
Combined pericapsular nerve group and lateral femoral cutaneous nerve blocks for surgical anaesthesia in hip arthroscopy

Sir,

Hip arthroscopy is a minimally invasive diagnostic and therapeutic procedure for hip pathological conditions and can be used as an alternative to major invasive procedures on hip joint. Central neuraxial blocks and general anaesthesia have been the primary methods for anaesthesia during a hip surgery; peripheral nerve blocks are alternative options. Lumbar plexus block (LPB) has been used for anaesthetic management of hip surgery along with sciatic nerve block, however its use is limited because of its serious complications.^[1] Fascia iliaca compartment block (FICB) is considered an anterior approach to lumbar plexus but its ability to block all the component nerves especially obturator nerve is limited because of its too medial location.^[2] Pericapsular nerve group (PENG) block is a recently introduced technique known to block femoral nerve (FN), obturator nerve (ON), and accessory

obturator nerve (AON) that supply hip joint (articular branches are found between anterior inferior iliac spine and iliopubic eminence) and is reported to provide post-operative analgesia in hip surgery.^[3] We report the use of combined ultrasound guided PENG and lateral cutaneous nerve of thigh (LFCN) blocks for hip arthroscopy along with intravenous midazolam and fentanyl sedation as surgical anaesthesia in a young patient who refused spinal anaesthesia.

A 26-year-old healthy male patient was posted for right-sided arthroscopic synovectomy of hip joint. Pre-anaesthetic check-up revealed him to be of American Society of Anaesthesiologists (ASA) physical status 1, with all investigations within normal limits. After a written informed consent was obtained, ultrasound guided PENG and LFCN blocks with sedation were planned as the method of anaesthesia for the patient.

In operation theatre, patient was monitored using continuous electrocardiogram, non-invasive blood pressure and pulse oximetry; a 20 G intravenous cannula was secured, and an infusion of Ringer lactate started at a rate of 2 ml/kg/hour.

The sonoanatomy on the right sided hip using a low frequency curvilinear probe (3–5 Hz) was analysed in supine position to view anterior inferior iliac

spine (AIIS), iliopubic eminence (IPE), and pubic ramus (PR) and a pulsating femoral artery (FA) above the iliacus muscle. After all aseptic precautions, under local anaesthesia, PENG block was given with 23 G spinal needle connected to de-aired extension tubing with 10 ml syringe using in-plane approach. A total of 20 ml of local anaesthetic drugs (10 ml of 2% lignocaine + adrenaline, 10ml of 0.5% bupivacaine) was injected after hydro-dissection and after negative aspiration. The schematic picture of the block is shown in figure [Figure 1]. In view of the entry of lateral port, the lateral cutaneous nerve (LCN) was blocked under ultrasound guidance with another 10 ml of the same combination of the drug.

The patient was assessed for sensory loss in the next 20 min. There was absence of sensation in the anterior, medial and the lateral compartment of thigh. Since the given blocks may not cover intended myotomes, sedation was given with 1 mg of midazolam and fentanyl 50 µg intravenously. The 1 and half an hour of intra-operative period was uneventful. The analgesia lasted for 4 and 1/2 hours in postoperative period. The hemodynamic parameters were within 20% of baseline values intraoperatively and postoperatively.

PENG block is a very recent procedure, described by Giron *et al.*^[3] for post-operative analgesia in hip fractures. It includes the blockade of femoral nerve, accessory obturator nerve and obturator nerve by a single injection under ultrasound guidance. Its utility and complications in hip surgery are yet to be confirmed in large scale randomised controlled trials including radio-contrast dye studies about its spread and mechanism of action. Ueshima and

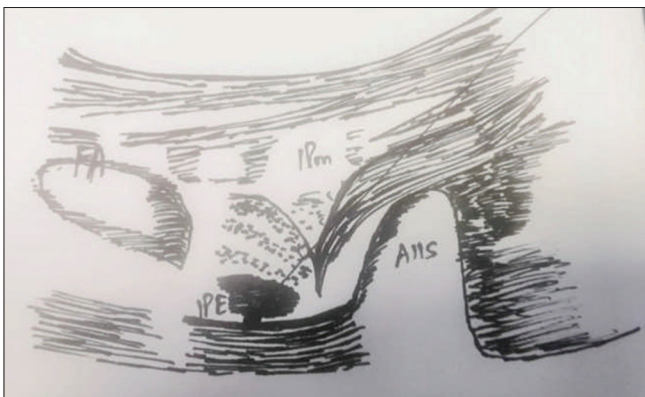


Figure 1: PENG block schematic diagram. AIIS: Anterior inferior iliac spine, IPE: Iliopubic eminence, FA: Femoral artery

Otake, successfully used this block for post-operative pain relief in hip dislocation reduction^[4] and hip replacement surgeries in 4 patients.^[5] Roy *et al.*, noticed that patients did not require additional post-operative analgesia after combining LFCN to PENG block in patients undergoing hip surgery.^[6]

Available reports suggest possible quadriceps weakness^[7] and ureteric injury because of its close relation when the needle is in too medial location. We did not have any complications related to the block.

Our case suggests that combining PENG and LFCN blocks along with sedation can be used for surgical anaesthesia for hip arthroscopy; however more quality studies are required to validate the same.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

Praveen Talwar, Shipra Tandon, D K Tripathy, Ashutosh Kaushal

Department of Anaesthesiology, All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India

Address for correspondence:

Dr. Praveen Talwar,
Department of Anaesthesiology, All India Institute of
Medical Sciences, Rishikesh - 249 201, Uttarakhand, India.
E-mail: praveenrt64@gmail.com

Submitted: 17-Jan-2020

Revised: 23-Mar-2020

Accepted: 21-Apr-2020

Published: 01-Jul-2020

REFERENCES

1. Sauter AR, Ullensvang K, Niemi G, Lorentzen HT, Bendtsen TF, Børghlum J, *et al.* The Shamrock lumbar plexus block: A dose finding study. *Eur J Anaesthesiol* 2015;32:764-70.

2. Ponde VC, Gursale AA, ChavanDN, Johari AN, Osazuwa MO, Nagdev T. Fascia iliaca compartmentblock: How far does the local anaesthetic spread and is a realtimecontinuous technique feasible in children? *Indian J Anaesth* 2019;63:932-7.
3. Giron-ArangoL, Peng PWH, Chin KJ, Brull R, Perlas A. Pericapsular nerve group block for hip fracture. *RegAnaesth Pain Med* 2018;43:859-63.
4. Ueshima H, Otake H. Clinical experiences of pericapsular nerve group block is effective for dislocation of the hip joint. *J ClinAnesth* 2019;52:83.
5. Ueshima H, Otake H. Clinical experiences of pericapsular nerve group block for hip surgery. *J ClinAnesth* 2018;51:60-61.
6. Roy R, Agarwal G, Pradhan C, Kuanar D. Total postoperative analgesiaor hip surgeries, PENG block with LFCN block. *RegAnesth Pain Med* 2019; 44:684.
7. Yu HC, Moser JJ, Chu AY, Montgomery SH, Brown N, Endersby RV. Inadvertent quadriceps weakness following the pericapsular nerve group (PENG) block. *RegAnesth Pain Med* 2019;44:611-3.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/ija.IJA_57_20

How to cite this article: Talawar P, Tandon S, Tripathy DK, Kaushal A. Combined pericapsular nerve group and lateral femoral cutaneous nerve blocks for surgical anaesthesia in hip arthroscopy. *Indian J Anaesth* 2020;64:638-40.

© 2020 Indian Journal of Anaesthesia | Published by Wolters Kluwer - Medknow