

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

Address for correspondence:

Dr. Rakesh Garg,
Department of
Onco-Anaesthesiology
and Palliative Medicine,
Dr BRAIRCH, All India Institute
of Medical Sciences,
Room No. 139, 1st Floor,
Ansari Nagar,
New Delhi - 110 029, India.
E-mail: drrgarg@hotmail.com

Rakesh Garg, Swati Bhan, Saurabh Vig

Department of Onco-Anaesthesiology and Palliative Medicine, Dr BRAIRCH, All India Institute of Medical Sciences, New Delhi, India

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

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INTRODUCTION

Breast cancer is one of the common malignancies among women, accounting for 25%–32% of all female cancers in India.^[1] 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.^[2] 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.^[3] It is also an important factor leading to the development of chronic persistent post-operative pain in almost half of the patients.^[2,4,5] Post-operative pain, stress and use of morphine have been elucidated as factors responsible for increased risk of metastasis.^[6] Hence, an effective perioperative pain management of patients

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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].

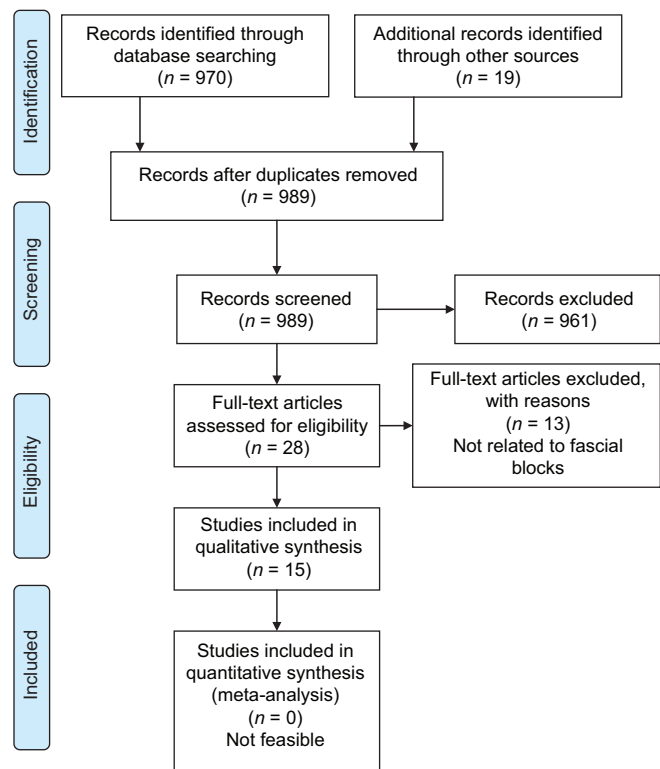


Figure 1: PRISMA flow diagram for inclusion of manuscripts

Table 1: Fascial plane blocks for perioperative analgesia in breast surgeries

Block	First described	Target nerve	Target plane	Area covered	Advantage	Drawback
PECS1 ^[8]	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 Minimum complications as compared to paravertebral or thoracic epidural motor and sensory block, no sympathetic blockade Thus, minimum residual effect such as persistent hypotension and can be used in day care surgeries	Not useful for surgeries involving axilla and intercostal nerves Anterior branches of intercostal nerves spared
PECS2 ^[9]	Blanco, 2012	Lateral and medial pectoral nerves Upper intercostal nerves Long thoracic nerve of bell	Between pectoralis major and minor and pectoralis minor and serratus anterior	Anterior and lateral part of the chest and axilla	Same as PECS1 Covers whole of breast and axilla thus specifically useful for tumour resections, sentinel lymph node dissection (i.e., procedures involving chest and axilla)	Deeper muscle and plane involved and requires needle redirection thus technically difficult than PECS1 Risk of intravascular injection into pectoral branch of thoracoacromial artery Medial part of breast (parasternal branches of intercostal nerves) may be spared
SAP block ^[12]	Blanco, 2013	Thoracic intercostal nerves (T2-T9)	Two planes described between LD and serratus anterior Between serratus anterior and external intercostals	Lateral part of thorax, especially useful for incisions on anterolateral chest wall	Serratus anterior easily identifiable under ultrasound No multiple needle insertions or changes in direction (unlike PECS2) thus easy to learn and perform	Does not cover the posterior chest wall
ESP block ^[13]	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 Posterior part of chest wall easily covered	Limited data on efficacy in breast surgeries Cutaneous sparing over sternum (overlapping innervation from contralateral side)
PIFB ^[14]	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.

