








Chronic upper limb pain caused by iatrogenic traumatic neuroma following intramuscular benzathine penicillin injection

Amélie Gabrielle Vieira Falconi¹ , Laura Dornelas Corrêa² , Éric Guimarães Machado^{1,3} ,
Carlos Alberto Menezes Mariosa⁴ , Bruno Vítor Martins Santiago^{5,6,7,8} 

How to cite: Falconi AGV, Corrêa LD, Machado ÉG, Mariosa CAM, Santiago BVM. Chronic upper limb pain caused by iatrogenic traumatic neuroma following intramuscular benzathine penicillin injection. *Periop. Anesth. Rep.* 2026;4:e00052026. <https://doi.org/10.61724/2965-3681/e00052026>

BRIEF CASE REPORT

Traumatic neuromas are an underdiagnosed cause of localized chronic pain and can develop after peripheral nerve injury, including intramuscular injections. Delayed diagnosis may result in decades of refractory neuropathic pain and significant functional impairment^(1,2).

The case involves a 58-year-old man with chronic neuropathic pain in his left upper limb for over 30 years. The onset of symptoms was temporally related to an intramuscular injection of benzathine penicillin G in the deltoid region – Figure 1. The pain was described as burning and electric shock-like, rated 8/10 on the numerical rating scale, with mechanical allodynia and hyperalgesia over the deltoid region. Symptoms worsened at night and were exacerbated by palpation and shoulder movement, without motor deficit.

Physical examination revealed a small atrophic scar over the lateral deltoid region, corresponding to the reported injection site. There was marked local hypersensitivity and focal tenderness. Active shoulder abduction was limited due to pain.

Despite multiple medical evaluations and pharmacological treatments over the years, the pain remained refractory. Previous treatments included nonsteroidal anti-inflammatory drugs, tricyclic antidepressants, gabapentin, and physical therapy, with minimal and temporary relief. No prior surgical exploration had been performed. Differential diagnoses included myofascial pain syndrome and chronic injection-site fibrosis.

Focused ultrasound eventually revealed a traumatic neuroma in the deltoid muscle, leading to surgical resection and complete resolution of symptoms – Figure 2. No increased vascularity was observed on Doppler imaging.

The patient underwent surgical excision of the neuroma through a limited deltoid incision. The affected nerve segment was identified and resected, followed by proximal stump burial within the muscle tissue. Postoperatively, the patient reported complete pain resolution at 6-month follow-up.

¹ Santa Casa de Misericórdia de Juiz de Fora, Juiz de Fora, MG, Brasil

² Hospital Universitário de Juiz de Fora, Universidade Federal de Juiz de Fora, Juiz de Fora, MG, Brasil

³ Serviço de Anestesiologia, Hospital de Traumatologia e Ortopedia Dona Lindu, Paraíba do Sul, RJ, Brasil

⁴ Hospital e Maternidade Terezinha de Jesus, Juiz de Fora, MG, Brasil

⁵ Disciplina de Anestesiologia, Departamento de Cirurgia Geral, Faculdade de Ciências Médicas, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, RJ, Brasil

⁶ Clínica de Anestesiologia, Hospital Naval Marcílio Dias, Rio de Janeiro, RJ, Brasil

⁷ Unidade de Clínicas Cirúrgicas, Serviço de Anestesiologia, Hospital Universitário Clementino Fraga Filho, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brasil

⁸ Serviço de Anestesiologia, Secretaria de Estado de Saúde, Hospital Estadual Getúlio Vargas, Rio de Janeiro, RJ, Brasil





Figure 1. Illustrates the clinical aspect of the left upper limb, highlighting the area of maximum sensitivity and pain on palpation in the deltoid region (red circle), corresponding to the site of the previous intramuscular injection. The patient confirmed that the visible scar corresponds to the exact site of the intramuscular benzathine penicillin injection performed 30 years earlier.

