Fascia Iliaca block as the sole anesthesia technique in a patient with recent myocardial infarction for emergency femoral thrombectomy

Leena Harshad Parate, Nagaraj Mungasuvali Channappa, Vinayak Pujari, Sadasivan Iyer
Department of Anesthesia, M S Ramaiah Medical College, Bengaluru, Karnataka, India

Address for correspondence:
Dr. Leena Harshad Parate, Department of Anesthesia, M S Ramaiah Medical College, MSRIT Post, Bengaluru - 560 054, Karnataka, India.
E-mail: dr_leenag@yahoo.co.in

ABSTRACT
Acute limb ischemia is a surgical emergency that precludes prolonged preoperative cardiac evaluation. A 70-year-old female with recent myocardial infarction was posted for emergency transfemoral thrombectomy. We discuss the perioperative anesthetic considerations in this case. Fascia iliaca block can be used as sole anesthesia technique for transfemoral thrombectomy in high-risk patients.

Key words: Fascia iliaca block, thrombectomy, Ultrasonography

INTRODUCTION
Acute limb ischemia (ALI) is a surgical emergency that precludes prolonged preoperative cardiac evaluation. Surgery for lower limb revascularization is associated with a high risk of cardiac morbidity and mortality.[1] Here, we present a case of successful anesthesia management of ALI in a patient with a recent myocardial infarction (MI) who underwent femoral thrombectomy under fascia iliaca block (FIB).

CASE REPORT
A 70-year-old female a known case of hypertension and insulin-dependent diabetes mellitus was admitted with complaints of acute onset breathlessness (NYHA Class IV). Her electrocardiogram (ECG) changes were suggestive of acute anterior wall MI. Two-dimensional echo showed mild left ventricular systolic dysfunction with ejection fraction 40% and hypokinetic apex and apical anterolateral septum. Patient was diagnosed as acute anterior wall MI with cardiogenic shock and taken up for percutaneous transluminal coronary angioplasty and implantation of drug eluting stents to proximal and mid left anterior descending artery. An intraaortic balloon pump (IABP) was inserted in the right femoral artery. She was started on heparin and furosemide infusion. IABP was removed on the 3rd day. After removal of IABP patient complained of pain in the right lower limb and peripheral pulses were not felt. A vascular surgeon reference was sought. Injection clexane 60 ug subcutaneous was given. A Doppler study revealed superficial femoral artery occlusion. She was diagnosed as ALI and was posted immediately for transfemoral thrombectomy.

On preanesthetic examination, patient was conscious, tachypneic. Bilateral pitting edema was noted. Her blood pressure was 150/70 mm Hg, pulse rate was 90/min, regular. On auscultation, bilateral basal crepitations and rhochi were present. Her saturation on the oxygen mask was 92%. Her Hb was 9 gm% and rest of the hematological investigations were normal. Her arterial blood gas on oxygen revealed pH-7.5, PCO₂ -31.2, PO₂ -57.8, HCO₃⁻ -26.7. She was on ecosprin and clopidogrel apart from her routine antihypertensive medication and insulin. Patient had taken breakfast 3 h before surgery. She was accepted as American

Access this article online
Quick Response Code:
Website: www.saudija.org
DOI: 10.4103/1658-354X.152886
Society of Anesthesiologists physical status grade III emergency and high-risk consent was taken.

Patient was positioned supine with 15° head up tilt. Oxygen 5 l/min was given via face mask. Cardiac resuscitation drugs and equipments were kept ready. Routine monitors (five lead ECG, $SpO_2$, temperature) were attached. Arterial canula was inserted in left radial artery and right internal jugular vein was cannulated for invasive monitoring. Right sided FIB was performed under ultrasound guidance. Under all aseptic precaution, local infiltration to skin was done. A linear probe was used to identify femoral artery, iliacus muscle and fascia iliaca. A 22 G 100 mm needle (Stimuplex®, B. Braun, Melsungen, Germany) needle was inserted in-plane and was positioned below fascia iliaca [Figure 1]. Tip of needle position was confirmed by giving 2cc of drug that showed drug deposition below fascia iliaca. 40cc of 0.375% ropivacaine was given and proper spread of drug was confirmed. After 20 min sensory block was tested with 20 G hypodermic needle over anterior, medial and lateral aspect of thigh. Motor block for femoral nerve was assessed by examining knee extension. There was a complete loss of sensation over entire anterior aspect of thigh and adequate motor block was achieved. Patient was sedated with intravenous (IV) dexmedetomidine 0.5 mcg/kg bolus over 10 min, followed by an infusion of 0.5 mcg/kg/h for the duration of the surgery. She was kept warm by active warming blanket. Femoral arteriotomy was done, and thrombus was removed [Figure 2]. She lost around 500cc of blood that was replaced with blood. Her intraoperative hemodynamics was stable, and $SpO_2$ remained above 94%. The duration of surgery was 2 h. She was shifted to cardiac care unit. On 2nd postoperative day patient developed supraventricular tachycardia that was reverted with IV amiodarone. Her postoperative course was uneventful. She was discharged home after 15 days.

