Guest Editorial

Beyond epidurals: Embracing the realities of fascial plane blocks for truncal and chest wall analgesia

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With increased emphasis on multimodal pain management and a shift towards minimally invasive surgery, many centres are turning away from thoracic epidurals towards fascial plane blocks for truncal and chest wall analgesia. It is important to reflect and ask ourselves if this change in practice has surpassed the evidence. Unfortunately, the evidence is still murky. Randomised controlled trials (RCTs) for many fascial plane techniques are lacking,[1] and there is a real risk of publication bias.[2] Distinguishing between techniques, some of which are slight modifications with different names, is confusing. Variability in dose, volume, concentration and indication makes comparing studies challenging.[3] Part of the enthusiasm for fascial plane blocks over epidurals is due to a perceived favourable risk profile. While it is true that epidurals come with side effects and rare but serious complications, we should not ignore the potential risks of fascial plane blocks, including haematoma, liver and bowel injury, peritonitis and pneumothorax, depending on the anatomical location of the technique,[4] not to mention the risk of local anaesthetic toxicity.[5]

Before considering newer fascial plane blocks over more established techniques, we must recognise their limitations. First, fascial plane blocks tend to provide incomplete analgesia. Local anaesthetic may not be immediately adjacent to the nerves of interest, and some somatosensory fibres may be missed. Visceral fibres, an important target for many intra-abdominal procedures,[6] may be entirely spared. Second, the analgesia provided is inconsistent, which may be due to the complex structure of the fascia and the anatomical variation that impacts local anaesthetic spread, as well as the variable course of somatic and sympathetic nerves through the fascial planes.[7] Together, these limitations may explain the limited efficacy of fascial plane blocks observed in the literature. For example, in the setting of laparoscopic surgery, fascial plane blocks may not provide clinically meaningful benefits compared to multimodal analgesia or intravenous lignocaine.[8]

For midline laparotomy procedures, fascial plane blocks should be compared directly to thoracic epidurals, long considered the gold standard therapy. Although thoracic epidurals may reduce the risk of pulmonary complications, time to extubation, delirium and intensive care unit length of stay compared to opioid-based analgesia,[9] when compared directly to fascial plane blocks for midline laparotomy, the superiority of epidurals is less evident. In RCTs comparing continuous fascial plane blocks to thoracic epidurals, opioid use and length of stay are shorter in favour of epidurals, but differences are small, and evidence is of low quality.[10] Furthermore, pain scores and quality of recovery tend to be similar between groups.[9] It should be emphasised that continuous fascial plane catheters are preferred over single-shot

blocks for benefits beyond the immediate postoperative period.[11] However, continuous fascial plane catheters come with their own challenges and require additional resources for insertion and maintenance.

There are advantages to using fascial plane blocks for midline laparotomy. Rectus sheath or transversus abdominis plane catheters can be inserted in the supine position, which is a benefit as access to the patient's back is limited at the end of surgery. This may be viewed as an argument for improved efficiency over preoperative epidural insertion. Still, it only enhances efficiency if the catheters are surgically inserted since ultrasound-guided insertion of bilateral catheters can be time-consuming in the absence of parallel processing, such as the availability of the block room. However, efficiency may come at the expense of efficacy. Evidence suggests that when rectus sheath catheters are surgically inserted, they often end up in the incorrect fascial plane.[12] Perhaps the most beneficial use-case for fascial plane blocks is when epidurals are contraindicated, such as in cases of potential coagulopathy. For example, the recently described external oblique intercostal block[13] shows promise in facilitating early extubation following liver transplant, although evidence is still evolving.[14] Similarly, high-quality RCTs await to validate the use of parasternal catheters for sternotomy in cardiac surgery,[15] where heparinisation generally precludes epidural use.

For surgery involving the chest wall, fascial plane blocks are more commonly compared to paravertebral blocks, rather than epidural analgesia. For thoracic and breast surgery, serratus plane blocks reduced pain scores, opioid requirements and postoperative nausea and vomiting compared to non-block care and resulted in outcomes similar to those of paravertebral blocks.[16] Erector spinae block may provide noninferior analgesia when compared to paravertebral block for thoracic surgery, but caution should be applied in assuming analgesic equivalency for open thoracotomy as most evidence is from thoracoscopic procedures.[17] The ability of the paravertebral block to provide anaesthesia for awake breast surgery is a reminder that fascial plane blocks only provide analgesia and not anaesthesia.[18] Fascial plane blocks have a role in traumatic rib fractures,[19] particularly in cases of coagulopathy or difficult positioning, but ultrasound-based techniques are challenging in the presence of subcutaneous emphysema seen in trauma, and multiple catheters are required for bilateral rib fractures – an important reminder that thoracic epidurals remain useful in these cases.