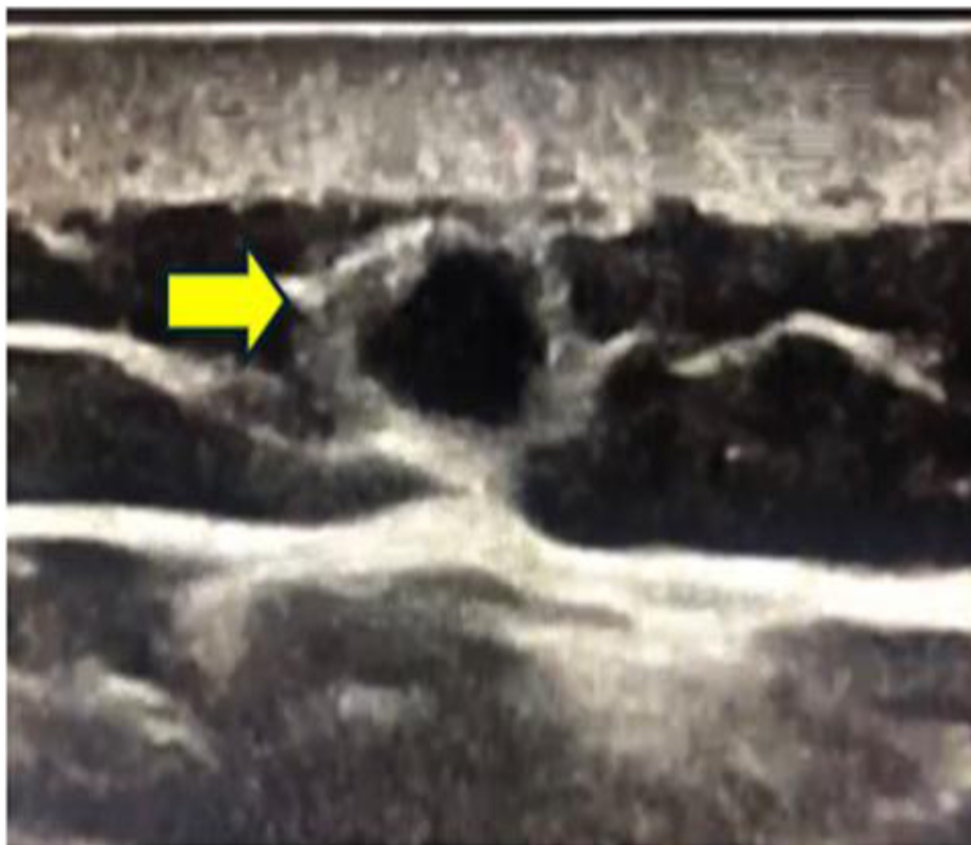


Figure 2. Shows a transverse ultrasound image of the deltoid muscle, demonstrating a well-defined oval hypoechoic nodular lesion, consistent with a traumatic neuroma (yellow arrow).

MAIN MESSAGE

This case highlights traumatic neuroma as a rare but potentially disabling late complication of intramuscular injections. Chronic localized neuropathic pain that worsens at night, associated with focal hypersensitivity and positive Tinel-like sign, should prompt evaluation for peripheral nerve injury. Early use of high-resolution ultrasound may enable accurate diagnosis and curative surgical management, preventing years of unnecessary suffering.

REFERENCES

1. Oliveira KM, Pindur L, Han Z, Bhavsar MB, Barker JH, Leppik L. Time course of traumatic neuroma development. *PLoS One*. 2018;13(7):e0200548. <https://doi.org/10.1371/journal.pone.0200548>. PMID:30011306.
2. Zhang X, Xu Y, Zhou J, Pu S, Lv Y, Chen Y, et al. Ultrasound-guided alcohol neurolysis and radiofrequency ablation of painful stump neuroma: effective treatments for post-amputation pain. *J Pain Res*. 2017;10:295-302. <https://doi.org/10.2147/JPR.S127157>. PMID:28223839.

This study was carried out at the Santa Casa de Misericórdia de Juiz de Fora, Juiz de Fora, MG, Brasil.

Authors' contributions: Amélie Gabrielle Vieira Falconi and Laura Dornelas Corrêa were involved in the study design, data collection, analysis, and writing. Carlos Alberto Menezes Mariosa, Bruno Vítor Martins Santiago and Éric Guimarães Machado contributed to the design of the study, writing, and revision of the article.

Ethics statement: This case was approved by the Research Ethics Committee (REC) of the institution (approval number: 7.970.755). Written informed consent was obtained from the patient for the publication of clinical data and images.

Conflict of interest: None.

Financial support: None.

Submitted on: January 27th, 2026

Accepted on: February 20th, 2026

Correspondence

Bruno Vítor Martins Santiago

Department of General Surgery, Anesthesiology – Rio de Janeiro State University

Boulevard 28 de setembro, 77, Vila Isabel, Rio de Janeiro, Brazil. Postcode: 20550-900

Phone: +55(21)998124018

bruno.santiago@hupe.uerj.br