

Post-Amputation Neuropathic Pain with Phantom Limb Phenomenon: Therapeutic Success with Spinal Cord Stimulation

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Abstract

Introduction: Refractory neuropathic pain in amputation stumps represents a therapeutic challenge, particularly when conservative measures fail. Spinal cord stimulation (SCS) emerges as a promising alternative in selected cases of peripheral neuropathic pain, with evidence supporting pain intensity reduction and improvement in quality of life^{1,2}.

Clinical description: A 28-year-old woman, with a past medical history of arterial hypertension, anxiety disorder, depression, and chronic neuropathic pain, presented with phantom limb pain in the right lower limb for several years. The pain was severe, daily, burning in nature, without radiation or relieving factors, and without infectious signs. She had previously received multiple pharmacological therapies at optimized doses (pregabalin, duloxetine, tapentadol), without satisfactory response, and achieved only partial control with gabapentin. She underwent an L5 nerve root block with transient benefit. Ultrasound was nonspecific, and lumbosacral MRI revealed mild degenerative changes at L4-L5 and L5-S1, including a right posterior disc protrusion at L4-L5, compressing the ventral surface of the dural sac and contacting the L5 root, and a disc bulge at L5-S1 contacting the ipsilateral root. Due to refractoriness and functional limitation, an epidural electrode was implanted for SCS at T8-T9, with laminectomy at T10 and generator placement in the left pre-gluteal region (3.4 mA; 120 µs; 1200 Hz). The patient showed significant pain improvement, gradual reduction of pharmacological therapy, progressive functional recovery, and enhanced quality of life.

Discussion: This case highlights the potential of SCS in the management of neuropathic pain in amputation stumps, supporting studies demonstrating efficacy in refractory peripheral neuropathies¹ and severe neural injuries². Although literature specifically addressing amputees remains limited, broader research points to relevant relief in chronic neuropathic pain when conventional approaches fail^{1,3}.

Conclusions: SCS may play a decisive role in controlling disabling post-amputation neuropathic pain. Careful patient selection and a multidisciplinary approach are essential to maximize outcomes, reduce medication dependency, and restore functionality.

References

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