

Regional Anaesthesia to the Rescue: A Post-Covid Patient with Lumbar Spine Injury Undergoing Lower Limb Orthopedic Surgery

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Sir,

Coronavirus disease of 2019 (COVID-19) has revamped the management of trauma patients worldwide like many other specialties. Regional anaesthesia (RA) techniques such as central neuraxial block (CNB) and/or peripheral nerve block (PNB) have been advocated strongly over general anaesthesia (GA) whenever feasible by various societies [1]. RA not only avoids aerosol generation in COVID-19 patients, but it may also reduce postoperative pulmonary complications, especially in covid recovered patients with compromised lung function. We wish to share our experience using peripheral nerve blocks as an alternative to central neuraxial blocks for managing lower limb fracture in a post-covid patient with lumbar spine injury.

A 33-years-old lady was brought to the emergency room with an alleged history of severe back pain and bilateral leg injury following a fall from height. On examination, her heart rate, blood pressure, and room air saturation were 118 beats/min, 90/70 mm Hg, and 56%, respectively. Following primary resuscitation, she was put on a non-rebreather mask with 15 L of oxygen. Radiological investigations revealed fracture of bilateral leg bones (both the tibia and fibula) and L1 vertebral body (AO type A2) (Figure 1a). High-resolution computed tomography of the chest showed bilateral ground-glass opacities and a severity score of 18/25 (Figure 1b). Her Reverse Transcription Polymerase Chain Reaction test for COVID-19 was negative, but serum inflammatory markers were increased. Her injuries were managed conservatively, and the surgery was deferred. She was shifted to the intensive care unit and managed with antibiotics, steroids, anticoagulants, and noninvasive ventilation. She was gradually weaned off from oxygen support after 25 days. She was scheduled for intramedullary nailing of the left tibia and closed reduction and plaster cast application of the right leg. Her neurological assessment revealed normal sensory and medical research council grade 3 muscle powers. The anaesthesia plan was discussed with the patient and her relatives and informed written consent was obtained.

In the operating room, standard monitors were attached, and one 18 G intravenous (IV) cannula was secured. The patient was placed in the supine position. Under all aseptic precautions, ultrasound-guided left-sided femoral nerve block (FNB) and popliteal sciatic nerve block (PSNB) were performed (Figure 1c, d, e, f) using a 23G 3.5 inch Quincke spinal needle and high-frequency linear transducer (L38e, 10-5 MHz, MicroMaxx, Fujifilm SonoSite Inc., Bothell, WA, USA). 10 ml of 0.5 % bupivacaine and 20 ml of 0.5% bupivacaine were administered for FNB and PSNB, respectively, after negative aspiration for blood. Intraoperatively, IV paracetamol 1 gm, ketorolac 30 mg, and 8 mg dexamethasone were given. Closed reduction and intramedullary nailing of the left tibia was completed in one hour. Then, IV fentanyl 25 µg was given, and closed reduction and cast application of the right leg was done. The patient was comfortable throughout the surgery without any significant change in hemodynamics and did not require oxygen or any additional anesthetic medication. She was under observation in the post-anaesthesia care unit for the next 24 hours. She recovered well and was discharged after five days.

The CNB or PNB is the preferred RA technique as the respiratory functions are preserved. The subarachnoid block or combined spinal-epidural anaesthesia is usually practiced for manipulations and fixation of lower limb fractures as it provides a dense sensory and motor blockade. We avoided CNB as our patient had a fracture of the lumbar spine. We preferred PNB over CNB or GA because of the second wave of COVID-19, superadded oxygen scarcity, and the

