Newer regional analgesia interventions (fascial plane blocks) for breast surgeries: Review of literature

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ABSTRACT

Surgical resection of the primary tumour with axillary dissection is one of the main modalities of breast cancer treatment. Regional blocks have been considered as one of the modalities for effective perioperative pain control. With the advent of ultrasound, newer interventions such as fascial plane blocks have been reported for perioperative analgesia in breast surgeries. Our aim is to review the literature for fascial plane blocks for analgesia in breast surgeries. The research question for initiating the review was ‘What are the reported newer regional anaesthesia techniques (fascial plane blocks) for female patients undergoing breast surgery and their analgesic efficacy?’ The participants, intervention, comparisons, outcomes and study design were followed. Due to the paucity of similar studies and heterogeneity, the assessment of bias, systematic review or pooled analysis/meta-analysis was not feasible. Of the 989 manuscripts, the present review included 28 manuscripts inclusive of all types of published manuscripts. 15 manuscripts directly related to the administration of fascial plane blocks for breast surgery across all type of study designs and cases were reviewed for the utility of fascial plane blocks in breast surgeries. Interfascial blocks score over regional anaesthetic techniques such as paravertebral block as they have no risk of sympathetic blockade, intrathecal or epidural spread which may lead to haemodynamic instability and prolonged hospital stay. This review observed that no block effectively covers the whole of breast and axilla, thus a combination of blocks should be used depending on the site of incision and extent of surgical resection.

Key words: Breast surgeries, fascial plane blocks, interfascial plane block, mastectomy, regional analgesia

INTRODUCTION

Breast cancer is one of the common malignancies among women, accounting for 25%–32% of all female cancers in India. Surgical resection of the primary tumour with axillary dissection is one of the main modalities of breast cancer treatment. The most common modality for anaesthesia is general anaesthesia with or without regional blocks. It has been reported that 40% of the females report moderate-to-severe pain in the immediate post-operative period after breast cancer surgery. Acute post-surgical pain leads to delayed discharge from post-operative recovery area, impairs pulmonary and immune functions, increases risk of ileus, thromboembolism, myocardial infarction and may lead to increased length of hospital stay. It is also an important factor leading to the development of chronic persistent post-operative pain in almost half of the patients. Post-operative pain, stress and use of morphine have been elucidated as factors responsible for increased risk of metastasis. Hence, an effective perioperative pain management of patients...
undergoing breast surgery is essential. Regional blocks have been considered as one of the modalities for effective perioperative pain control. They have an opioid-sparing effect, and allow early mobilisation and early discharge from hospital. With the advent of ultrasound, newer interventions such as fascial plane blocks have been reported for perioperative analgesia in breast surgeries [Table 1]. The objective of this review was to evaluate the newer options for regional interventions in patients undergoing breast surgery and to suggest further research and practices. Our aim in this paper is to analyse the literature reporting the use of fascial plane blocks and to assess their efficacy as alternate modes of analgesia in breast surgeries.

METHODS

The research question for initiating the review was ‘What are the newer regional techniques (fascial plane blocks) reported for female patients undergoing breast surgery and their analgesic efficacy?’ The participants, intervention, comparisons, outcomes and study design (PICOS) format was followed for this review as per PRISMA statement. The components included were as follows.

Participants
Studies enrolling female adults undergoing breast surgery.

Intervention
Interventions included the use of any interfascial plane blocks for perioperative analgesia in patients undergoing breast surgery.

Comparisons
It included both the regional techniques and other intravenous method of analgesia.

Outcomes
The outcomes were pain scores and analgesic efficacy.

Study designs
This review included prospective, retrospective, randomised, non-randomised, blinded, non-blinded or cohort studies. Due to the paucity of studies, we also included case reports and case studies.

The explorative search was done from PubMed, Cochrane Library, Google Scholar and Embase databases for all the related manuscripts till December 2017. The keywords used included ‘analgesics’, OR ‘analgesia’, OR ‘nerve block’, OR ‘plexus block’, OR ‘plane block’, OR ‘regional anesthesia’, OR ‘anaesthesia’, OR ‘infiltration’ AND ‘mammoplasty’, OR ‘mastectomy’, OR ‘breast surgery’, OR ‘breast cancer surgery’ and OR ‘breast augmentation’. The assessed manuscripts were further checked for their bibliography for any missing manuscripts and further manual search for these articles was undertaken. The titles and abstracts were manually screened for assessing the suitability for inclusion into the review. Due to the paucity of similar studies and heterogeneity, the assessment of bias, systematic review or pooled analysis/meta-analysis was not feasible. Hence, we report the quasi-systematic review of fascial plane blocks for breast surgery.

