

Knee Deep in Relief: Innovative, Pre-operative Nerve Blocks for Knee Osteoarthritis

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Introduction

The number of people with knee osteoarthritis continues to increase in the U.S. because of the combination of its aging population and growing levels of obesity [1,2]. With an increase in knee osteoarthritis, pain physicians will continue to experience an increase in patients with knee pain. As a result, alternative methods to treat pain become necessary to explore particularly for patients with pain resistant to first line treatment options. When considering total knee arthroplasties after failure of non-operative management, it is important to consider pre-operative pain as a poor predictor for post-operative pain outcomes.

This case demonstrates a novel technique in managing chronic knee pain secondary to osteoarthritis to improve not only pain but also functional status prior to total knee arthroplasty in hopes to improve post-operative pain outcomes.

Case Description

A 61-year-old female with past medical history of hypertension, diabetes, hyperlipidemia, and obesity presented to an outpatient pain management office for evaluation of chronic severe right knee pain secondary to osteoarthritis. The patient aimed to undergo bilateral total knee arthroplasties once her pain improved sufficiently to facilitate her participation in pre- and post-operative physical therapy, thereby optimizing post-operative recovery. To address her pain, she underwent ultrasound-guided nerve blocks targeting the right anterior cutaneous branch of the femoral nerve, lateral femoral cutaneous nerve, and infrapatellar branch of the saphenous nerve. A solution of 1mL of methylprednisolone (80mg/mL) and 8 mL of 25% bupivacaine was prepared, and 3 mL was injected at each site. Two weeks post-procedure, the patient reported 80% pain relief and an improved ability to ambulate and participate in exercises. Upon follow up with her orthopedic surgeon, she was scheduled for right total knee arthroplasty (TKA). Repeat nerve block was performed two weeks prior to surgery. After successfully undergoing right TKA, the patient reported complete resolution of her knee pain at her one-month post-operative visit.

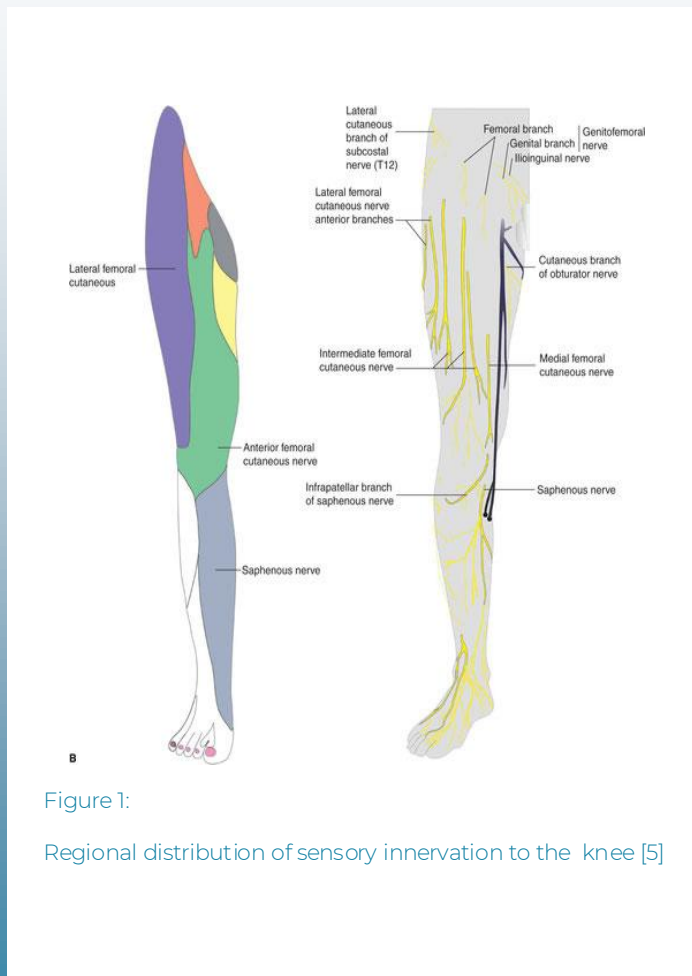


Figure 1:
Regional distribution of sensory innervation to the knee [5]

Discussion

Effectively managing pain is crucial, as higher levels of preoperative pain predict worse post-operative pain and functional outcomes following TKA. [3] This case illustrates how interventional techniques can effectively reduce pre-operative pain and enhance pre-operative function, supporting better post-operative results. Peripheral nerve blocks have been shown to provide a safe, effective option for pre-operative pain relief. [5] The specific combination of nerves targeted to block in this case demonstrates a novel technique in managing chronic pain related to knee osteoarthritis.

Conclusion

This case highlights the potential of targeted anterior cutaneous and infrapatellar nerve blocks as an innovative and effective strategy to manage chronic knee pain secondary to osteoarthritis. By addressing preoperative pain and improving functional capacity, this approach may contribute to enhanced postoperative outcomes, as demonstrated in this patient. The successful application of this novel technique underscores its utility as a valuable tool in the multidisciplinary management of knee osteoarthritis, particularly for patients preparing for total knee arthroplasty. Further studies are warranted to explore its broader applicability and long-term benefits.

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