

A Successful Trial of Peripheral Nerve Stimulation of the Left Infrapatellar Saphenous Nerve for Chronic Post- Surgical Knee Pain and Saphenous Neuralgia

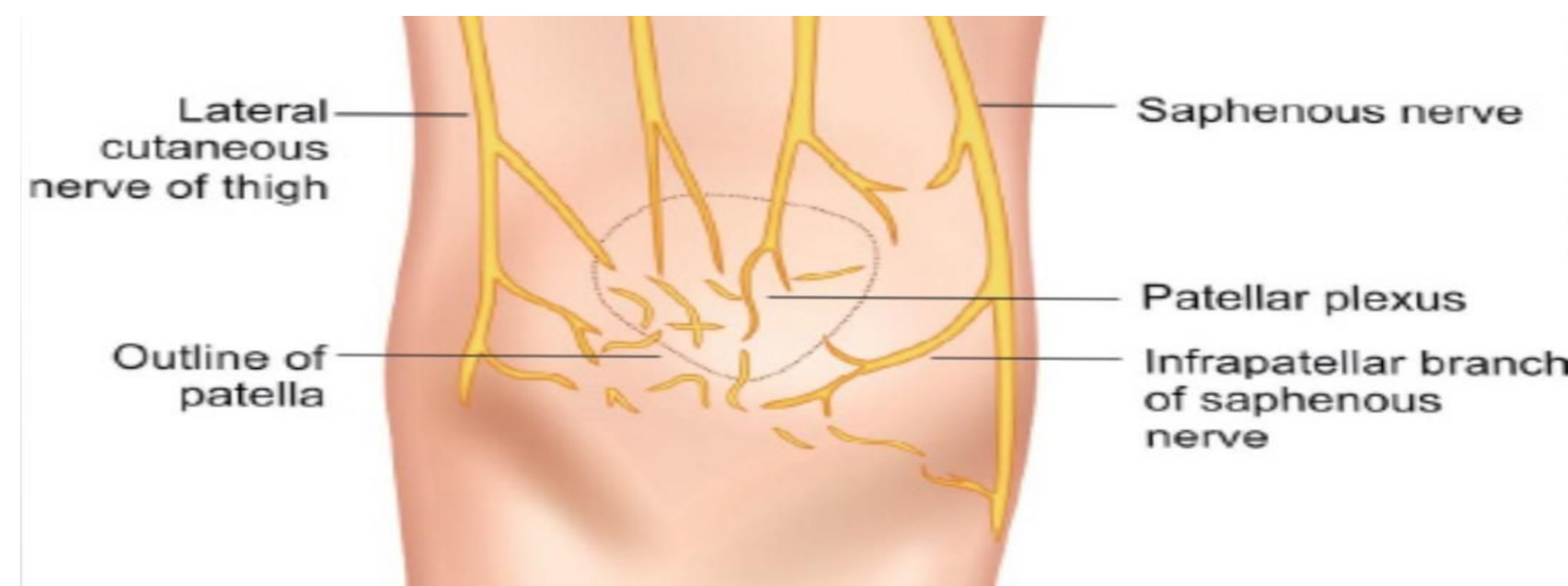
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INTRODUCTION

- Saphenous neuralgia is an uncommon but significant cause of chronic medial knee and leg pain, frequently presenting with **burning, tingling, or sharp dysesthetic sensations**.¹
- Condition arises from injury or entrapment of the infrapatellar branch of the saphenous nerve, a purely sensory branch particularly vulnerable during procedures such as anterior cruciate ligament (ACL) reconstruction, meniscal repair, or total knee arthroplasty.²
- Its subtle presentation and overlap with other pain generators, can make saphenous neuralgia difficult to diagnose and manage.
- Treatment options have traditionally included physical therapy, pharmacologic agents, and diagnostic nerve blocks, these often provide only temporary relief.³
- **Peripheral nerve stimulation (PNS) has emerged as a promising intervention** for focal neuropathic pain syndromes, offering targeted, minimally invasive neuromodulation for patients with refractory symptoms.⁴



CASE BACKGROUND

- A **37-year-old female** with a history of left knee anterior cruciate ligament (ACL) and posterior cruciate ligament (PCL) reconstruction in 2022 presented with **persistent pain localized to the medial aspect of the knee, thigh, and leg following surgery**.
- In 2023, she underwent a diagnostic saphenous nerve block, which significantly improved her symptoms leading to a diagnosis of saphenous neuralgia.
- MRI revealed findings of allograft repair of ACL and PCL, along with extensive chondral loss in both medial and lateral compartments.
- The patient underwent a diagnostic genicular nerve block, resulting in 80% relief of her knee pain for several hours.
- Radiofrequency ablation was planned but could not be completed due to insurance denial.

