Current Pain and Headache Reports*, **27**, 307-319. <https://doi.org/10.1007/s11916-023-01146-x>
- [2] Johnson, R.W. and Rice, A.S.C. (2014) Postherpetic Neuralgia. *New England Journal of Medicine*, **371**, 1526-1533. <https://doi.org/10.1056/nejmcpl403062>
- [3] Finnerup, N.B., Attal, N., Haroutounian, S., McNicol, E., Baron, R., Dworkin, R.H., *et al.* (2015) Pharmacotherapy for Neuropathic Pain in Adults: A Systematic Review and Meta-Analysis. *The Lancet Neurology*, **14**, 162-173. [https://doi.org/10.1016/s1474-4422\(14\)70251-0](https://doi.org/10.1016/s1474-4422(14)70251-0)
- [4] Lin, C.S., Lin, Y.C., Lao, H.C. and Chen, C.C. (2019) Interventional Treatments for Postherpetic Neuralgia: A Systematic Review. *Pain Physician*, **3**, 209-228. <https://doi.org/10.36076/ppj/2019.22.209>
- [5] Lam, K.H.S., Hung, C.Y., Chiang, Y.P., Onishi, K., Su, D.C.J., Clark, T.B., *et al.* (2020) Ultrasound-Guided Nerve Hydrodissection for Pain Management: Rationale, Methods, Current Literature, and Theoretical Mechanisms. *Journal of Pain Research*, **13**, 1957-1968. <https://doi.org/10.2147/jpr.s247208>
- [6] Buntragulpoontawe, M., Chang, K., Vitoonpong, T., Pornjaksawan, S., Kitisak, K., Saokaew, S., *et al.* (2021) The Effectiveness and Safety of Commonly Used Injectates for Ultrasound-Guided Hydrodissection Treatment of Peripheral Nerve Entrapment Syndromes: A Systematic Review. *Frontiers in Pharmacology*, **11**, Article 621150. <https://doi.org/10.3389/fphar.2020.621150>
- [7] Colorado, B., McNeill, D. and Norbury, J. (2025) Ultrasound-Guided Nerve Hydrodissection for Peripheral Entrapment Neuropathies. *Muscle & Nerve*, **72**, 1052-1059. <https://doi.org/10.1002/mus.28471>
- [8] Kim, Y.D., Park, S.J., Shim, J. and Kim, H. (2016) Clinical Usefulness of Pectoral Nerve Block for the Management of Zoster-Associated Pain: Case Reports and Technical Description. *Journal of Anesthesia*, **30**, 1074-1077. <https://doi.org/10.1007/s00540-016-2248-4>
- [9] Oh, D.S. (2018) Pecs II Block for Intractable Postherpetic Neuralgia. *Journal of Anesthesia*, **32**, 460-460. <https://doi.org/10.1007/s00540-018-2496-6>
- [10] Kaur, J., Kumari, S. and Gautam, S. (2026) Serratus Anterior Plane Hydrodissection

- with 5% Dextrose for Refractory Postherpetic Neuralgia. *Pain Practice*, **26**, e70149. <https://doi.org/10.1111/papr.70149>
- [11] Eyvaz, N., Adar, S., Akçin, A.İ., Dündar, Ü., Toktaş, H. and Eroğlu, S. (2024) Comparison of Ultrasound-Guided Hydrodissection with Various Volumes of 5% Dextrose for Carpal Tunnel Syndrome: A Prospective Randomized Controlled Double-Blind Trial. *American Journal of Physical Medicine & Rehabilitation*, **104**, 596-604. <https://doi.org/10.1097/phm.0000000000002675>
- [12] Turkyolu, E., Bugdayci, D., Akgun, N. and Kalaoglu, E. (2026) Short-Term Effectiveness of 5% Dextrose Injection with Ultrasound-Guided Nerve Hydrodissection Method in Carpal Tunnel Syndrome: A Randomized Controlled Study. *Journal of Back and Musculoskeletal Rehabilitation*, **39**, 1457-1467. <https://doi.org/10.1177/10538127261420591>
- [13] Truini, A., Bhaskar, A., Fornasari, D., Bouhassira, D., Collins, M., Baron, R., *et al.* (2026) A European Delphi Consensus to Support the Diagnosis, Management, and Appropriate Positioning of Topical Treatments for Postherpetic Neuralgia (PHN). *Pain and Therapy*, **15**, 765-784. <https://doi.org/10.1007/s40122-026-00834-x>