



Sacral Erector Spinae Plane and Lateral Femoral Cutaneous Nerve Peripheral Nerve Catheters for Post-Operative Analgesia

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Introduction

- Severe post-traumatic pain is a significant cause of morbidity, extended length of facility stay, and marked opioid usage. This can be especially challenging in patients with opioid use disorder.

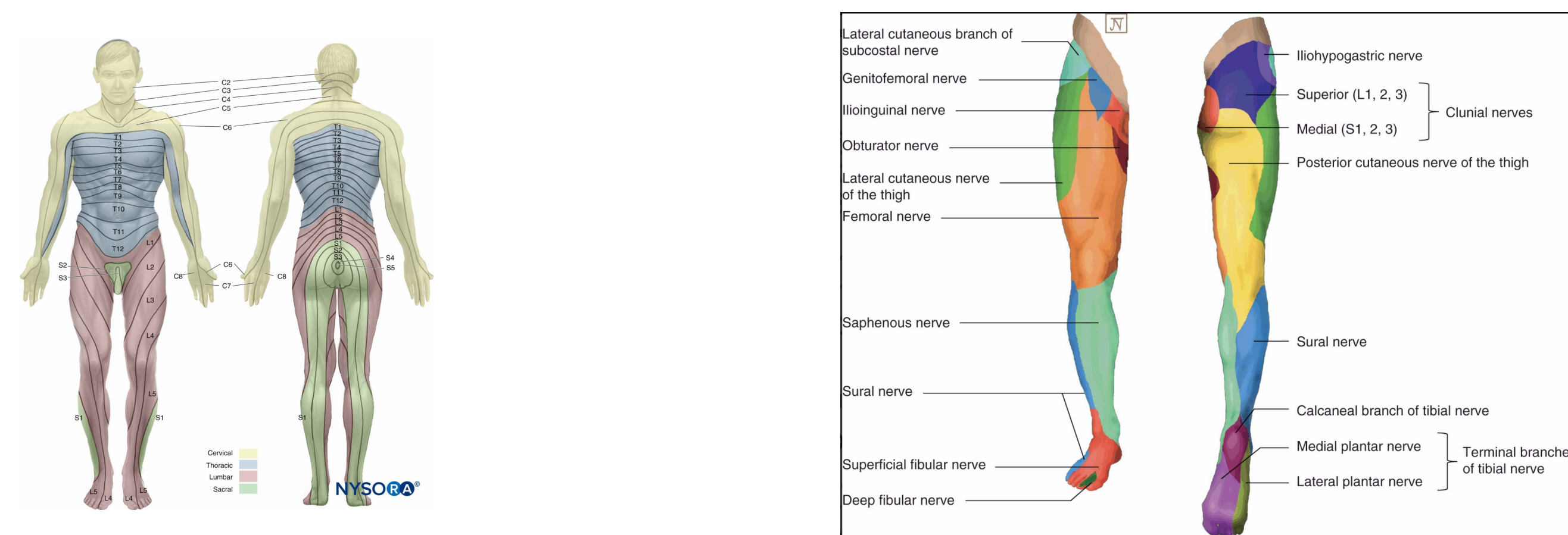


Figure 1: Lower extremity innervation. Dermatome distributions pictured left, peripheral nerve distributions pictured right.

Case Description

- A 54 year-old man presented with right patellar fracture, posterior right hip dislocation, comminuted fractures of his right posterior acetabular wall, bilateral sacral alae fractures, and left 3-5 rib fractures after a motor vehicle crash. His pain management was complicated by OUD with significant heroin use prior to arrival and subsequently high opioid tolerance.
- After operative management of his patellar fracture and posterior acetabular wall fracture, he experienced severe pain refractory to ketamine infusion and high doses of opioids.
- Given the Kocher-Langenbeck approach to his surgical repair, sacral ESP and LFCN PNCs were placed. The patient experienced significant improvement in his pain scores to 2 with rest and 4 with movement and without motor blockade impairing physical therapy (PT).
- He was able to successfully transition to an oral pain regimen with decreased rescue intravenous opioid use. Given his improvement, catheters were discontinued on catheter day 3 with no significant increase in his pain scores.
- He was discharged on methadone 90 mg daily which has been maintained for his OUD.

