Direct PEC block: Simplified and effective alternative when US-PEC block is difficult

Blanco has introduced an inter-fascial plane pectoralis nerve (PECs) block 1 and 2 in 2011 for analgesia after breast and other chest wall surgeries.[1] It has also some advantages over thoracic paravertebral block (TPVB) and epidural block. Unlike TPVB and epidural blockade, this is not associated with sympathetic blockade-induced haemodynamic changes. In TPVB, medial pectoral, lateral pectoral, long thoracic and thoracodorsal nerves are not blocked. Hence, there are chances of lack of adequate analgesia in breast surgeries involving axillary dissection.[2] Several studies and case reports have established its role for postoperative analgesia, as well as for intraoperative and postoperative anesthesia with sedation without general anaesthesia for breast surgeries.[2-4]

Though introduction of ultrasound has increased the accuracy and safety of regional anaesthesia, availability of ultrasound(US) machine and need of certain amount of training in smaller settings is still a limitation. In some situations, like carcinoma breast with invasion in the underlying muscle layers or with ulcerative/fungating mass, understanding clear sono-anatomy or placement of probe is a major challenge. In patients with deranged coagulation profile, regional blocks are associated with some known risks.

Here we are presenting three cases of successful pain management by direct PEC block where USG-guided PEC block was not feasible. Our first case was a 52 years old female, posted for modified radical mastectomy (MRM) with a large fungating ulcerative breast lesion with local invasion making the pectoral, clavipectoral fascia, and serratus anterior muscle difficult to appreciate in sono-anatomy. Our second patient was a 56 years old female, known case of coronary artery disease (CAD) with drug eluting stent *in situ*, on anticoagulation with mildly elevated international normalised ratio (INR = 1.92) posted for MRM; so we planned to avoid any regional block. Our third patient was a 33 years old female with huge phyllodes tumor of breast, posted for mastectomy. Written informed consent was obtained from all three patients. They were educated about 11 points numerical pain score (NRS) before surgery. They received standard uniform general anaesthesia for surgical procedure with fentanyl (2 μg/kg) at the time of induction and injection paracetamol (15 mg/kg) intraoperatively. We had decided to administer injection tramadol (100 mg) as postoperative rescue analgesia only after patient's demand (NRS >3).

Table 1: NRS at various time intervals

NRS (Post-op)	0 h	1 h	2 h	4 h	8 h	10 h	12 h	14 h	16 h	18 h
Case 1	0	1	1	2	3	5	5	6	6	8
Case 2	0	0	1	1	2	2	3	4	4	6
Case 3	0	0	0	0	1	2	3	4	4	6

In all these above-mentioned patients, we had decided to administer direct PEC block postoperatively by instillation of 10 ml of 0.5% levobupivacaine with dexmedetomidine (1 μg/kg) in the fascial plane between pectoralis major and minor and 10 ml of 0.5% levobupivacaine with dexmedetomidine (1 μg/kg), between pectoralis minor and superficial border of serratus anterior muscle after resection of breast tissue and achieving haemostasis under vision, taking all aseptic and antiseptic precautions with the help of surgeons. This provides analgesia by blocking the pectoral, intercostobrachial, 3rd–6th intercostal and thoraco-dorsal nerves.[5] Perineural dexmedetomidine as adjuvant to local anaesthetics has shown to shorten the onset and prolong the duration of sensory and motor blockade.[6] We decided against putting catheter for prolongation of analgesia because of high chances of catheter blockade because of blood collection, dislodgement, and high chances of infection because of presence of catheter in close proximity of operated site.

We found satisfactory analgesia (NRS <4) for 10–14 h postoperatively without any side effects [Table 1]. Patients demanded rescue analgesia only after 10, 12.5, and 14 h, respectively. Thus, we want to convey that, on the background of better understanding of the nerve supply of chest wall, direct PEC block can be used as an effective, simple, safe, and less time-consuming alternative technique for postoperative analgesia after breast surgeries.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

Nidhi Arun, Raushan K Jha, Raja Avinash

Department of Anaesthesia, Indra Gandhi Institute of Medical Sciences, Patna, Bihar, India

Address for correspondence:
Dr. Nidhi Arun,
E/302, Jalalpur Heights, Mansarovar Colony, RPS More, Patna, Bihar - 801 503, India.
E-mail: janya.mukesh@yahoo.com

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