RESULTS

Of the 989 manuscripts, the present review included 28 manuscripts inclusive of all types of published manuscripts that fulfilled the ‘PICOS’ criteria as defined for our research question. Of these, only 15 manuscripts which were directly related to the administration of fascial plane blocks for breast surgery across all type of study designs and cases were reviewed for the utility of fascial plane blocks in breast surgeries. The rest of the articles were comments and editorials in general [Figure 1].

![Figure 1: PRISMA flow diagram for inclusion of manuscripts](image-url)
Table 1: Fascial plane blocks for perioperative analgesia in breast surgeries

| Block          | First described | Target nerve | Target plane | Area covered | Advantage                                                                 | Drawback                                                                 |
|----------------|-----------------|--------------|--------------|--------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------|
| PECS1\(^2\)    | Blanco, 2011    | Lateral and medial pectoral nerves | Between pectoralis major and minor | Anterior chest wall (especially useful for procedures involving insertion of breast expanders/prosthesis) | Superficial muscles easy to visualise and perform block under ultrasound guidance | Not useful for surgeries involving axilla and intercostal nerves |
|                |                 |              |              |              | Minimum complications as compared to paravertebral or thoracic epidural motor and sensory block, no sympathetic blockade | Anterior branches of intercostal nerves spared |
|                |                 |              |              |              | Thus, minimum residual effect such as persistent hypotension and can be used in day care surgeries |                                           |
| PECS2\(^2\)    | Blanco, 2012    | Lateral and medial pectoral nerves | Between pectoralis major and minor and pectoralis minor and serratus anterior | Anterior and lateral part of the chest and axilla | Same as PECS1 | Deeper muscle and plane involved and requires needle redirection thus technically difficult than PECS1 |
|                |                 | Upper intercostal nerves |              |              | Covers whole of breast and axilla thus specifically useful for tumour resections, sentinel lymph node dissection (i.e., procedures involving breast and axilla) | Risk of intravascular injection into pectoral branch of thoracoacromial artery |
|                |                 | Long thoracic nerve of bell |              |              | Medial part of breast (parasternal branches of intercostal nerves) may be spared | Medial part of breast and can be used in day care procedures involving chest and axilla |
| SAP block\(^1\) | Blanco, 2013    | Thoracic intercostal nerves (T2-T9) | Two planes described between LD and serratus anterior | Lateral part of thorax, especially useful for incisions on anterolateral chest wall | Serratus anterior easily identifiable under ultrasound | Does not cover the posterior chest wall |
|                |                 |              | Between serratus anterior and external intercostals | | No multiple needle insertions or changes in direction (unlike PECS2) thus easy to learn and perform |                                           |
| ESP block\(^3\) | Forrero, 2016   | Dorsal and ventral rami of spinal nerve roots | Between erector spinae and intercostal muscles | Anterior and posterior chest wall, axilla and medial aspect of upper arm | Transverse process of vertebra used as landmark, it serves as convenient sonographic landmark and a backstop for needle advancement, thus easy to learn and safe to perform | Limited data on efficacy in breast surgeries |
|                |                 |              |              |              | Posterior part of chest wall easily covered | Cutaneous sparing over sternum (overlapping innervation from contralateral side) |
| PIFB\(^4\)     | Hong, 2016      | Anterior cutaneous branch of intercostal nerve | On lateral side of sternum between pectoralis major and external intercostal | Medial part of breast | Can be used to augment area covered by PECS and SAP block | Upper part of breast innervated by supraclavicular nerve may be spared in all these blocks |

SAP – Serratus anterior plane; ESP – Erector spinae plane; PIFB – Pecto intercostal fascial block; LD – Latissimus dorsi; PECS – Pectoralis Nerve Block

Table 2 summarises the articles included, technique of fascial plane block used and the main outcome related to it.[2-23]

**DISCUSSION**

Various regional anaesthetic techniques such as local wound infiltration, thoracic epidural, thoracic paravertebral block (PVB), and more recently, ultrasound-guided fascial plane blocks have been used to provide analgesia in breast surgeries. These techniques not only manage acute post-operative pain but also help prevent chronic post-surgical pain and may prevent cancer recurrence.[6]

PVB has long been considered the gold standard technique in patients undergoing breast cancer surgery. The potential complications of PVB include vascular puncture, pneumothorax, intrathecal or epidural spread and sympathetic block leading to haemodynamic instability.[7] With the introduction of ultrasound in the operating room, regional anaesthesia practice has undergone a remarkable change. The conventional techniques are being replaced by newer and safer techniques. In breast surgeries, ultrasound-guided newer interfascial plane blocks have been described which are being used as effective alternatives to invasive procedures such as PVB.

