

COMBINED PERICAPSULAR NERVE GROUP AND OBTURATOR NERVE BLOCKS (PARTHA'S COMBO BLOCK) FOR EMERGENCY REDUCTION OF DISLOCATED PROSTHETIC HIP: A CASE REPORT

ANUSHA KALSAD, PARTHASARATHY S*

Department of Anesthesiology, Mahatma Gandhi Medical College and Research Institute, Sri Balaji Vidyapeeth, Pillayarkuppam, Puducherry, India. Email: painfreepartha@gmail.com

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ABSTRACT

The perioperative management of hip fractures and dislocation of hips with already fixed hardware are challenging in the elderly because of poor physiological reserve and multiple comorbidities. Previously, general anesthesia and a few regional anesthetic techniques were used to reduce dislocated hip. The pericapsular nerve group block (PENG) was first described in 2018, especially for total hip arthroplasties for a near-complete perioperative analgesia with motor sparing. In this case, a 75-year-old male with a history of hemiarthroplasty 15 days prior presents with a repeat fall and hip injury. We used a combined PENG and obturator nerve (ON) block to treat a dislocated prosthetic hip with a fractured pubic ramus. PENG was given with 20 ml of 0.375% bupivacaine and 6 ml each was administered for the anterior and posterior branches of ON. Following this Partha's combo block (PENG block+obturator), pain score reduced to 1/10 in around 20 min and closed reduction was done successfully in 4 min. The reduction was successful, painless, and without any major side effects. This is the first such report of reduction of dislocation of prosthetic hip. We surmised that a good pain relief of pubic fracture and the relief of associated adductor spasm targeted by the ON block may be the key to our success.

Keywords: Hip, Dislocation, Anesthesia, Block pericapsular nerve group block, Obturator nerve.

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INTRODUCTION

Because of poor physiological reserve and multiple comorbidities associated with old age, the perioperative management of hip fractures and dislocations is quite difficult. In these cases, pain is the most distressing symptom, so effective pain management is critical. Anesthesiologists frequently use fascia iliaca compartment block and femoral nerve (FN) block [1]. The pericapsular nerve group (PENG) block was recently described. It is a block of the interfascial plane. It provides analgesia for hip fracture patients by targeting the articular branches of the FN, the accessory obturator nerve (ON), and the ON [2]. PENG block can be used as an anesthetic for reducing dislocated hips as well as in varicose vein stripping procedures [3,4]. In this case, a 75-year-old male with a 15-day-old left hemiarthroplasty suffered a second fall and had a posterior dislocation of the left prosthetic hip joint with a fracture of the pubic ramus. Normally, FN blocks are combined with PENG blocks, but due to the combined fractures, we decided to go with this. We hypothesized that a reduction of adductor spasm could enhance the comfort of the surgeon in reduction.

CASE REPORT

A 75-year-old 75 kg male with no comorbidities had a history of a road traffic accident and was unable to walk due to a left hip injury. An X-ray revealed a fracture in the neck of the femur. Under spinal anesthesia, the patient underwent left hemiarthroplasty. The intraoperative period was uneventful, and the patient was discharged later. After 15 days, he had another fall and injured his left hip. He suffered from a posterior dislocation of the left prosthetic hip joint, a pubic rami fracture, and limb shortening with severe pain. The diagnosis of dislocation was confirmed by an X-ray of the left hip (Fig. 1). The patient was in severe pain, with a visual analog scale score of 8–9/10.

Following a thorough pre-anesthetic evaluation, the patient was scheduled for closed reduction under a combined PENG block and ON block. Following informed consent, the patient was transferred to the

operating room, monitors were connected, and an intravenous line was secured. Midazolam 1 mg IV and fentanyl 50 mcg IV were administered. The iliopubic eminence, psoas muscle, femoral vessels, and FN were identified using ultrasound aseptically. The needle was inserted in the musculofascial plane using a 25-gauge spinal needle and an out-of-plane approach. The PENG was blocked with 0.375% bupivacaine in 20 ml and 6 ml increments in the anterior and posterior branches of the ON [Partha's combo block – obturator+PENG block]. Following the block, the pain score dropped to 0–1/10 in about 10 min.

The closed reduction was done successfully with the procedure lasting for 4 min (Fig. 2). The duration of analgesic action was around 12 h. There were no side effects. The patient was discharged the next day. We calculated the dosage keeping in mind the toxic potential of the drug.

