

Supine Sciatic and Femoral Nerve Blocks For Trauma Patient With Severe Burns and Elevated ICP: A Novel Technique

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INTRODUCTION

Trauma patients with severe burns and traumatic brain injuries (TBIs) present unique challenges in managing pain and preventing secondary neurological insults¹. This report highlights the innovative use of supine peripheral nerve blocks to address pain management and intracranial pressure (ICP) control in a critical trauma patient with extensive burns and polytrauma.

MATERIALS & METHODS

As the case report is devoid of patient identifiable information, it is exempt from IRB review requirements as per UNC-Chapel Hill policy. Patient informed consent was obtained for submission of this case report.

CASE SUMMARY

27-year-old male

Injury:

- Single-vehicle rollover with vehicle fire and prolonged extrication
- 37% TBSA mixed partial/full-thickness burns (bilateral lower extremities)
- Multifocal subarachnoid hemorrhage, elevated ICP, bradycardia

Problem: Pain associated elevated ICP during dressing changes and patient movement.

Goal: Provide analgesia while avoiding exacerbation of elevated ICP.

Challenge: Patient was unable to be rolled to the side for a subgluteal block and remained supine.

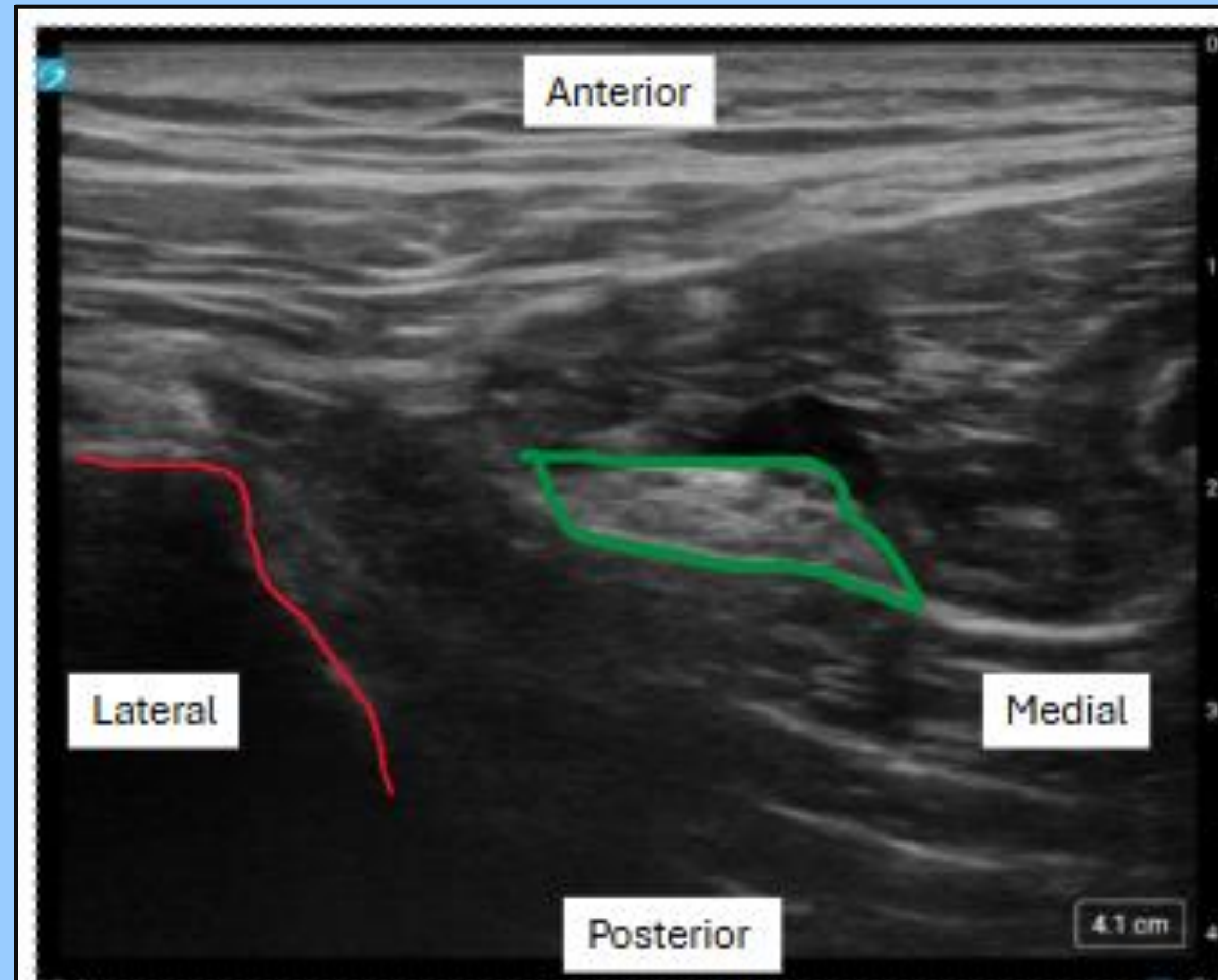


Figure 1. Left posterior thigh sciatic nerve view.
Legend: **Red**-Femur; **Green**-Sciatic Nerve