Fascial plane blocks play an important role in various settings. However, we must be aware of their limitations, including when they are inappropriate and when we should defer to more established techniques like thoracic epidurals [Figure 1]. When choosing an

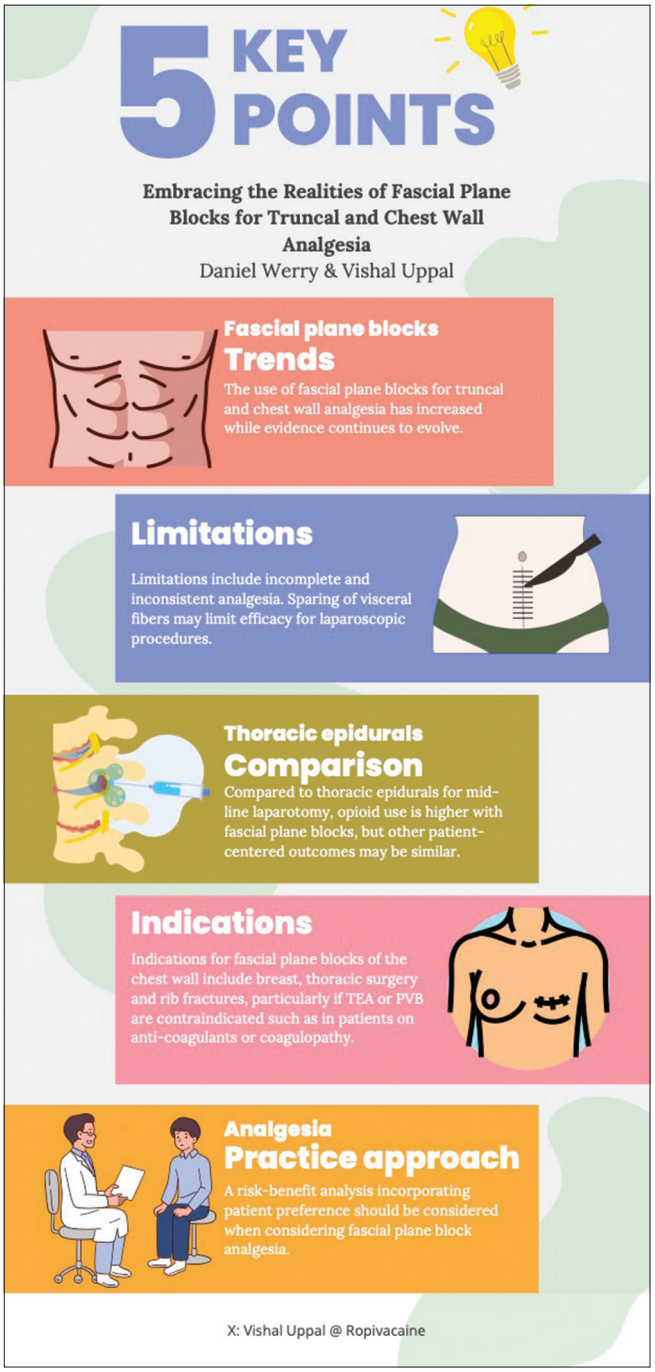

Figure 1: Infographic showing five key points covered in the editorial titled "Beyond epidurals: Embracing the realities of fascial plane blocks for truncal and chest wall analgesia". TEA: Thoracic epidural anaesthesia, PVB: Paravertebral blocks

analgesic technique, discussion of risk and benefit should be evidence-based. Patient preference and risk tolerance should play an important role when the evidence is unclear. There is no question that epidurals have downsides, including potentially difficult insertion and challenges with postoperative management. Inserting epidural catheters requires significant resources and expertise to achieve adequate dermatomal spread and density while minimising motor block and hypotension. However, if epidurals are abandoned in favour of fascial plane blocks, anaesthetists run the risk of deskilling and institutions run the risk of losing the necessary infrastructure to optimise epidural analgesia, which is surely a detriment to our patients.[20]

Disclosures: Dr. Vishal Uppal is an associate editor of the *Canadian Journal of Anesthesia*.

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