MEDDOCS Open Access Publisher

ISSN: 2639-9229

International Journal of Innovative Surgery

Open Access | Case Report

Applicatıon of femoral + sciatic block in high risk patients: Two cases

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Received: Dec 14, 2018

Accepted: Apr 22, 2019

Published Online: Apr 26, 2019

Journal: International Journal of Innovative Surgery

Publisher: MedDocs Publishers LLC

Online edition: http://meddocsonline.org/

Keywords: Anesthesia; Ultrasonography; Femoral sciatic block

Abstract

Peripheral nerve blocks can be easily applied in many upper and lower limb surgeries, and it is a frequently preferred method of anesthesia for high-risk day-case patients. Combined sciatic femoral nerve block is the technique most commonly used in the lower extremities, as it provides adequate anesthesia, easy recovery, and patient and surgeon satisfaction with low invasive risk. The use of Ultrasonography (US) in regional anesthesia blocks has been increasing in recent years. The most important advantage of ultrasonography in regional block application is to reduce the local anesthetic dose and complications. A simultaneous display of the needle and nerve relationship is provided when the block is applied with ultrasound. In this report, two cases applied with ultrasound guided femoral-sciatic block are presented.

Introduction

Peripheral nerve blocks can be easily applied in many upper and lower extremity surgeries. Successful surgical anesthesia and postoperative analgesia can be obtained if anatomic localization, dermatome and myotome detection are well evaluated. Patient comfort is ensured without general anesthesia and the complications of general anesthesia can be avoided in high-risk patients, especially in emergency patients [1].

The success rates of peripheral nerve blocks, which are now being used frequently with Ultrasound (US), have increased and the use of local anesthetics has decreased and successful results have been obtained [2]. This situation allows multiple peripheral blocks to be performed simultaneously.

The cases are here presented where femoral and sciatic blocks were applied as the anesthesia method in two patients who were at high risk of general anesthesia for amputation and lower extremity grafting.

Case report

A 64-year old, 170-cm, 95-kg, male patient presented with an injury to the left ankle that had started with a rash on the outer edge of his left foot. For the treatment of the wounds, the patient went to the Infectious Diseases Department and was treated with antibiotics and consultation by the Plastic Surgery Department for debridement and graft. The patient history showed hypertension ongoing for 14 years, Parkinson's disease,

Cite this article: Baki ED, Taşkapili K, Akici ÖÇ. Applıcatıon of femoral + sciatic block in high risk patıents: Two cases. Int J Innov Surg. 2019; 2(1): 1006.

atrial fibrillation for 10 years and Cerebrovascular Disease (CVD) (2 times). The patient was evaluated in the Neurology, and Cardiology clinics. Left hemiplegia and muscle weakness in all extremites had developed after CVD attacks 12 years previously and the patient could only walk with bilateral crutches. Echocardiography performed by cardiology revealed 30% EF, and the patient was planned to have sciatic + femoral block.

The patient was informed about the procedure, and standard anesthesia moniterization was performed. Blood pressure was 150/90 mmHg, pulse 95 beat/ min, and SpO2 97%.

The patient was positioned supine and the procedure area was first wiped with an antiseptic solution. The linear probe was prepared, then placed transversely over the femoral nerve in the lateral aspect of the femoral artery in the inguinal region. Using the in-plane technique, 20 ml of the local anesthetic mixture was applied. In the sciatic block, the knee and hip joint were slightly flexed in the lateral position. After preparation of the convex probe under sterile conditions, it was placed between the coccyx and trochanter. With the oval appearance of the nerve under the gluteus maximus muscle, 20 ml of the local anesthetic mixture was applied using the out-of-plane approach. After assessing that the block quality was adequate, an open wound 5x4cm in size, on the lateral malleolus of the left foot, was debrided. A 5x5cm partial thickness skin graft was taken from the left thigh. The graft was applied to cover the defect. The operation was terminated after proper closure, then dressings and a short-leg splint were applied. During the operation, no additional sedation or analgesia was required by the patient. There were no complications in the operation, which lasted for approximately 2 hours.

Case report 2

A 78-year old, 175-cm, 72-kg male patient underwent anesthesia for left knee amputation. The patient had a history of Chronic Obstructive Pulmonary Disease (COPD), Diabetes Mellitus (DM), and Coronary Artery Disease (CAD). A coronary artery-bypass had been previously applied and multiple toe amputations. Pleural effusion in the right lung was confirmed by tomography. Echocardiography showed impaired left ventricular systolic function, segmental wall motion defect, minimal aortic regurgitation, moderate to severe mitral regurgitation, mild tricuspid regurgitation and 30-35 mmHg of PABS value. The patient, who was diagnosed as high risk by the Cardiology and Chest Diseases Department, was planned to undergo ultrasound-guided sciatic and femoral nerve block for maintenance of anesthesia.

The patient was positioned supine and standard anesthesia monitorization was performed. Blood pressure was 130 / 90 mmHg, pulse 85 bpm, and SpO2 95%. Nasal oxygen of 2lt/min was administered, venous cannulation was applied and 0.5 mg of midazolam was administered. First, the femoral block was performed in the supine position then the sciatic nerve block was performed in the prone position under ultrasound guidance. The operation lasted 2 hours and was ended problem-free without the need for any additional anesthetic agent.

Discussion

The use of ultrasound in regional anesthesia blocks has been increasing in recent years. Peripheral nerve blocks are traditionally performed with a nerve stimulator. However, even under the most favorable conditions, these methods are blind procedures and the relationship of the needle to the nerve and the area of local anesthetic are not known when the block is made.

The most important advantage of ultrasound in regional block application is the reduction of local anesthetic dose and complications. When the block is applied under ultrasound guidance, it is ensured that the relationship between the needle and the nerve is shown simultaneously [3,4]. In these two patients, successful femoral-sciatic blocks were applied with US for the verification of position and nerve identification.

Although spinal and epidural anesthesia is most common in regional anesthesia, hypotension and sympathetic denervation due to vasodilatation below the block level may aggravate an existing situation in patients with cardiac problems [5,6]. Peripheral nerve blocks can be easily applied in many upper and lower extremity surgeries. The most important advantages of peripheral nerve blocks compared to general anesthesia and central blocks are fewer respiratory and hemodynamic effects (eg, sympathetic block, hypotension, bradycardia) a lower risk of developing complications related to anesthesia and a shorter recovery time [7,8]. Kurnaz et al. [9] compared unilateral spinal anesthesia and combined sciatic-femoral block in respect of hemodynamics, postoperative analgesia and recovery characteristics in knee arthroscopy. The combined sciatic-femoral nerve block showed an adequate anesthetic effect with the same clinical profile as low-dose unilateral spinal anesthesia, but showed better analgesia than spinal anesthesia in terms of VAS scores in the first 6 hours postoperatively. In both of the current cases, no problems were encountered during or after the operation.

Peripheral nerve blocks have a minimal effect on hemodynamics and may be the ideal option in high-risk patients who cannot tolerate a minimal reduction in hemodynamic response [10]. In both of the current cases, it was decided that the combined femoral-sciatic block technique would be an appropriate option for perioperative stable hemodynamics and effective pain palliation.

In conclusion, peripheral blocks can be considered to be good alternatives in high-risk patients.

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