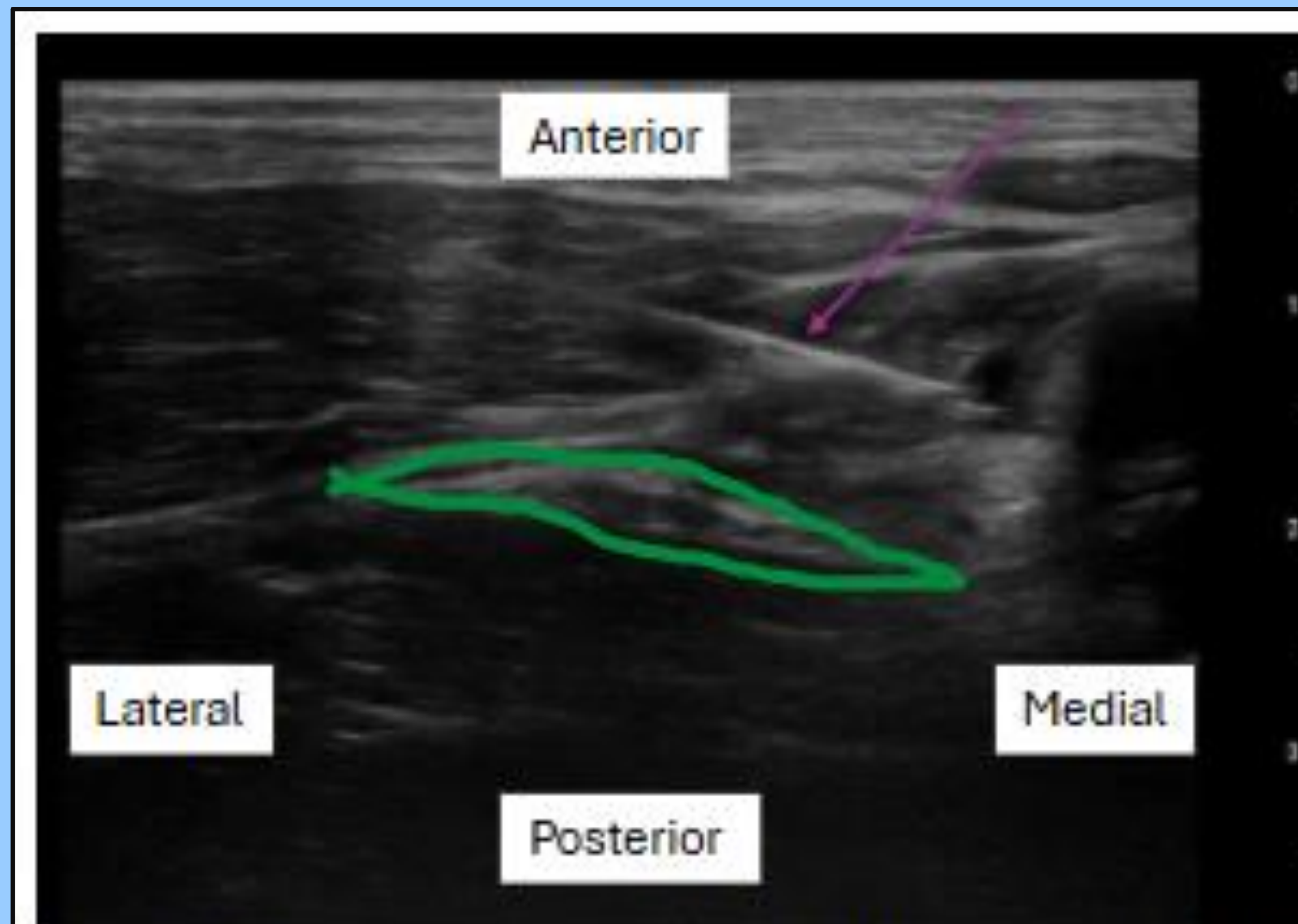


Figure 2. Right Posterior Thigh Sciatic Nerve View. Note flat and wide anatomy of sciatic nerve. Needle was readjusted and readvanced posteriorly before local injection.
Legend: **Green**-Sciatic nerve; **Purple**- needle

Approach:

- Bilateral single-shot femoral and sciatic nerve blocks under ultrasound guidance in the supine position.
- Legs were propped up for sciatic nerve block for access to the posterior thigh proximal to the full-thickness burns where the best image of the sciatic nerve could be found².
- Local anesthetic: 80 mL of 0.25% ropivacaine (30 mL per sciatic nerve, 10 mL per femoral nerve)

Outcomes:

- ICP monitoring: 6-25 mmHg within 24 hours post-block
- Pain control: Dressing changes and repositioning performed without significant ICP spikes
- Ultrasound images: Figures demonstrate block approach and sciatic nerve anatomy

KEY TAKEAWAYS

- Peripheral nerve blocks may effectively manage pain in trauma patients with severe burns and TBI.
- Supine approach enables safe sciatic nerve block administration when access is limited by extensive burns.
- This technique is a valuable adjunct in multidisciplinary trauma care and merits further exploration.

REFERENCES

1. Wolfe TJ, Torbey MT, et al. Management of intracranial pressure. *Curr Neurol Neurosci Rep*. 2009;9(6):477-485.
2. Osaka, Y., Kashiwagi, M., Nagatsuka, Y. et al. Ultrasound-guided medial mid-thigh approach to sciatic nerve block with a patient in a supine position. *J Anesth* 25, 621–624 (2011).