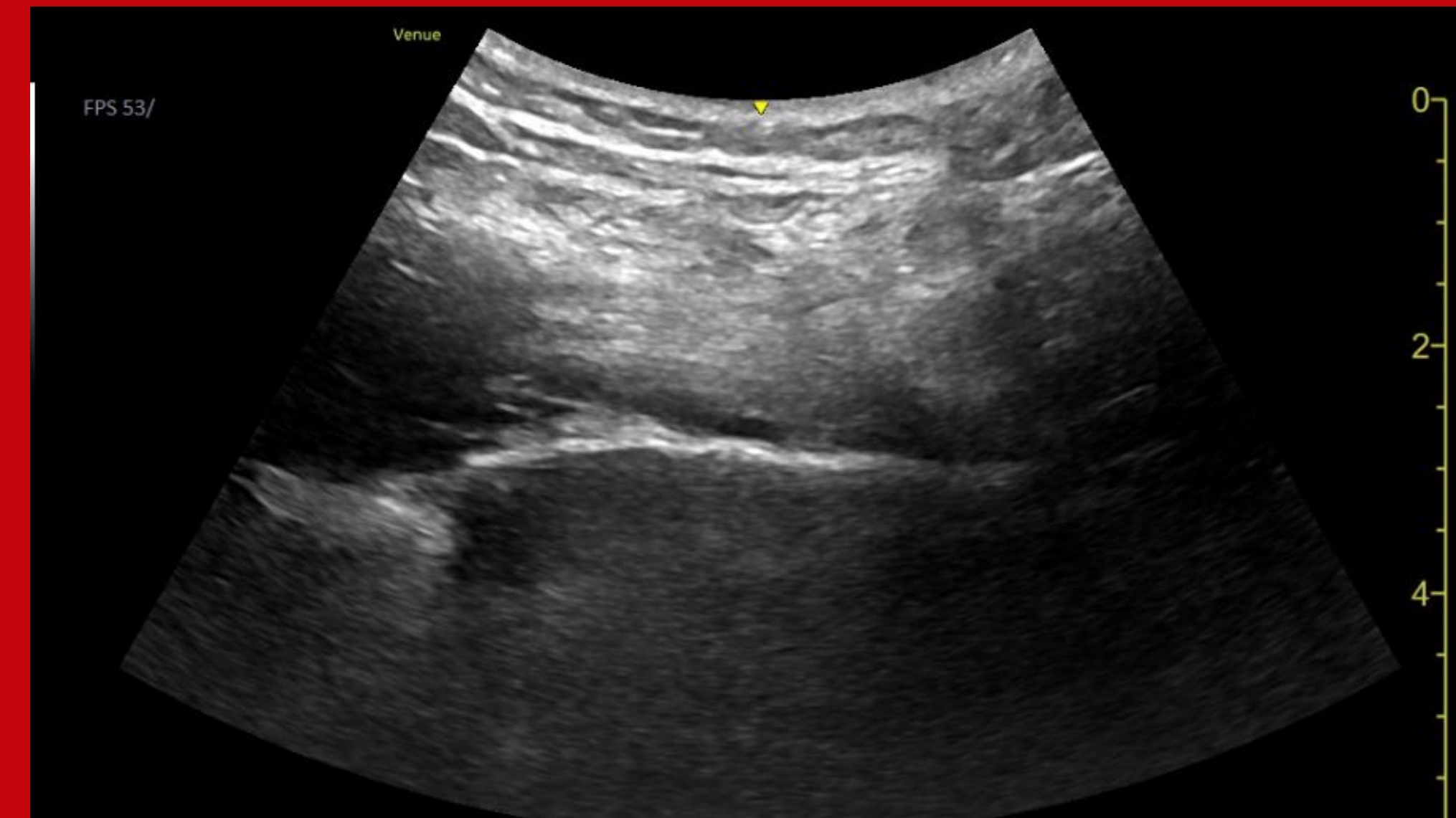


Figure 2: Ultrasound image of sacral ESP catheter placement showing local anesthetic spread over the sacrum and directed cephalad (left) towards the L5 transverse process.



Figure 3: Ultrasound image of the lateral femoral cutaneous nerve.

