Case Report
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Bilateral Transverse Abdominis Plane Block as a Sole Anaesthetic Technique in a Patient with Peripartum Cardiomyopathy Posted for Emergency Caesarean Section

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Abstract

Transverse Abdominis Plane block (TAP) is a most effective technique in providing intra-op and post-operative analgesia for abdominal surgeries. However it can be considered as a sole anaesthetic technique in high risk patients. We report a case of parturient female with peri-partum cardiomyopathy having Left Ventricular ejection fraction of 25%, a high risk case posted for emergency caesarean section. The surgery was successfully conducted under ultra-sound guided bilateral TAP block which was used as a sole anaesthetic technique to decrease the peri-operative morbidity and maternal mortality.

Keywords: Caesarean Section, Peripartum Cardiomyopathy, TAP Block

Introduction

The TAP block is a regional anaesthetic technique that provides effective Peri and post operative analgesia after abdominal surgery. This was first described by Rafi[1] who injected local anaesthetic through the iliolumbar triangle of Petit within TAP utilizing the double-loss of resistance technique. The ultrasound-guided TAP block is highly effective and easy technique for rendering analgesia for post anterior abdominal incision as supported by many published literatures[2–5].

There are reports of use of TAP block as a sole anaesthetic technique in surgeries like appendicectomy, hernioplasty, caesarian section[2], total abdominal hysterectomy[5], prostatectomy[4] and laparoscopic surgeries[6].

Since LSCS in a peri-partum cardiomyopathy patient is associated with risk of both maternal and fetal morbidity and mortality with either general anaesthesia or central neuraxial blockage. It was considered to give bilateral USG guided TAP block as a sole anaesthetic technique.

Case Report

A 26 year old female patient Gravida 2, Para 1, Living 1 with 32 weeks of amenorrhea of 50 kgs weight was admitted to hospital with three days history suggestive of labor pain. She had breathlessness and on clinical and laboratory evaluation, was diagnosed as peri-partum cardiomyopathy with ejection fraction of 25%, global hypokinesia, grade 1 Left Ventricular Diastolic Dysfunction. Other investigations included Hb: 9.3 gm%, platelets – 1.4 lakh/cu mm , PT-14seconds INR- 1.2, serum electrolytes: Na^+:140 meq/dl K^+: 4.6 meq/dl , cl^-: 104 meq/dl, B. urea: 23mg/dl , S. creatinine: 1.2 mg/dl.

The Patient developed premature rupture of membranes and was posted for emergency LSCS. Pre anaesthetic

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evaluation revealed a pulse rate of 110 bpm, blood pressure 160/90 mm of Hg and respiratory rate of 22 breaths/min. Heart sounds were normal without any murmurs or added sounds, auscultation of chest revealed bilateral vesicular breath sounds heard with scattered basal crepitations. Peripheral oxygen saturation (SpO_2) was 93% at room air.

Patient was accepted under ASA physical status – IV (E) and to avoid intra-operative and post-operative complications of general anaesthesia and central neural blockade, we opted USG guided Bilateral TAP block as sole anaesthesia technique.

Informed high risk consent was obtained after explaining the risk of anaesthesia and surgery. Patient was shifted with oxygen supplementation in left lateral decubitus position to the operating room. Pulseoximeter, non invasive blood pressure (NIBP), Electrocardiogram (ECG) monitors were connected. Two Intravenous (IV) lines were secured. Midazolam 1 mg, fentanyl 50 microgram were administered for sedating the patient.

Under aseptic precautions, bilateral TAP block was administered under ultrasound guidance using a Mindray (GE Medical system, USA) portable ultrasound machine with a 12l-RS linear probe (7-13 MHz) covered with sterile plastic sheath (Figure 1).

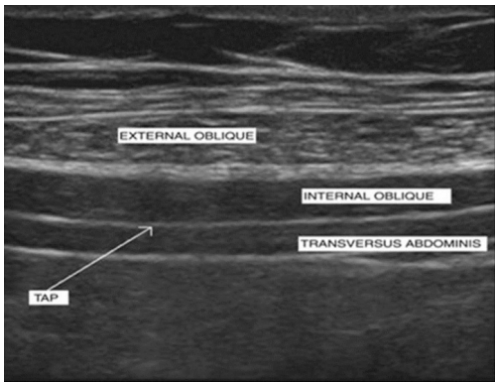

Figure 1. Ultrasound image showing the plane of injection between internal oblique and transverse abdominis.

Using 23G Quincke spinal needle 20ml 0.25% bupivacaine and 20 ml 1% lignocaine was injected bilaterally in equal divided doses. Dermatomes were checked for complete pain relief, which was achieved after 25 min. Pre peritoneal infiltration was done with 10 ml of 0.25% bupivacaine before incising the peritoneum. LSCS was done, total duration of surgery was 25 mins and a live male baby of 1.7 kg extracted and was shifted to NICU. Patient's haemodynamics were stable throughout the surgery

After extraction of baby, oxytocin 5 units was administered slowly as an infusion over 15 min. Patient complained of pain during closure of uterus, which subsided with intravenous propofol 20mg and fentanyl 30 mcg. Patient was comfortable throughout the rest of the procedure and post operative period. Patient was later shifted to cardiology department and was discharged after 10 days with complete recovery.

Discussion

TAP block provides highly effective postoperative analgesia, when used as part of multi-modal analgesic regimen, in patients requiring abdominal wall incisions for total abdominal hysterectomy, LSCS, prostatectomy, appendectomy and open cholecystectomy[2–5,7–9].

Hence it can be inferred that TAP block is capable of giving good analgesic effect in the region between T10 and L1 following a single posterior injection and to achieve a higher block it needs to be augmented with a subcostal injection.

The haemodynamic instability induced by anaesthetic drugs and laryngoscopy may further complicate the already existing compromised circulation in a parturient with peripartum cardiomyopathy tilting the balance towards adverse outcomes. Spinal, epidural or paravertebral blocks will cause significant sympathetic block, resulting in major cardiovascular changes and other physiological effects, whereas peripheral nerve blocks only affect somatic innervation and leave the sympathetic efferent intact. If complete denervation of viscera is required, vagal afferents have to be blocked by celiac plexus block[10,11].

There are reports where inotropes had to be used to support cardiovascular system when either general anaesthesia or central neuraxial block was used in such patients[12,13].

In the present case, bilateral TAP block under USG guidance resulted in adequate somatic analgesia without causing any hemodynamic disturbance. Intraoperative administration of opioids, propofol and midazolam supplemented the visceral analgesia.

Conclusion

TAP block can be an alternative anaesthetic technique which provides satisfactory anaesthesia in a high risk patient with minimal haemodynamic disturbances and minimal effects on neonate.

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