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### Table 2: Published studies for use of fascial plane blocks for breast surgeries

| Authors         | Publication (type and title)         | Main objective                                                                 | Technique                          | Outcome                                                                 | Remark                                                                 |
|-----------------|-------------------------------------|--------------------------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------|
| Khemka et al.   | Case report: Ultrasound-guided SAP block in breast reconstruction surgery | The main aim was blockade of thoracodorsal nerve along with other nerves supplying the anterolateral chest wall using a combination of PEC1 block along with modified SAP block in patients undergoing breast conservation surgery with dissection of the axillary nodes followed by reconstruction | Two patients                       | Adequate intraoperative and post-operative analgesia was observed in both the patients | Combination of PEC1 block and SAP block is a safe and efficient technique in breast reconstructive surgery. This modification is compared to originally described by Blanco et al. Provided a better view of LD and SAM and helped in reaching the thoracodorsal nerve and its plexus lying beneath the LD, thus better analgesia |
| Zocca et al.    | Case series: Ultrasound-guided SPB for treatment of post-mastectomy pain syndromes in breast cancer patients | SPB for chronic pain after breast surgery                                          | Eight patients with chronic post-mastectomy pain syndrome               | All 8 women experienced pain relief for 2-3 days to 12 weeks following the SPB | SPB provides a novel, alternative means of managing chronic pain after breast surgery |
| Othman et al.   | Randomised control trial: Efficacy and safety of ketamine added to local anaesthetic in modified pectoral block for management of post-operative pain in patients Undergoing MRM | Compare the analgesic efficacy and safety of modified PEC block with ketamine plus bupivacaine versus bupivacaine in patients undergoing MRM | Two groups of 30 patients each                                      | Study group: Ketamine group patients were given ultrasound-guided, PEC block with 30 ml of 0.25% bupivacaine plus ketamine hydrochloride (1 mg/kg). Patients were followed up for 48 h post-operatively for vital signs, score, first request of rescue analgesia and total morphine consumption, sedation score, and side effects | Addition of ketamine to modified PEC block prolonged the time to first request of analgesia and reduced total opioid consumption without serious side effects. This drug combination in PEC block needs to be further investigated |
| Hong et al.     | Case report: Thoracic interfascial nerve block for breast surgery in a pregnant woman | Use a combination of ultrasound-guided modified PEC2 block and PIFB               | PEC2 block with 20 ml of 0.3% ropivacaine deposited between pectoral major and minor, and between pectoral minor and SAM PIFB with 15 ml of 0.3% ropivacaine, targeting the plane between pectoral major and external intercostal muscle | Excision of breast mass was successfully done without general anaesthesia | Pectoral interfascial nerve block may be inadequate to cover upper part of breast supplied by supraclavicular nerve |
| Kulhari et al.  | Randomised control trial: Efficacy of pectoral nerve block versus thoracic PVB for post-operative analgesia after radical mastectomy | To compare ultrasound-guided PEC2 block with TPVB for post-operative analgesia after MRM | Forty adult female patients Block administered before the induction of anaesthesia Group 1: TPVB with 25 ml 0.5% ropivacaine Group 2: PEC2 block using 25 ml 0.5% ropivacaine Patient-controlled morphine analgesia for post-operative analgesia | None of the patients required additional fentanyl during the intraoperative period Duration of analgesia was significantly prolonged and 24 h morphine consumption less in patients receiving the PEC2 block compared with TPVB | PEC2 block can be used safely for post-operative analgesia in patients undergoing breast surgeries with axillary dissection |

Continued...
Table 2: Contd...

