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Case Report

Ultrasound-Guided Peripheral Nerve Block for Tension Band Wiring of Patella in a High-Risk Patient with Coronary Artery Disease

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Abstract

This case report highlights the use of ultrasound-guided peripheral nerve block (PNB) as an anesthetic technique for a high-risk 75-year-old male patient with a history of coronary artery disease undergoing tension band wiring of the patella. The patient presented with a fracture following a fall and had multiple comorbidities, including diabetes, hypertension, and reduced cardiac function (EF 35%). A combination of sciatic, femoral, lateral femoral cutaneous, and obturator nerve blocks was administered using ultrasound guidance to ensure precise localization and minimize risks associated with central neuraxial anesthesia. The procedure resulted in effective regional anesthesia, perioperative hemodynamic stability, and successful surgical outcomes. This case underscores the efficacy and safety of ultrasound-guided PNB in managing lower extremity surgeries in critically ill and high-risk patients.

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KEYWORDS: Ultrasound, Patella, Coronary Artery Disease, non-cardiac surgery

1. INTRODUCTION

Patients undergoing non-cardiac surgery following coronary revascularization represent a distinctive subset of patients, with their specific set of challenges. Effectively addressing the ischemic risk during the perioperative phase is pivotal to ensuring successful management in this group.1

2. METHODOLOGY

A 75-year-old Male presented with an alleged history of falling from stairs with a fractured patella right, no history of head injury/loss of consciousness/ seizures/ vomiting/ Ears Nose Throat bleed. The patient was diagnosed with hypertension and diabetes mellitus 24 years back and has been consistently taking prescribed medications as directed by their physician. He underwent Coronary Artery Bypass Grafting 24 years back,

followed by a Percutaneous Transluminal Coronary Angioplasty in the left circumflex artery six years ago. The patient is currently on an insulin regular, tab. Clopidogrel, tab. Aspirin, tab. Metoprolol, tab. Telmisartan, tab. Amlodipine, tab. Indapamide. The patient's ECG showed T wave inversion in lead I, V1-V3, and 2D echo findings: EF-35%, concentric Left ventricular hypertrophy, grade II LVDD, mild AR, no MR/TR/AS

Blood investigation revealed Hb-11.6g/dl, hbA1c-9.7. The liver function test and Kidney function test were within normal limits. The patient was planned for tension band wiring of the patella right and was accepted under ASA grade III and Tab. Clopidogrel was stopped 5 days before the day of surgery. On the morning of the surgery, the patient was instructed to discontinue insulin, Tab. Telmisartan, and Tab. Aspirin. However, they were advised to continue Tab. Amlodipine, Tab. Indapamide, and Tab. Metoprolol, taking them with a sip of water.

Anesthetic Management:

Intra as well as post-operative complications were explained to the patient. Written and informed High-Risk consent was obtained.

Preoperative vitals: BP-130/80mmHg, HR-62 bpm, SpO2-98% on room air. Nil Per Oral status was confirmed to be 10 hours before surgery.

Standard intra-operative monitoring was performed and 5l/min oxygen was delivered via face mask. The patient was given an injection of midazolam 1 gram and an injection of fentanyl 25 micrograms. A high-frequency linear array transducer and ultrasound were used to trace the sciatic, femoral, lateral femoral cutaneous, and obturator nerves.

A 45 ml volume of local anesthetic (25 ml of 0.75% ropivacaine 10 ml of 2% lignocaine with adrenaline and 10 ml of normal saline) was slowly injected with intermittent aspiration after final confirmation. A popliteal sciatic nerve block (13ml), femoral nerve block (14ml), lateral femoral cutaneous block (8ml), and obturator nerve block (5ml each at the anterior and posterior branches) were administered.2

3. RESULT

The patient was handed over to the surgery team and Tension band wiring was performed. The patient obtained sufficient regional block at the area of surgery without further analgesia. The surgery required 85 minutes and vital signs were stable throughout the surgery.

4. DISCUSSION

The current case report demonstrates that ultrasound-guided PNB may be suitable for surgery of the lower extremity. Ultrasound-guided PNB can provide perioperative hemodynamic stability to patients known to have poor cardiovascular conditions. Furthermore, ultrasound guidance enables the anesthesiologist to visualize the vascular structures, which makes this technique feasible for patients with coagulopathies and those receiving anticoagulation.3

Compared with central neuraxial anesthesia, PNB demonstrates several advantages as PNB minimizes pruritus, urinary retention, and hypotension, and reduces the risk of spinal hematoma and infection. In addition, patients with antiplatelet or anticoagulant therapy can undergo certain PNB procedures without significant risk.

5. CONCLUSION

Ultrasound-guided peripheral nerve block can be an excellent anesthetic technique for patients posted for surgery of the lower extremities, especially patients who are critically ill or considered high risk.

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