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. ^[15]	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 PECS1 block along with modified SAP block in patients undergoing breast conservation surgery with dissection of the axillary nodes followed by reconstruction	Two patients PECSI block - administered at the midclavicular line and then ultrasound probe was moved to the posterior axillary line and placed obliquely over the sixth rib to perform the modified SAP block	Adequate intraoperative and post-operative analgesia was observed in both the patients Patient-reported an overall satisfactory experience with pain control	Combination of PECS1 block and SAP block is a safe and efficient technique in breast reconstructive surgery This modification as 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. ^[16]	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 Ultrasound-guided superficial SAP block with 10 ml of 0.25% bupivacaine and 40 mg methylprednisolone	All 8 women experienced pain relief for 2-3 days to 12 weeks following the SPB Initial improvement in symptoms ranged from 25% relief to near complete pain relief	SPB provides a novel, alternative means of managing chronic pain after breast surgery
Othman et al. ^[17]	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 PECS block with ketamine plus bupivacaine versus bupivacaine in patients undergoing MRM	Two groups of 30 patients each Control group: Ultrasound-guided, PECS block with 30 ml of 0.25% bupivacaine only Study group: Ketamine group patients were given ultrasound-guided, PECS 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 PECS block prolonged the time to first request of analgesia and reduced total opioid consumption without serious side effects	This drug combination in PECS block needs to be further investigated
Hong et al. ^[14]	Case report: Thoracic interfascial nerve block for breast surgery in a pregnant woman	Use a combination of ultrasound-guided modified PECS2 block and PIFB	PECS2 block with 20 ml of 0.3% ropivacaine deposited between pectoralis major and minor, and between pectoralis minor and SAM PIFB with 15 ml of 0.3% ropivacaine, targeting the plane between pectoralis 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. ^[18]	Randomised control trial: Efficacy of pectoral nerve block versus thoracic PVB for post-operative analgesia after radical mastectomy	To compare ultrasound-guided PECS2 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: PECS2 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 was less in patients receiving the PECS2 block compared with TPVB	PECS2 block can be used safely for post-operative analgesia in patients undergoing breast surgeries with axillary dissection

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Table 2: Contd...

Authors	Publication (type and title)	Main objective	Technique	Outcome	Remark
Bashandy et al. ^[19]	Randomised control trial: Pectoral nerves I and II blocks in multimodal analgesia for breast cancer surgery	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

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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	Opioid 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 spinae 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
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 5 th 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; IIPB – Internal intercostal plain block; SAM – Serratus anterior muscle; LD – Latissimus dorsi; PIFB – 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

Table 3: Neural innervations of the anterior chest wall and breast

Nerves	Nerves and branches	Traversing path	Structures supplied
Pectoral nerves from the brachial plexus cords	Lateral pectoral nerve (C5-C7) Medial pectoral nerve (C8-T1)	Between the pectoralis a major and minor muscle Deep to pectoralis minor	Pectoralis major Pectoralis major and minor muscle
T2-T6 spinal nerves: Run in a plane between intercostal muscles and give off lateral and anterior branches	Lateral branches Anterior branches	Pierce the intercostal muscles and serratus anterior in the midaxillary line to give off anterior and posterior cutaneous branches except T2 which does not divide and continues as intercostobrachial nerve Pierce the intercostal muscles and pectoralis minor to cutaneous branches	 Breast in its medial aspect
Long thoracic nerve and thoracodorsal nerve	Long thoracic nerve (C5-C7) Thoracodorsal nerve (C6-C8)	Travels within the scalenus medius muscle runs over the lateral surface of the serratus anterior Courses anterior to the LD muscle	SAM LD muscle

SAM – Serratus anterior muscle; LD – Latissimus dorsi

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].^[8-14] 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.^[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.^[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.^[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.^[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.^[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.^[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.^[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.^[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^[29] or hindrance to surgical electrocautery.^[30] 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 supraclavicular brachial plexus block may be used to block the median and lateral pectoral nerves.^[29] In addition, intercoastal nerve block may be used to effectively manage post-mastectomy pain.^[31] 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.^[30] 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 administering 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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