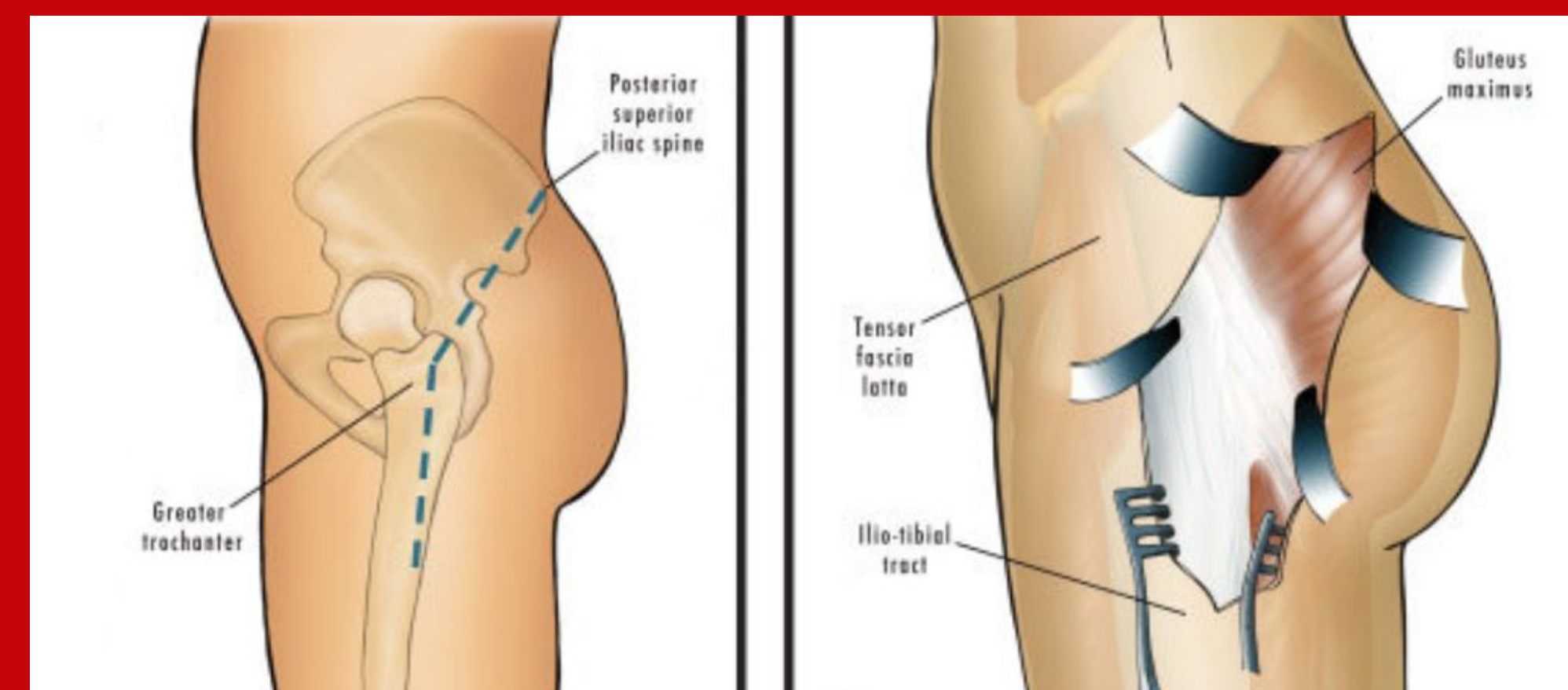


Figure 4: The Kocher-Langenbeck approach requires a skin incision from the posterior superior iliac spine over the greater trochanter of the femur to the lateral aspect of the femoral shaft.

Discussion

- The LFCN block originates from the L2-L3 nerve roots and anesthetizes the anterolateral thigh. The ESP block anesthetizes the dorsal and ventral rami of spinal nerves. Sacral ESP blocks are proposed to cover T12-S2 dermatomes.
- This case report supports the utilization of sacral ESP and LFCN catheters in posterior acetabular surgery as a motor and opiate sparing postoperative analgesic technique.
- Further research is required on sacral ESP catheters, it is a relatively new technique with few published cases.
- More commonly utilized nerve blocks for hip surgery such as the fascia iliaca nerve block and the pericapsular nerve group (PENG) block anesthetize the anterior hip capsule and femoral, lateral femoral cutaneous and obturator nerves, but do not target the gluteal portion for a posterior acetabular wall repair.
- Deep plexus or neuraxial blocks (parasacral sciatic or lumbar epidural) were contraindicated due to need for relative motor-sparing techniques given patient's need to participate in physical therapy

References

- Mufarrih SH, Qureshi NQ, Schaefer MS, et al. Eur J Vasc Endovasc Surg. 2021 Sep;62(3):476-484.
- Chery J, Semaan E, Darji S, Briggs WT, Yarmush J, D'Ayala M. Ann Vasc Surg. 2014 Jul;28(5):1149-56.
- Malik O, Brovman EY, Urman RD. Reg Anesth Pain Med. 2018 Jan;43(1):25-35.
- Chandran R, Beh ZY, Tsai FC, Kuruppu SD, Lim JY. J Anaesthesiol Clin Pharmacol. 2018 Oct-Dec;34(4):458-464.
- Baddoo H. Ghana Med J. 2009 Mar;43(1):24-8.
- Tran DQ, Salinas FV, Benzon HT, Neal JM. Reg Anesth Pain Med. Published online January 11, 2019.
- Images:
- https://www.researchgate.net/figure/Kocher-Langenbeck-approach-A-Right-lateral-decubitus-position-B-Planned-skin_3_326660569
- <https://www.cambridge.org/core/books/applied-anatomy-for-anaesthesia-and-intensive-care/lower-limb/C78BDD2A76BC8FA8648B6139C951928>
- <https://www.nysora.com/techniques/spinal-anesthesia-2/>
- https://www.researchgate.net/figure/This-is-an-ultrasound-image-of-the-lateral-femoral-cutaneous-nerve-LFCN-The-yellow_fig5_381423769