| Authors          | Publication (type and title) | Main objective                                                                 | Technique                                                                 | Outcome                                                                                           | Remark                                                                                                                   |
|------------------|-----------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Bashandy et al.[19] | Randomised control trial:  | To compare the quality of analgesia after MRM surgery using general anaesthesia and PECS blocks versus general anaesthesia alone | Two groups of 60 patients each Group control: General anaesthesia alone  
Group study: 30 ml of 0.25% bupivacaine used for USG-guided PECS block along with general anaesthesia  
Data collected: Intraoperative fentanyl consumption; post-operative VAS pain scores (at 0, 3, 6, 9 and 24 post-operative h); need for PCA morphine; time to PCA administration as well as morphine requirements at 0-4, 4-12 and 12-24 post-operative h; PONV scores; sedation scores; PACU stay; and post-surgical hospital stay | Statistically significant, lower intraoperative fentanyl requirement, lower visual analogue scale pain scores, lower post-operative morphine consumption ($P<0.001$) in the PECS group than in the control group with lesser side effects  
Overall, post anaesthesia care unit and hospital stays were shorter in the PECS group | PECS blocks produce excellent analgesia when combined with general anaesthesia for breast surgery with axillary dissection |
| Hards et al.[20]  | Retrospective study: The effect of SPB performed under direct vision on post-operative pain in breast surgery | To determine the effectiveness of SAP block given under direct vision post-operatively | Sixteen patients who had received a serratus block and 11 patients who only had wound infiltration with 0.375% levobupivacaine with 1:200,000 adrenaline and 1 µg/kg of clonidine | Serratus block resulted in excellent pain control with no adverse effects as compared to wound infiltration alone | SPB may be a useful option for reducing levels of pain experienced by patients undergoing mastectomy |
| Kim et al.[21]    | Case report: Surgical excision of the breast giant fibroadenoma under regional anaesthesia by PECS2 and internal intercostal plane block | An anaesthetic and pain management of excision of breast fibroadenoma under PECS2 and IIPB | Forty ml of 0.375% ropivacaine, injected in 3 planes: 10 ml between pectoralis major and minor, 20 ml between pectoralis minor and SAM, 10 ml over internal intercostal space | Adequate anaesthesia obtained lasting more than 2 h | Breast surgery can be conducted under regional block alone using the combination block |
| Syal et al.[22]   | Randomised double-blind: Comparison of the post-operative analgesic effect of PVB, pectoral nerve block and local infiltration in patients undergoing MRM | To compare the analgesic efficacy of PVB, PECS block and wound infiltration for post-operative analgesia following breast surgery | Sixty-five patients in three groups Group 1: Infiltration at the incision site after surgery  
Group 2: Ultrasound-guided ipsilateral PVB  
Group 3: Ultrasound-guided ipsilateral PECS blocks 1 and 2  
All patients received 21 ml 0.5% bupivacaine with adrenaline as per technique at the end of the surgery before extubation | Post-operative visual analogue scale scores were lower in PVB group compared with others at 0, 2, 4, 12 and 24 h  
Mean duration of analgesia was significantly prolonged in PVB group with lesser rescue analgesic consumption up to 24 h | PVB can thus be considered better than LA infiltration and PECS blocks for providing analgesia after breast surgery |
| Ohgoshi et al.[23] | SIPB for breast surgery | SIPB for perioperative analgesia together with general anaesthesia in patients undergoing partial mastectomy | Patients with breast cancer of upper to lower lateral quadrant or subareolar region were chosen. The patients received general anaesthesia followed by ultrasound-guided SIPB using 30 ml of ropivacaine 0.375%-0.5% | Analgesic effect was obtained for 12-24 h | SIPB provides effective analgesia for breast surgery of upper to lower lateral quadrant and/or subareolar region. However, sensory loss of T1 is difficult to achieve |

Contd...
The utility of these interfascial blocks in breast surgery is based on the nerve supply of breast. Neural innervations of the anterior chest wall and breast involve various nerves which need to be blocked effectively for optimal analgesia [Table 3]. Blockade of the T2–T9 dermatome would be acceptable for optimal analgesia [3].

