



Case Report

Successful management of above knee amputation with combined and modified nerve blocks

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Abstract

We report a successful management of a case of methicillin-resistant *Staphylococcus aureus* positive right lower limb cellulitis for above knee amputation under combined nerve blocks. The ongoing sepsis, thrombocytopenia, and severe respiratory infection with wheeze made us avoid both neuraxial block and general anesthesia and plan for a nerve block. We instituted a modified high inguinal femoral block along with sciatic and lateral femoral nerve blocks separately to successfully conduct the case. We decided to report as there were not as many cases as ours in the literature.

Key words: Above knee, amputation, nerve blocks, sepsis


INTRODUCTION

Cellulitis and sepsis of lower limbs present with different degrees of systemic involvement. Many a time, the clinical features of coagulopathy preclude a neuraxial block. In these situations, general anesthesia is usually considered. If one or two factors, which may interfere with a safe conduct of general anesthesia, for example, an active wheezing being present, the possibility of administering nerve blocks come up. Usually, below knee amputations are done with nerve blocks; however, if the incision extends above the knee, patients tend to complain of pain as blocks may be insufficient.^[1] In our case, we administered combined lower limb blocks alone

to manage a case of cellulitis with thrombocytopenia for above knee amputation.

CASE REPORT

A 65-year-old, 50 kg, female presented with the complaints of progressive pain and swelling over the right lower limb for the past one week following a thorn prick. This was associated with a history of high-grade fever, chills, rigor, productive cough, and mild dyspnea. She was a known case of type 2 diabetes mellitus, for which she was taking oral hypoglycemic drugs. Laboratory workup showed that the wound was infected with methicillin-resistant *Staphylococcus aureus*

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and hence, intravenous linezolid was started. Further, the wound infection was spreading upward until the knee joint hence decided for above knee amputation. On examination, the patient was conscious, drowsy, responding to commands. She was pale, febrile with temperature of 101 F, pulse rate 113/min, blood pressure 130/80 mmHg, with a mild tachypnea. Her central nervous system and cardiovascular examination were normal. Her investigations showed that she was anemic with Hb 7.8, total count was 32,500, and her platelet count was 63,000. Her renal parameters were mildly elevated with a prothrombin time (international normalized ratio) of 1.4. Her glycemic control was poor capillary blood glucose trending >250 mg/dL. On considering ongoing sepsis in the presence of active infectious focus, it was considered to do above knee amputation for infection control and as a lifesaving procedure. Central neuraxial anesthesia was deferred because of low platelet count and lack of time of correction with platelet infusions. However, in view of difficult airway with active respiratory tract infection and severe wheeze, general anesthesia was considered relatively unsafe. We administered nebulized salmeterol with budesonide to optimize the respiratory system. We planned to take up this case under peripheral nerve block alone. Hence, we did femoral nerve and lateral femoral cutaneous nerve (LFCN) blocks in supine position and sciatic nerve block in prone position with a mixture of local anesthetics. Fifteen milliliters of 0.5% bupivacaine with 15 ml 2% lignocaine 1:200,000 adrenaline and 10 ml of normal saline was prepared. We used 15 ml (femoral), 15 ml (sciatic), and 3 ml (LFCN) of the mixture, respectively, under ultrasound guidance. Regarding femoral nerve, the ultrasound probe was placed just above inguinal ligament and the nerve was blocked 2 cm above the inguinal ligament. LFCN was blocked according to classically described technique. Switching the patient to prone position, the sciatic nerve was visualized at the subgluteal region between the ischial tuberosity and greater trochanter of the femur. On checking the sensory and motor components of two major nerves were blocked satisfactorily. On specific checking for obturator nerve, there was a loss of sensation on the medial side of the knee with decreased power of adductors. Surgery was uneventful with a minimal discomfort during maneuvering of the lateral thigh which settled with 40 mg of intravenous pethidine. Intraoperative one unit packed cell, with two units each of fresh frozen plasma and platelets, was transfused. Glycemic control was achieved with intravenous short-acting insulin, and further, it was maintained with sliding scale of short-acting insulin to keep random blood glucose at 150 mg%. Nebulized drugs were continued. Platelet count improved to 100,000 the next day. Her postoperative period was uneventful.

DISCUSSION

Reports of above knee amputation under nerve blocks are not common in the literature. Baddoo *et al.*^[2] have done a case series of 10 above knee amputations under nerve block alone in which they did landmark guided “three in one nerve block” and sciatic nerve block by Labat’s approach, but they had encountered partial block failure in three cases. We may attribute this to lack of using ultrasound for performing nerve block. This was not in our case as we used ultrasound. Bech *et al.*^[3] had done a case series of four patients of above knee amputation done under combination of nerve blocks. They had used remifentanyl infusion in two cases. They have admitted that they have exceeded toxic levels of local anesthetic drug. Vloka *et al.*^[4] in their study of site of needle insertion of femoral nerve blocks suggested that the inguinal crease level is ideal. We demonstrated that positioning the needle 2 cm above the inguinal ligament for femoral block might decrease drug requirements with more chances of blocking obturator nerve. Active wheezing and difficult airway made us defer general anesthesia because of possible tight bag situation.^[5] Neuraxial anesthesia was not considered as the platelet count was below 75,000.^[6] Hence, the clinical decision of administering isolated nerve block was taken.^[7] As such, ours is a single case report which is its biggest limitation, but we suggest some modification in block execution for a more successful conduct of such a case in large series studies. In our case, the incision was a little lower than the mid-thigh to escape a contribution from posterior cutaneous nerve of thigh.

CONCLUSION

Above knee amputations can be successfully done under combined lower limb blocks in sick patients and a modified high femoral block can improve success rates with less requirements of local anesthetics.

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Conflicts of interest

There are no conflicts of interest.

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