

CASE REPORT

Medicine Science 2019;8(1):239-41

Fascia iliaca block for postoperative analgesia in a hip fracture patient

Onur Baran¹, Ayhan Sahin², Bunyamin Kir¹, Irem Ates¹

¹Palandoken State Hospital, Department of Anesthesiology and Reanimation, Erzurum, Turkey

²Namik Kemal University, Medicine Faculty, Department of Anesthesiology and Reanimation, Tekirdag, Turkey

Received 13 May 2018; Accepted 25 June 2018

Available online 01.10.2018 with doi: 10.5455/medscience.2018.07.8889

Copyright © 2019 by authors and Medicine Science Publishing Inc.

Abstract

The incidents of hip fractures rise as the population gets older. Weakness of bones cause fractures easily due to falling, which can occur by balance deficiency, side effects of medications and maneuvering difficulties through environmental hazards. Patients with hip fractures are cared by clinicians in different specialties who should be familiar with the management of these injuries. The fascia iliaca compartment block, an easy to perform and low-cost procedure, provides efficient perioperative analgesia for patients who suffer from hip or femur fractures. Increased success rates are due to the facilitation of the block via ultrasound which is easily accessible in many operation theaters and emergency services. Anterior thigh and knee surgery as well as analgesia following hip and knee procedures are the basic indications for this block. In this case, we performed an ultrasound guided fascia iliaca compartment block for postoperative analgesia after a hip fracture surgery.

Keywords: Fascia iliaca compartment block, ultrasound guidance, hip fracture

Introduction

The incidents of hip fractures rise as the population gets older. Weakness of bones cause fractures easily due to falling, which can occur by balance deficiency, side effects of medications and maneuvering difficulties through environmental hazards. Patients with hip fractures are cared by clinicians in different specialties who should be familiar with the management of these injuries [1].

The fascia iliaca compartment block (FICB) was initially described by Dalens et al. on children using a landmark technique. It is an easy to perform and a low-cost procedure which provides efficient perioperative analgesia for patients who suffer from hip or femur fractures.

Increased success rates are due to the facilitation of the block via ultrasound which is easily accessible in many operation theaters and emergency services. Anterior thigh and knee surgery as well as analgesia following hip and knee procedures are the basic indications for this block [2].

The fascia iliaca block (also called the fascia iliaca compartment block) is considered an alternative to a femoral nerve or a lumbar plexus block [3].

Case Report

A 65-year-old male who had hip fracture after ground-level falling was scheduled for operation by the Orthopedics and Traumatology Department. The patient was evaluated bedside preoperatively. He was 75 kg and had no systemic disease, no surgery history but 40 packets/year smoking history. The patient was consulted to the Department of Chest Diseases. Chronic obstructive pulmonary disease was diagnosed and general anesthesia was found to be too risky for him. As blood count and coagulation marks were in normal ranges, he was planned for regional anesthesia.

After getting patient's written consent, elective surgery was planned. Routine monitorization including standard heart rate, electrocardiography, non-invasive arterial pressure and peripheral oxygen saturation was made after getting the patient to the operation theatre. 2 mg midazolam was admitted iv for sedation. The patient was positioned lateral decubitus to upside the fractured extremity. Spinal anesthesia was admitted in sterile conditions and 2 ml of 0.5% bupivacaine was preferred for a hypobaric solution. Surgery was allowed after ensuring adequate anesthesia. After 3 hours of surgery with no intraoperative complications, fascia iliaca

*Corresponding Author: Onur Baran, Palandoken State Hospital, Department of Anesthesiology and Reanimation, Erzurum, Turkey
E-mail: dronurbaran@hotmail.com

block was agreed for postoperative analgesia.

The patient was positioned supine, inguinal crease was cleared with povidone-iodine and covered up sterilely. Sonosite M-Turbo ultrasound machine (FujiFilm SonoSite®, WA, USA) with 6–13 mHz linear probe covered by sterile cover and 100 mm 21G ultrasound needle (PAJUNK® GmbH Medizintechnologie, Germany) was used.

Firstly, pulsating femoral artery was found in the infrainguinal region with the transversely located ultrasound probe. While moving the probe laterally, sartorius muscle, iliacus muscle and iliac fascia were identified. As the analgesia of spinal anesthesia continues, no local anesthesia was made and the needle was inserted in an in-plane technique. Under the ultrasound image, the needle was clearly visible and skin, subcutaneous adipose tissue, fascia lata, sartorius muscle and the posterior fascia of sartorius muscle was passed (Figure 1). While passing through the fascia lata and the posterior fascia of sartorius muscle, “pop” was felt twice. 30 ml of 0.5% bupivacaine was injected with care with episodic aspirations. The distribution of local anesthetic between the sartorius and iliacus muscles was observed (Figure 2).

After the procedure, the patient was transferred to the orthopedics and traumatology service and the 2nd, 6th, 12th VAS scores were recorded as 0 – 1 and 3. The patient was comfortable and had no severe pain after the operation. As no postoperative complication was seen, the patient was discharged from hospital by Orthopedics and Traumatology Department after 3 days.