**Table 2: Contd...**

| Authors           | Publication (type and title) | Main objective | Technique | Outcome | Remark |
|-------------------|------------------------------|----------------|-----------|---------|--------|
| Chakraborty et al.[24] | Case series: COMBIPECS, the single-injection technique of pectoral nerve blocks 1 and 2: A case series | Single-injection technique combining both PECS 1 and 2 blocks in patients undergoing breast surgery with axillary clearance | 21 patients After induction of anaesthesia, ultrasound-guided COMBIPECS was administered with 20 ml of 0.25% levobupivacaine between pectoralis minor and SAM and 10 ml between pectoralis major and minor muscle | No intraoperative analgesic requirement Post-operative pain intensity was assessed using visual analogue scale at 0 (at recovery), 1, 4, 8, 12 and 24 h after surgery Only three patients had VAS >3 who were given a rescue analgesic Patient satisfaction was 100% | The single-injection technique described, saves time and an extra needle Penetration However, it may not be easy to administer in obese patients, where two needle passes may be required |
| Moon et al.[25] | Case report: Pectoral nerve block (PECS block) with sedation for BCS without general anaesthesia | Authors used PECS block in a patient scheduled for breast surgery | A 49-year-old female scheduled to undergo BCS For PECS1 block and PECS2 block, 10 ml and 20 ml of 0.25% levobupivacaine were injected respectively. Sufficient analgesia for surgical procedure was obtained after 15 min from that time. Dexmedetomidine was infused for sedation | Analgesic effect of PECS block lasted about 8 h; and analgesics were not required for 1 day | PECS blocks can be used as an alternative to general anaesthesia in certain breast surgeries |
| Veiga et al.[26] | Case report: ESP block for radical mastectomy: A new indication? | Asses efficacy of ESP block as part of multimodal analgesia in a patient undergoing radical mastectomy | Block given before induction of anaesthesia in a 40-year-old woman, who underwent radical mastectomy due to breast cancer | Opiod sparing effect seen intraoperatively. During hospitalisation, the patient reported no pain (0/10 in numeric scale), without resorting to rescue analgesia | ESP block is an easy fast and safe technique for post-operative analgesia in breast surgery |
| Ohgoshi et al.[27] | Case report: 2 cases Continuous ESP block provides effective perioperative analgesia for breast reconstruction using tissue expanders | Asses the efficacy of bolus and continuous infusion of local anaesthetic in ESP as a method of analgesia in patients undergoing breast excision and reconstruction with tissue expanders | Erector spinea block given before induction of anaesthesia Area of analgesia was broad on POD 1-2 (T2-T8 and T3-T7 in patients 1 and 2 respectively), and the patients experienced little to no pain at rest | The ultrasound-guided ESP block is a recently developed procedure for providing extensive thoracic analgesia. ESP block can be considered as a first-line analgesic method for breast reconstruction surgery using tissue expanders | The single-injection technique described, saves time and an extra needle Penetration However, it may not be easy to administer in obese patients, where two needle passes may be required |
| Gupta et al.[28] | Randomised control trial - analgesic efficacy of ultrasound-guided PVB versus SPB for MRM | Compare the post-operative analgesic profile of ultrasound-guided - PVB or (SPB in patients undergoing MRM) | 25 patients in each group, ultrasound guided PVB at T4 and SPB at 5th rib given with 20 ml of 0.5% bupivacaine, after induction of general anaesthesia | Duration of analgesia was significantly longer in PVB group Total morphine consumption in first 24 h post-operatively was significantly more in SPB group | SPB may be used as an alternative technique of analgesia for breast surgeries, but PVB provides longer duration of analgesia |

SAP – Serratus anterior plane; VAS – Visual analogue scale; USG – Ultrasonography; PONV – Post-operative nausea and vomiting; PACU – Postanaesthetic recovery room; IIFB – Internal intercostal plain block; SAM – Serratus anterior muscle; LD – Latissimus dorsi; PIBF – Pecto intercostal fascial block; TPVB – Thoracic paravertebral block; PVB – Paravertebral block; SIPB – Serratus-intercostal plane block; BCS – Breast conserving surgery; ESP – Erector spinae plane; POD – Post-operative day; SPB – Serratus plane block; MRM – Modified radical mastectomy; PCA – Patient Controlled analgesia; PECS – Pectoralis Nerve Block; LA – Local Anaesthetic

The utility of these interfascial blocks in breast surgery is based on the nerve supply of breast. Neural innervations of the anterior chest wall and breast involve various nerves which need to be blocked effectively for optimal analgesia [Table 3]. Blockade of the T2–T9 dermatome would be acceptable for optimal analgesia.
pain management in modified radical mastectomy. Interfascial plane blocks described for analgesia of chest have been found to be covering these dermatomes and thus appear to be effective for perioperative analgesia following breast surgeries [Table 1].\textsuperscript{[6-14]} Since the description of these newer and safer interfascial plane blocks, various authors have studied their use in breast surgeries. At present, it is difficult to determine the superiority of one technique over the other in view of insufficient data. However, it appears that these techniques would be promising in future. Large well-conducted prospective randomised studies are required to confirm the utility of either of these interfascial plane blocks for breast surgeries.

