

Continuous pericapsular nerve group block with single-shot lateral femoral cutaneous nerve block for total hip arthroplasty

Dear Editor,

Pericapsular nerve group (PENG) block is a novel fascial plane block.^[1] Here, we describe our experience with continuous PENG block with single-shot lateral femoral cutaneous nerve (LFCN) block in patients who underwent total hip replacement (THR).

Eight patients posted for THR were managed with general anaesthesia (GA) along with a continuous PENG block and single-shot LFCN block. GA was induced with intravenous (IV) fentanyl 1 µg/kg, propofol 3–5 mg/kg, and atracurium 0.5 mg/kg. After tracheal intubation, patients were administered block by using a linear high-frequency ultrasound probe (Fujifilm Sonosite M-Turbo, Bothell, WA, USA) and Contiplex® (B Braun, Melsungen, Germany) continuous peripheral nerve block set. The probe was placed in a transverse orientation over the anterior inferior iliac spine and rotated in an anti-clockwise direction to visualise the inferior pubic ramus. The 18-G, 10-cm Tuohy's needle was inserted in an in-plane technique from the lateral to medial direction, targeting the fascial plane between the iliopsoas tendon and iliopubic eminence [Figure 1]. The catheter was inserted and fixed at 3–5 cm beyond the

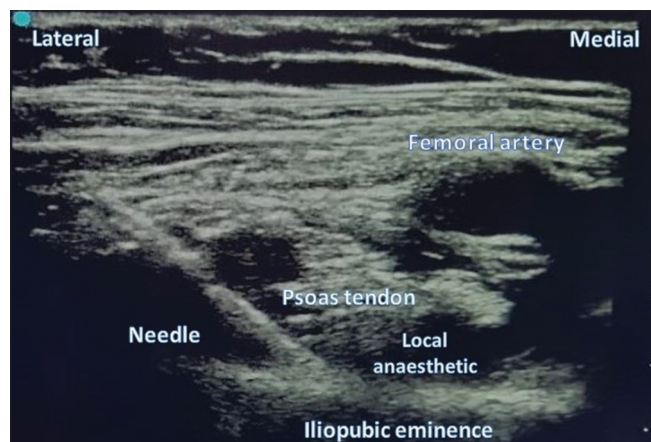


Figure 1: Sonoanatomy of the pericapsular nerve group block. Local anaesthetic is deposited between the psoas tendon and iliopubic eminence

needle tip. After a bolus of 30 mL of 0.2% ropivacaine, an infusion of 0.2% ropivacaine was started at the rate of 5 mL/h. The probe was placed transversally below the anterior superior iliac spine for the LFCN block. The LFCN was identified between the sartorius and tensor fascia lata. A mixture of 0.2% ropivacaine 5 mL and 4 mg dexamethasone was deposited. All surgeries were done in the lateral position via the posterolateral approach. The heart rate and blood pressure response on the incision indicated good analgesia, and no further boluses of opioids were required. Patients remained haemodynamically stable throughout the surgery. On tracheal extubation, all of them were comfortable. Post-operatively, the ropivacaine infusion was continued at 5 mL/h, and pain was monitored using the numerical rating scale (NRS) at rest and on movement. IV paracetamol 1 g was given at the 8th hour, and IV tramadol 1 mg/kg was supplemented as a rescue analgesic when the NRS score was >3. The pain scores at rest and on movement are shown in Table 1. None of the patients required rescue analgesics in the first 24 h of the post-operative period. Two patients required tramadol in the next 24 h. Motor block, as assessed using modified Bromage scale, was not seen in any of the patients, and they were ambulated on the first postoperative day.

Table 1: Demographics of patients and median numerical rating scale scores in the post-operative period

Variables	Values (n=8)	
Age (years)	67 (62, 69)	
Gender [male/female (n)]	4/4	
Comorbidities [†] (n)		
Diabetes Mellitus	2	
Hypertension	5	
Coronary artery disease	2	
Rheumatoid arthritis	6	
Ankylosing spondylitis	1	
Revision surgery (n)	2	
Baseline heart rate (beats/min)	65.5 (52, 68)	
Baseline mean arterial pressure (mmHg)	76.5 (76, 78)	
Post incision heart rate (beats/min)	65 (52, 70)	
Post incision mean arterial pressure (mmHg)	78 (74, 80)	
Numerical rating scale score – Median (IQR)	At Rest	On Movement
2 h	1.5 (0, 2)	2 (1, 2)
4 h	1.5 (1, 2)	2.5 (2, 3)
8 h	2 (1, 3)	2.5 (1, 3)
10 h	2 (1, 2)	3 (2, 3)
12 h	2.5 (2, 3)	3 (2, 3)
24 h	2.5 (2, 3)	3 (2, 3)
36 h	3 (2, 3)	2.5 (2, 3)
48 h	2.5 (2, 3)	4 (3, 4)

Data expressed as median (interquartile range) or numbers, [†]same comorbidity existed in multiple patients, IQR: Interquartile range

Continuous PENG block with LFCN block has the potential as an ideal peri-operative analgesic modality in hip replacement surgeries as it targets only sensory nerves and does not interfere with early ambulation. PENG block has been mostly utilised for providing analgesia for positioning for subarachnoid block and addressing acute pain in hip fractures.^[2] As LFCN mostly innervates the incision, we added the LFCN block to the continuous PENG block. Compared with epidural infusion, the haemodynamic stability seen with the continuous PENG block is a major advantage in these frail patients with multiple comorbidities. Vamshi *et al.*^[3] reported that the PENG block provided better analgesia with lesser motor blockade than the suprainguinal fascia iliaca block in THR. Variable volume of the drug for the block has been used, but it is hypothesised that a higher volume of the drug can act as a proxy for lumbar plexus blockade.^[4] The optimal volume and dose of the drug needed for the block needs to be studied further.

PENG block is a promising regional anaesthetic technique as an adjuvant to multimodal analgesia for major hip surgeries.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, all the patients consented to his/her images and other clinical information to be reported in the journal. The patients understand that their name and initials will not be published and due efforts will be made to conceal their identity,

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Conflicts of interest

There are no conflicts of interest.

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