INTERVENTION

- A **trial of percutaneous PNS targeting the infrapatellar branch of the saphenous nerve (IPS) was planned and performed** (Figure 1a and 1b).
- Post treatment pain scores 4-6/10 compared to 8-10/10 pre treatment resulting in 40-60% of relief. She also reported decreased neuropathic pain proximal to the implant in her medial thigh and better ambulation, standing tolerance, and improved sleep.
- The PNS trial was removed per protocol and the patient is currently scheduled for a permanent implant.

DISCUSSION

Research shows success of PNS stimulation for post surgical knee pain targeting the IPS nerve.^{6,7} To our knowledge there are no other cases of PNS targeting IPS and having upstream pain relief for saphenous neuralgia. The patients positive response supports the growing clinical interest in neuromodulation techniques and highlights the need for further research to establish long-term outcomes and broader clinical utility.

FIGURES

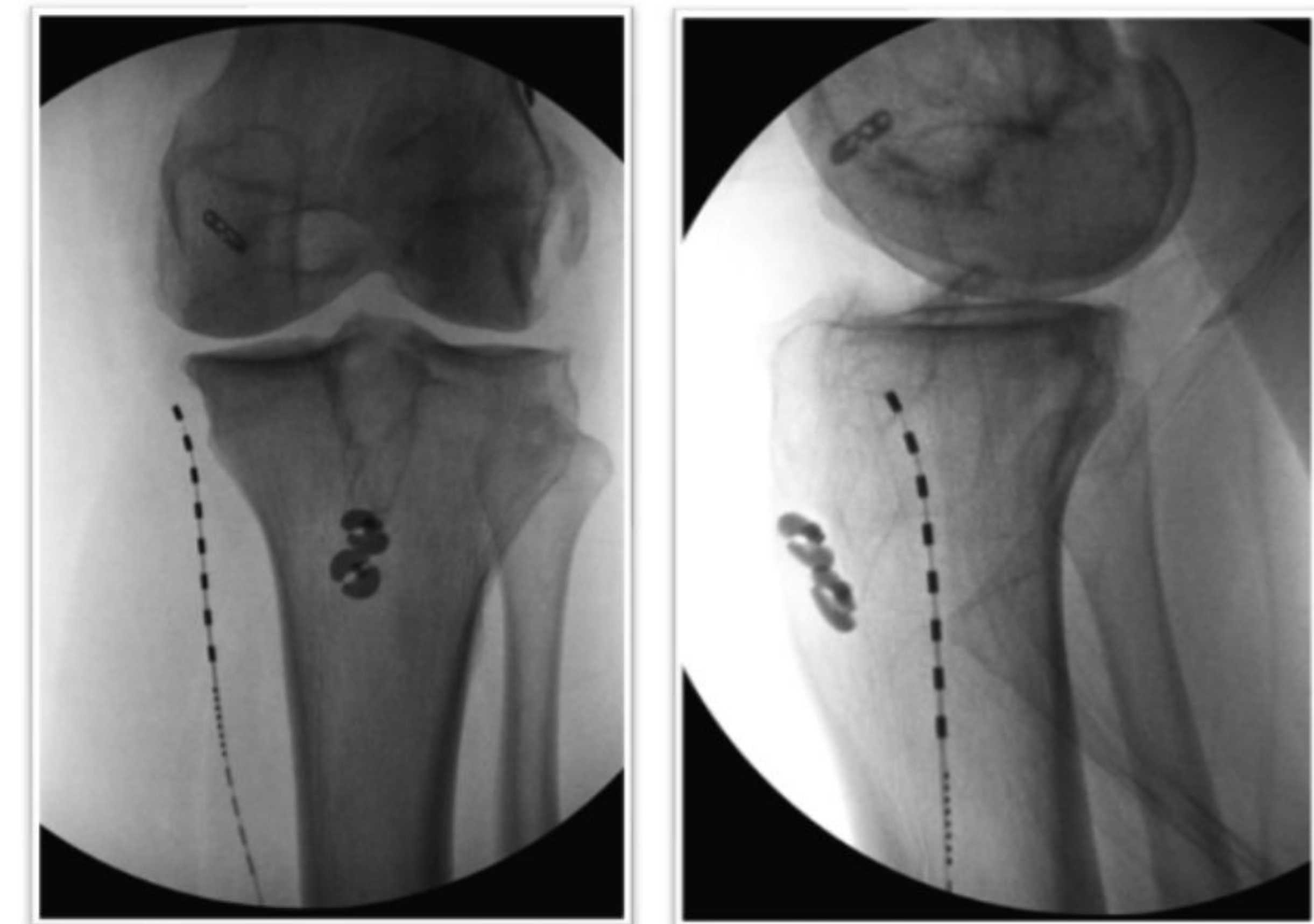


Figure 1a: Anteroposterior (AP) fluoroscopic image of the left knee joint showing lead placement adjacent to medial tibial condyle approximating the location of the left infrapatellar branch of saphenous nerve. **Figure 1b:** Lateral fluoroscopic image of the left knee joint showing lead placement confirmed to be at midline of tibia.

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