College of Medicine
Physical Medicine and Rehabilitation

Sixty-Day Percutaneous Femoral Nerve Stimulation Restores Stand-Pivot Transfers in a Nonambulatory Stroke Survivor

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INTRODUCTION

Percutaneous 60-day peripheral nerve stimulation (PNS) is an established option for refractory chronic pain,[1–5] with evidence for sustained relief after lead removal.[1–3] Reports in medically complex older adults with limited surgical options are scarce, particularly when pain is the primary obstacle to rehabilitation. We report on a nonambulatory stroke survivor with an untreated contralateral femoral neck fracture and refractory knee pain in whom 60-day femoral PNS restored functional transfers.

CASE

An 82-year-old man with type 2 diabetes and remote thalamic and lentiform infarcts resulting in left spastic hemiparesis presented with eleven months of atraumatic right knee pain. He attributed it to overcompensation for a displaced left femoral neck fracture, managed nonoperatively and complicated by nonunion.

A fixed contracture held the knee in near-full extension. Pain was sharp over the anterior and anteromedial knee, radiating down the anterior shin to the toes, rated 6/10 (NRS), with allodynia to bedsheets. Knee radiographs showed only mild degenerative change. He was not a candidate for surgical fixation or contracture release.

He had previously failed physical therapy, intra-articular corticosteroid injection, topical agents, baclofen, acetaminophen, tramadol, hydrocodone-acetaminophen, and cryoneurolysis of superficial nerves about the knee, the last giving less than one month of pain reduction. Pain at rest precluded weight-bearing on either limb and had forced conversion from stand-pivot to mechanical lift transfers at his skilled nursing facility.

Written informed consent for publication was obtained from the patient. Per University of Kentucky Office of Research Integrity policy, IRB review was not required. There were no off-label indications. Disclosures: The authors report no relevant financial disclosures.

When pain limits rehabilitation

RESULTS

	Baseline	During 60-day PNS	7 wk after removal
Pain (NRS)	6/10, sharp; allodynia to bedsheets	Near-complete relief by week 3, held 60 days	**Brief pain with transfers and bed mobility, quickly resolved**
Transfers	Mechanical lift; pain precluded weight-bearing	Stand-pivot transfers resumed	**Stand-pivot transfers**
Therapy & mood	Limited by pain	Fuller therapy participation; better mood	**Ongoing ROM and stretching therapy**
Knee ROM	Fixed contracture in near-full extension	Unchanged	**Contracture persists**

DISCUSSION

This case reframes PNS as a rehabilitation-enabling intervention rather than solely an analgesic one. Where pain rather than structure limits function, and where surgical intervention is unavailable, a temporary opioid-sparing modality restored a meaningful functional milestone.

Range of motion did not change, underscoring that the benefit was pain-mediated. Durability beyond explant and applicability to comparable medically complex, nonoperative patients warrant further study.

Limitations: single case; follow-up 7 weeks after lead removal.

MATERIALS AND METHODS

Under ultrasound guidance and sterile technique, an introducer was advanced toward the right femoral nerve just distal to the inguinal crease. Stimulation testing confirmed paresthesia overlapping the patient's usual pain in the anterior thigh and knee.

A percutaneous coiled fine-wire lead was deployed and its position confirmed by stimulation and ultrasound (Fig. 1). The lead was anchored beneath an occlusive dressing and connected to an external pulse generator. It remained in place for 60 days and was then removed in clinic, intact and without complications.

Recorded outcomes were patient-reported pain relief, transfer method, therapy tolerance, knee range of motion, and complications.

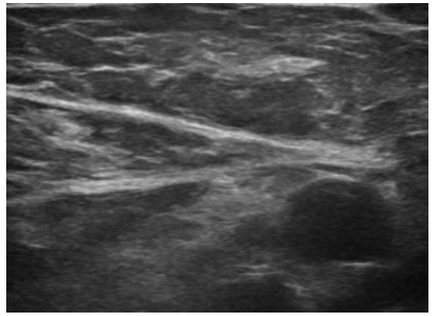


Figure 1. *Ultrasound guidance during lead placement at the right femoral nerve, distal to the inguinal crease.*

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