**DISCUSSION**

Intraaortic ballon pump is a circulatory assist device to improve ventricular performance. The counterpulsation improves the myocardial oxygen supply simultaneously reducing the oxygen demand.[2] It is used in various cardiac conditions, acute MI with cardiogenic shock being most common. Its complications consists of thrombocytopenia, ALI, thromboembolism. ALI is one of the major complication seen in approximately 26.7% of patients.[3] Female gender, history of diabetes and peripheral vascular disease are known risk factors.

Anesthesia for lower limb revascularization consists of general anesthesia, central neuraxial anesthesia and peripheral regional block. Our patient was full stomach hence we avoided general anesthesia. Spinal anesthesia in a patient with recent MI could result in sudden hemodynamic instability due to sympathetic block. Additionally there was a concern of giving central neuraxial block in anticoagulated patient. Hence we selected field block as an anesthesia technique. The advantages of regional block are minimal hemodynamic fluctuations, vasodilation and excellent postoperative analgesia.

Fascia iliaca block is an anterior approach to lumbar plexus block. It reliably block femoral nerve and lateral femoral cutaneous nerve. Block of few adjacent nerves like ilioinguinal, genitofemoral and obturator nerve is also possible. Thus it provides excellent anesthesia to anterior part of thigh. FIB has been studied extensively in orthopedic surgery and it has shown to provide better perioperative analgesia in patients with hip and femur fractures.[4,5] Advantage of FIB over femoral nerve block is that it is a compartment block. Drug is deposited below fascia iliaca which is distant from femoral neurovascular. Thus it minimizes the risk of intravascular or intraneural
injection. Ultrasound guided FIB improves the success of all three nerves block. We are the first to report its use as a sole anaesthetic technique for femoral thrombectomy in a patient with recent MI.

Cardiac risk assessment and preoperative optimization is important in these patients but it should not delay limb or life threatening surgeries. The goal of anesthesia is to maintain hemodynamic stability, adequate hydration, normothermia and excellent postoperative analgesia. Dexmedetomidine infusion was used intraoperatively to alleviate anxiety, agitation and pain during surgery. Dexmedetomidine doses up to 0.7 μg/kg/h has been shown to be safe in the intensive care unit.

Thus we conclude patients with ALI is a acute surgical emergency with multiple cardiac morbidities. FIB is a safe technique for anesthesia in these high risk patients.

REFERENCES

1. Tovey G, Thompson JP. Anesthesia for lower limb revascularization. Contin Educ Anaesth Crit Care Pain 2005; 5:89-92.
2. Krishna M, Zacharowski K. Principles of intra-aortic balloon pump counterpulsation. Contin Educ Anaesth Crit Care Pain 2009;9:24-8.
3. Sirbu H, Busch T, Aleksic I, Friedrich M, Dalichau H. Ischaemic complications with intra-aortic balloon counter-pulsation: Incidence and management. Cardiovasc Surg 2000;8:66-71.
4. Haines L, Dickman E, Ayvazyan S, Pearl M, Wu S, Rosenblum D, et al. Ultrasound-guided fascia iliaca compartment block for hip fractures in the emergency department. J Emerg Med 2012;43:692-7.
5. Elkhdair S, Mortazavi J, Chester A, Pereira M. Single fascia iliaca compartment block for pain relief in patients with fractured neck of femur in the emergency department: A pilot study. Eur J Emerg Med 2011;18:340-3.
6. Dalens B, Vanneuville G, Tanguy A. Comparison of the fascia iliaca compartment block with the 3-in-1 block in children. Anesth Analg 1989;69:705-13.
7. Dolan J, Williams A, Murney E, Smith M, Kenny GN. Ultrasound guided fascia iliaca block: A comparison with the loss of resistance technique. Reg Anesth Pain Med 2008;33:526-31.
8. Jones GM, Murphy CV, Gerlach AT, Goodman EM, Pell LJ. High-dose dexmedetomidine for sedation in the intensive care unit: An evaluation of clinical efficacy and safety. Ann Pharmacother 2011;45:740-7.

How to cite this article: Parate LH, Channappa NM, Pujari V, Iyer S. Fascia iliaca block as the sole anesthesia technique in a patient with recent myocardial infarction for emergency femoral thrombectomy. Saudi J Anaesth 2015;9:198-201.

Source of Support: Nil, Conflict of Interest: None declared.