Figure 1. The advancing needle through the sartorius muscle



Figure 2. The spread of local anesthetic in the compartment of iliac fascia

Discussion

Hip fracture patients are in severe pain and pain treatment is traditionally based on systemic opioids, which have a large potential for side effects in these frail and elderly patients [4-7]. Postoperative analgesia has many benefits such as decreased morbidity, facilitation of postoperative rehabilitation and reducing postoperative hospital discharge time [8, 9].

In this case, we preferred ultrasound guided fascia iliaca block to facilitate the management of postoperative pain after hip surgery, which is very painful. As we could have made spinal anesthesia in lateral decubitus position easily, we made the blockade under spinal anesthesia just after the surgery.

Domaç et al. aimed to search the effect of preoperative fascia iliaca compartment block on postoperative analgesic use in patients with femoral fracture. 40 patients were enrolled in the study, where 20 patients were in the block group and 20 patients were in the control group. In the block group, they made fascia iliaca block preoperatively and performed spinal anesthesia 30 minutes after the block. Postoperative VAS scores were as follows: 0.8 ± 1.1 , 2.8 ± 0.8 , 2.9 ± 0.7 , and 2.4 ± 0.5 , which was significantly less than the control group and they found it easier to position the patient for spinal anesthesia in the block group [10].

Among hip fractures and thrombectomy operations, fascia iliaca block is used for reduction of hip dislocations in the emergency rooms. A 22-year-old man with no previous history of hip pain or injury was brought to the emergency service after a motor vehicle accident. After the evaluation, an anterior dislocation of the hip was diagnosed. The physicians elected to perform a fascia iliaca block with light sedation to reduce the dislocation. Under ultrasound guidance 40 ml of 0.2% ropivacaine was injected and the hip was reduced after adequate block was supplied [11].

Kaldırım et al. also performed a fascia iliaca block for dislocated hip reduction in emergency service. After being struck by a motor vehicle, a 26-year-old male was brought to the emergency service. A total of 30 ml injection was used for this patient, which contained of 10 ml normal saline, 10 ml 0.5% bupivacaine and 10 ml 1% lidocaine and the reduction of the dislocated femur was made successfully [12].

Conclusion

Ultrasound guided fascia iliaca compartment block can be used for reducing hip dislocations, positioning patients for spinal anesthesia in hip fractures, postoperative analgesia and even for thrombectomy. It's easy and safe to perform, long lasting and efficient for postoperative analgesia.

Competing interests

The authors declare that they have no competing interest.

Financial Disclosure

The financial support for this study was provided by the investigators themselves.

Onur Baran ORCID:0000-0003-0007-6315

Ayhan Sahin ORCID:0000-0002-3539-2353

Bunyamin Kir ORCID:0000-0001-6158-4351

Irem Ates ORCID:0000-0001-9867-5011

References

1. Katherine Walker Foster M. Hip fractures in adults 2014. Available from: <https://www.uptodate.com/contents/hip-fractures-in-adults> - H31.
2. Range C, Egeler C. Fascia Iliaca Compartment Block. *Anaesthesia Tutorial of The Week*. 2010;193.
3. Hadzic A. *Hadzic's Textbook of Regional Anesthesia and Acute Pain Management*, Secon Edition: McGraw-Hill; 2017.
4. Roberts HC, Eastwood H. Pain and its control in patients with fractures of the femoral neck while awaiting surgery. *Injury*. 1994;25:237-9.
5. Herr K, Titler MG, Schilling ML, et al. Evidence-based assessment of acute pain in older adults: current nursing practices and perceived barriers. *Clin J Pain*. 2004;20:331-40.
6. Foss NB, Kristensen MT, Kristensen BB, et al. Effect of postoperative epidural analgesia on rehabilitation and pain after hip fracture surgery: a randomized, double-blind, placebo-controlled trial. *Anesthesiology*. 2005;102:1197-204.
7. Foss NB, Kristensen BB, Bundgaard M, et al. Fascia iliaca compartment blockade for acute pain control in hip fracture patients: a randomized, placebo-controlled trial. *Anesthesiology*. 2007;106:773-8.
8. Capdevila X, Barthelet Y, Biboulet P, et al. Effects of perioperative analgesic technique on the surgical outcome and duration of rehabilitation after major knee surgery. *Anesthesiology*. 1999;91:8-15.
9. Kehlet H, Holte K. Effect of postoperative analgesia on surgical outcome. *Br J Anaesth*. 2001;87:62-72.
10. Aladdin Domaç, Ebru Kelsaka, Sarıhasan B. The effect of preoperative fascia iliaca compartment block on postoperative analgesic use in patients with femoral fracture. *J Anaesth*. 2015;23:144-51.
11. West C, Ranganath Y, Willey M. Fascia Iliaca Block for Reduction of Anterior Native Hip Dislocation: a Case Report. *Iowa Orthop J*. 2017;37:19-21.
12. Kaldırım U, Dural F, Tuncer SK, et al. Fascia iliaca compartment block in dislocated hip reduction. *Afr J Emerg Med*. 2015;5:e11-e3.