Letter to Editor
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Out-Of-Plane Approach to Prevent Injury to Lateral Femoral Cutaneous Nerve (LFCN) in Pericapsular Nerve Group (PENG) Block

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Letter to Editor

Pericapsular Nerve Group (PENG) block provides effective pain relief in fracture hip patients [1]. Primary target of this block was articular branches of femoral and accessory obturator nerves, later studies have shown that when volume of injectate increased up to 20 ml, branches of obturator nerve is also blocked [2]. Blockade of Lateral Femoral Cutaneous Nerve (LFCN) along with PENG block have been suggested to increase the analgesic potential of PENG block [3]. Girón-Arango et al., suggested that instead of giving a separate block, LFCN can be blocked by withdrawing the block needle in the plane between the fascia iliaca and fascia lata and injection of 5 mL of local anesthetic during PENG block itself [4]. Studies have also suggested that, during PENG block if injectate volume is increased up-to 30 ml, LFCN is blocked [5]. Although, it is yet to be studied further that, combining PENG block and LFCN block has any advantage in the management of pain with fracture hip patients. There is always a risk of injury to LFCN during PENG block as LFCN may come in the trajectory of needle [4]. Careful superficial scan to identify the LFCN or symptom of paresthesia in the distribution of LFCN after skin infiltration and accordingly adjusting the needle path have been suggested [4]. We have speculated that, instead of in-plane approach which is conventionally done, if Out-Of-Plane approach (OOP) is used, this potential risk can be avoided. However, it is not documented so far that, OOP approach can be used for PENG block. While working on our hypothesis, we used OOP approach in 65 yrs (64 kg) male patient posted for left sidedbi-polar arthroplasty after fracture neck of femur. After following standard hospital protocol for preoperative optimization, informed consent, intravenous line, prophylactic antibiotic, standard non-invasive monitoring, patient was positioned supine on the procedure table. Pain assessment in rest and on 15° passive limb elevation was done with numeric rating score (0-no pain and 10-very severe pain). With due sterile preparation, and using low frequency ultrasound probe (US)

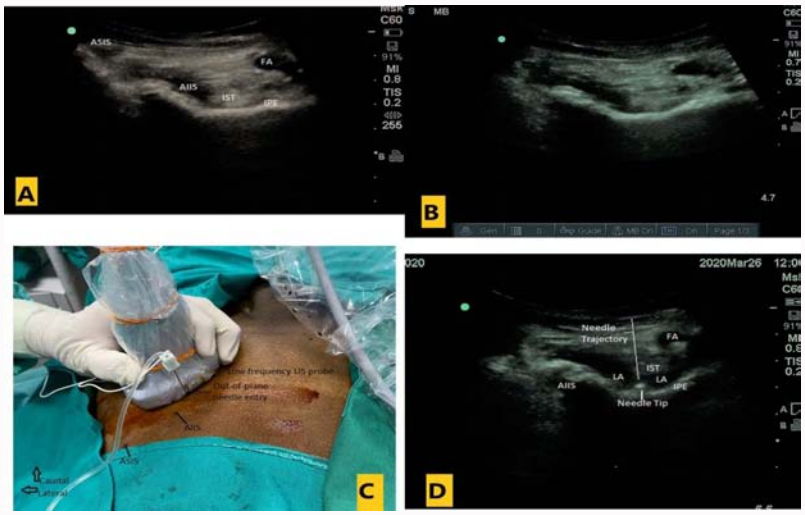

Figure 1: (A) Sonoanatomy when probe was at ASIS, (B) Sonoanatomy when US probe was moved medially at the level of AIIS, (C) Out-of-plane needle entry while low frequency (2-5MHz) ultrasound probe in place and (D) Needle resting at bony rim near IPE (arrow indicating needle) and linear spread of local anaesthetic below the iliopsoas muscle. ASIS: Anterior Superior Iliac Spine; AIIS: Anterior Inferior Iliac Spine; IPE: Iliopectineal Eminence; IST: Ilio-psoas Tendon; FA: Femoral Artery; LA: Local Anaesthetic spread.

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(2-5 MHz, SonoSite, M-Turbo) sonoanatomy for PENG block was identified. At first US probe was kept at the level of Anterior Superior Iliac Spine (ASIS) and then it was shifted medially till Anterior Inferior Iliac Spine (AIIS) (which is usually 4-5 cm medially) was at the lateral border of the probe and other structures like Ilio-psoas Tendon (IST), Femoral Artery (FA) and Iliopectineal Eminence (IPE) were identified (Figure-1; A,B and C). After skin infiltration with 2 ml 1% lidocaine, 22 G, 100 mm long insulated blunt tip block needle (Stimuplex, BBraun) was directed perpendicularly in OOP approach towards iliopectineal eminence. Once bony contact was made, 20 ml 0.25% bupivacaine+8 mg dexamethasone was injected with repeated aspiration to avoid accidental intravascular injection (Figure-1; D). After 30 minutes effective pain relief was observed, rest pain (7 Vs 2) and pain on 15° limb elevation (9 Vs 4). During spinal anaesthesia sitting was also comfortable. We used similar approach in three subsequent patients with effective relief in all patients. The visible advantage we noticed that, there is no vital structures in the trajectory of needle and, as the travelled distance is reduced, discomfort during needle insertion was also reduced. In all patients, we also scanned for LFCN by high frequency US probe (6-13 MHz, SonoSite-Turbo M) (just to substantiate the margin of safety in avoiding accidental injury to LFCN) and found that in all cases LFCN was far away (5-6 cm) laterally and inferiorly then our needle insertion point (no picture attached). We suggest that OOP could be an alternate approach for PENG block. However, is it equally effective and safe as standard in-plane approach is still requires further research and validation.

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