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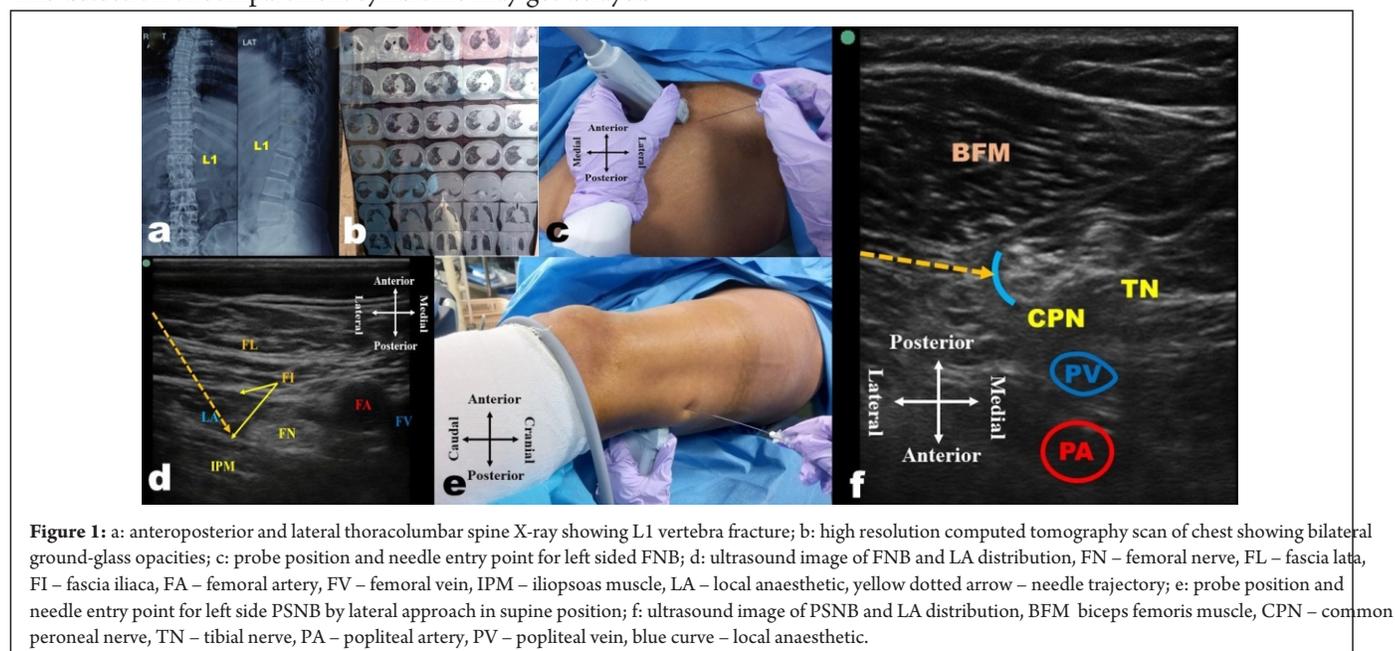
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compromised lung function following covid pneumonia. Ultrasound-guided combined PSNB and adductor canal block has been used for below-knee surgeries in high-risk patients to maintain hemodynamic stability and postoperative pain management [2]. We used a combination of FNB and PSNB for intramedullary tibial nailing in our patient. This combination is a simple and straightforward technique to avoid CNB or GA in below-knee surgeries where use of tourniquet is not necessary. However, it appears to be an underutilized RA technique as there is a paucity in the current literature. Selvi et al. used a combination of FNB and PSNB in a patient with severe emphysematous lung disease for femoral-popliteal arterial bypass surgery [3]. Imbelloni et al. used a lateral, continuous, combined FNB and high sciatic nerve block via a single skin puncture for postoperative analgesia in a supine adult patient undergoing tibial intramedullary nailing [4]. The detection of compartment syndrome may get delayed

because of the insensibility of the nerves following the block. So, we objectively assess the patient every three hours for signs of compartment syndrome that did not develop.

We faced a challenge in performing PSNB as the patient was supine and could not be turned lateral or prone position due to the presence of multiple fractures. The anterior approach to high sciatic nerve block would have been more appropriate, but the curvilinear probe was unavailable. Hence, we performed the PSNB via lateral approach in the supine position (Figure 1e, f) as described by Gray and colleagues [5]. This technique was convenient for the patient and offered optimal needle visibility.

The combination of FNB and PSNB suited our patient. More extensive studies need to be done on a combination of blocks for outpatients coming with closed fractures of leg bones in addition to high-risk patients where CNB has to be avoided.



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