Majority of the authors advocate giving a combination of blocks to cover analgesia over whole of the chest wall, axilla and shoulder.\textsuperscript{[14-24]} The majority of evidence in the application of interfascial plane blocks for breast surgeries exists in the form of case reports or case series. In the reported case reports, these blocks were used with general anaesthesia and were useful in reducing intra- and post-operative analgesic requirements.\textsuperscript{[14,16,21]} Combination of blocks was used as per the area of the surgery or anaesthesiologists preference and no standard guidelines exist on blocks to be used for specific surgeries. In general, pectoralis nerve block 1 (PECS1) and serratus anterior plane (SAP) block when used alone lead to sparing of axilla, medial and posterior part of chest, and hence may be combined with PECS2 to cover the axilla; and pectoro-intercostal fascial block (PIFB) to cover medial part of the breast.\textsuperscript{[8,9,12,14]} Erector spinae block theoretically can provide analgesia over the posterior part of the chest wall, although limited evidence exists in literature for its use in breast surgeries.

As mentioned, a limited number of randomised control trials has been published till date comparing these interfascial blocks with established techniques of analgesia for breast surgeries such as PVB, or comparing these interfascial blocks among themselves for a specific type of breast surgery.\textsuperscript{[23-29]} Among the studies reported, PECS has been compared with thoracic paravertebral in two studies; the results were conflicting, with one showing PECS2 block superior to thoracic paravertebral for post-operative analgesia after breast resection, and the other showing thoracic paravertebral to be superior.\textsuperscript{[18,22]} These studies were not comparable as they had heterogeneous patient criteria, differing types of surgery and variable techniques and drugs for PECS block. A single study has evaluated the addition of adjuvant -ketamine in local anaesthetic in PECS block.\textsuperscript{[17]} Positive results were seen with addition of ketamine in the form of prolonged duration of analgesia. No comment on was made on the ideal dose of ketamine to be added as adjuvant in PECS block.

In the evidence for SAP block, one case series has focused on the use of SAP block with additive dexamethasone for patients having chronic post-mastectomy pain and has shown positive results.\textsuperscript{[16]} A single published randomised controlled trial comparing serratus plane block with paravertebral showed paravertebral to be superior to SAP block for acute post-operative analgesia in patients undergoing modified radical, mastectomy.\textsuperscript{[28]} None of the randomised control trials reported above have followed up the patients for the development of chronic post-operative pain and the benefit of the block given at the time of surgery as a preventive technique to reduce the incidence of chronic post-operative pain has not been studied.
Use of these blocks may have several limitations such as failure of block in altered anatomy or hindrance to surgical electrocautery. In cases where the sonoanatomy of the chest wall may be altered, for example, post-mastectomy contractures of the chest wall, ultrasound-guided interfascial block-like PECS may not be feasible. Alternate techniques of analgesia such as supracavicular brachial plexus block may be used to block the median and lateral pectoral nerves. In addition, intercostal nerve block may be used to effectively manage post-mastectomy pain. Complications such as reduced efficacy of electrocautery due to tissue oedema caused by the collection of local anaesthetic between the muscle layers have been observed. These may be overcome using harmonic scalpel or bipolar cautery. In addition, concerns related to interference of surgical dissection due to deposition of drugs in the fascial plane needs to be studied further. Such complications should be kept in mind and reported in detail in future studies to further fine-tune techniques of block and related changes in surgical technique.

One of the major limitations of this review was difficulty to access evidence in a synthesizable form because of limited literature and heterogeneity across studies to perform meaningful quantitative comparisons. For the same reason, quality assessment for the included manuscript was not feasible. A number of lacunae exist in our knowledge regarding the efficacy of the fascial blocks for breast surgeries. Further, randomised control trials are needed in homogenous group of breast procedures to evaluate each of these techniques against established techniques of analgesia such as PVB. In addition, well-structured randomised studies are needed to compare these blocks against each other to establish a given technique with maximum efficacy. Attempts should be made to follow-up these patients in long-term to study the effect of these blocks as preventive techniques to prevent the development of chronic pain.

CONCLUSION

Description of the interfascial blocks to cover analgesia for breast surgeries opens up an exciting avenue for the anaesthesiologist. The practice of taking up breast surgeries as day care procedures favour administrating analgesic techniques with minimal residual or adverse effects. Interfascial blocks score over regional anaesthetic techniques such as PVB as they have no risk of sympathetic blockade, intrathecal or epidural spread which may lead to haemodynamic instability and prolonged hospital stay. This review observed that no block effectively covers whole of breast and axilla, thus a combination of blocks may be used depending on the site of incision and extent of surgical resection.

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Conflicts of interest
There are no conflicts of interest.

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