DISCUSSION

Girón-Arango *et al.* [2] described the PENG block in 2018 as a post-operative analgesic technique with motor sparing effect, specifically for total hip arthroplasties. This block has a nearly complete analgesic effect on the hip joint [5]. Dislocation of the prosthetic hip joint is a serious complication that occurs 15% of the time after hip arthroplasty [6]. Zhou *et al.* [7] proposed a technique for hip reduction without anesthesia, but it is difficult to get a patient in a prone position with a painful hip.

The ultrasound guided in plane technique of the PENG block was previously used to successfully reduce a dislocated prosthetic hip in two patients. An out-of-plane approach was suggested as an alternative, which we used. PENG block analgesia area is larger than FN block, but it excludes motor branches of the FN. In our case, we chose PENG block over other regional or general anesthesia for dislocated prosthetic hip reduction because it targets the femoral, accessory ON, and ON with minimal opioid use. We combined ON block with a significant decrease in adductor muscle spasm to achieve a better anesthetic level. We cannot draw any conclusions based on a single case report. We believe

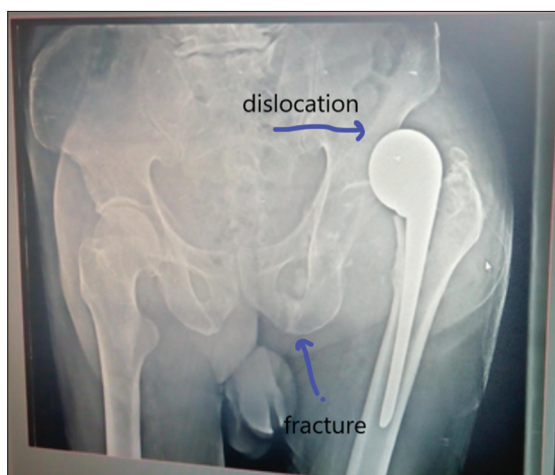


Fig. 1: Posterior dislocation of the left prosthetic hip



Fig. 2: Post-reduction with pericapsular nerve group block

that this combination block can be useful in targeting some missed fibers in the hip joint's nerve supply.

CONCLUSION

Partha's combo block (PENG block + obturator) will be a better and easier solo anesthetic technique for reducing dislocated prosthetic hip. This is especially useful in cases where there are other associated fractures. The relief of adductor spasm caused by ON block appears to be beneficial in terms of easy reduction.

AUTHORS' CONTRIBUTIONS

Dr. AK has done the write up; Dr. SPS has designed the concept and communicated.

COMPETING INTEREST

Nil.

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REFERENCES

1. Scurrah A, Shiner CT, Stevens JA, Faux SG. Regional nerve blockade for early analgesic management of elderly patients with hip fracture—a narrative review. *Anaesthesia* 2018;73(6):769-83. doi: 10.1111/anae.14178, PMID 29278266
2. Girón-Arango L, Peng PW, Chin KJ, Brull R, Perlas A. Pericapsular nerve group (PENG) block for hip fracture. *Reg Anesth Pain Med* 2018;43:859-63. doi: 10.1097/AAP.0000000000000847, PMID 30063657
3. Ueshima H, Otake H. RETRACTED: Pericapsular nerve group (PENG) block is effective for dislocation of the hip joint. *J Clin Anesth*. 2019;52:83. doi: 10.1016/j.jclinane.2018.09.022, PMID 30219619
4. Aydin ME, Borulu F, Ates I, Kara S, Ahiskalioglu A. A novel indication of pericapsular nerve group (PENG) block: Surgical anesthesia for vein ligation and stripping. *J Cardiothorac Vasc Anesth* 2020;34:843-5. doi: 10.1053/j.jvca.2019.08.006, PMID 31473113
5. Berlioz BE, Bojaxhi E. PENG Regional Block. Treasure Island, FL: StatPearls; 2021. PMID 33351429
6. Jadon A, Sinha N, Chakraborty S, Singh B. Landmark-guided pericapsular nerve group (PENG) block for reduction of dislocated prosthetic hip. *J Anaesthesiol Clin Pharmacol* 2021;(ahead of print). doi: 10.4103/joacp.JOACP_490_20
7. Zhou Y, Zhang C, Zhao S, Wang Q. Closed reduction of the traumatic posterior-dislocation of hip joint using a novel sitting technique: A case series. *Med (Baltim)* 2018;97:e12538. doi: 10.1097/MD.00000000000012538, PMID 30313041