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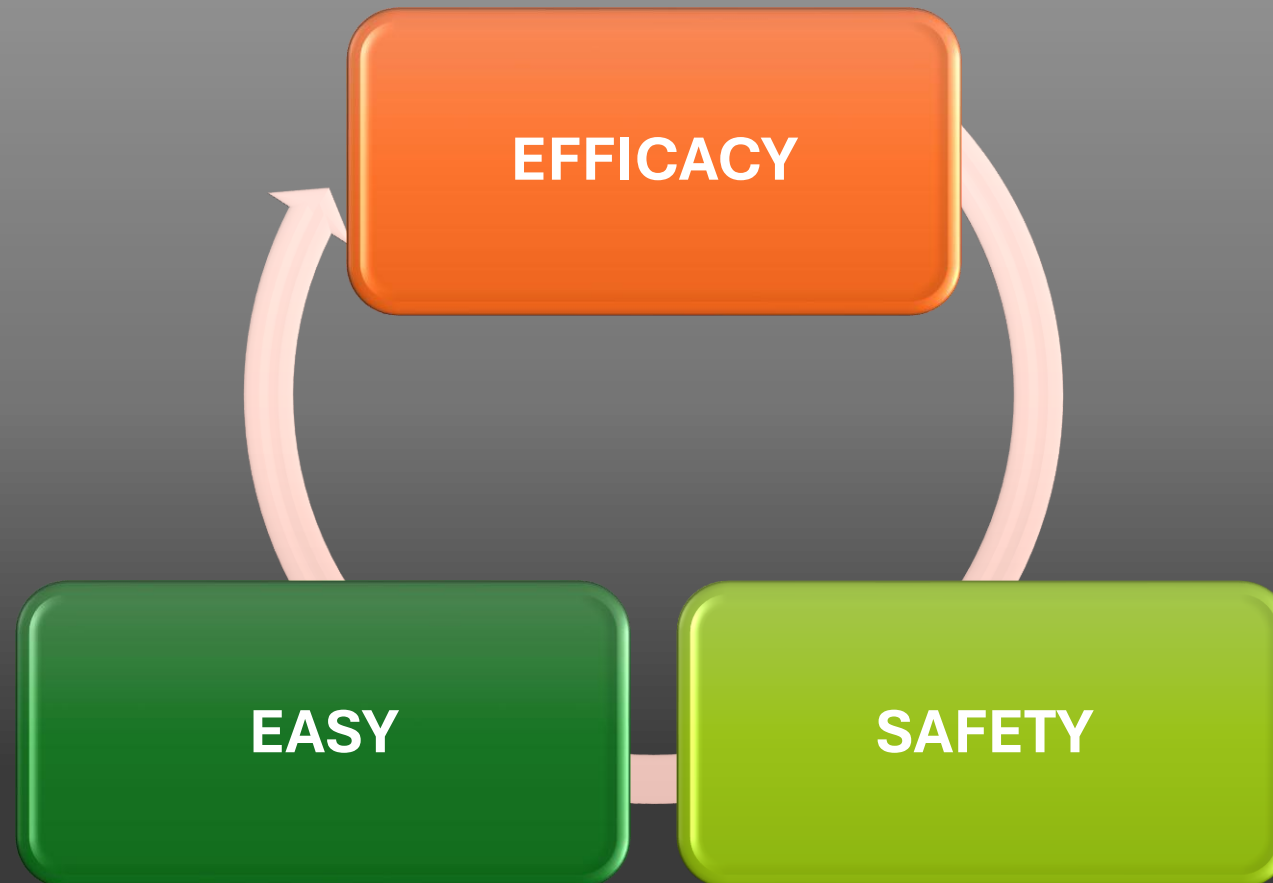


REGIONAL
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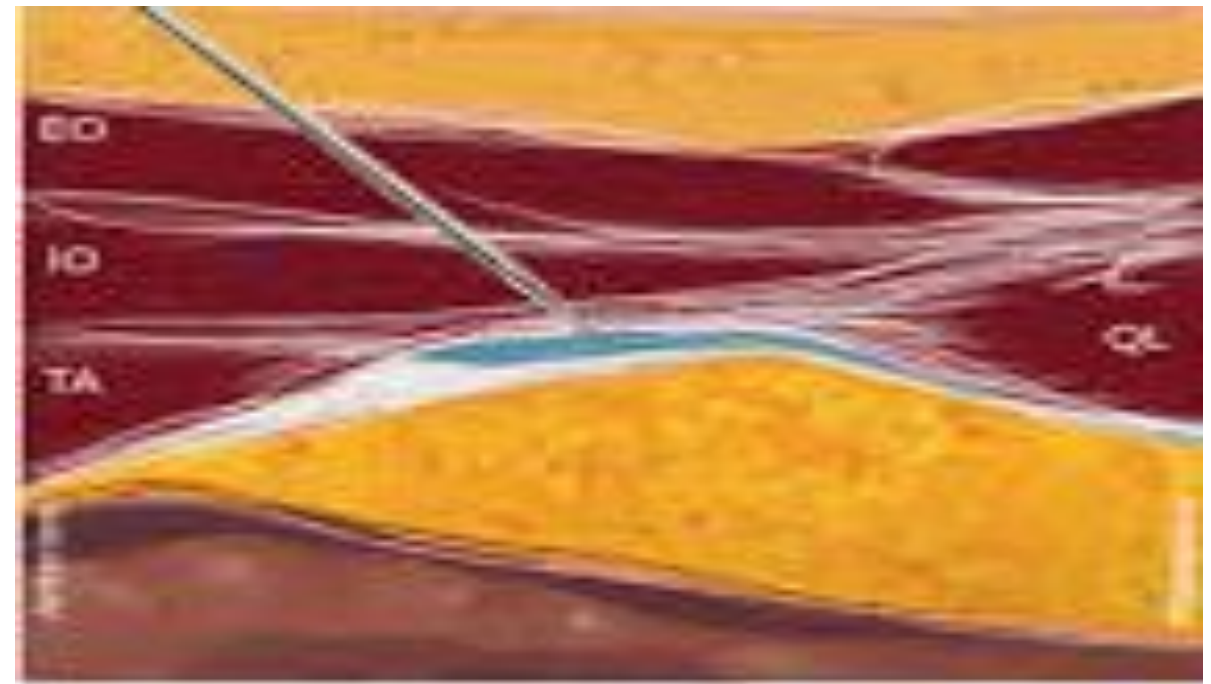
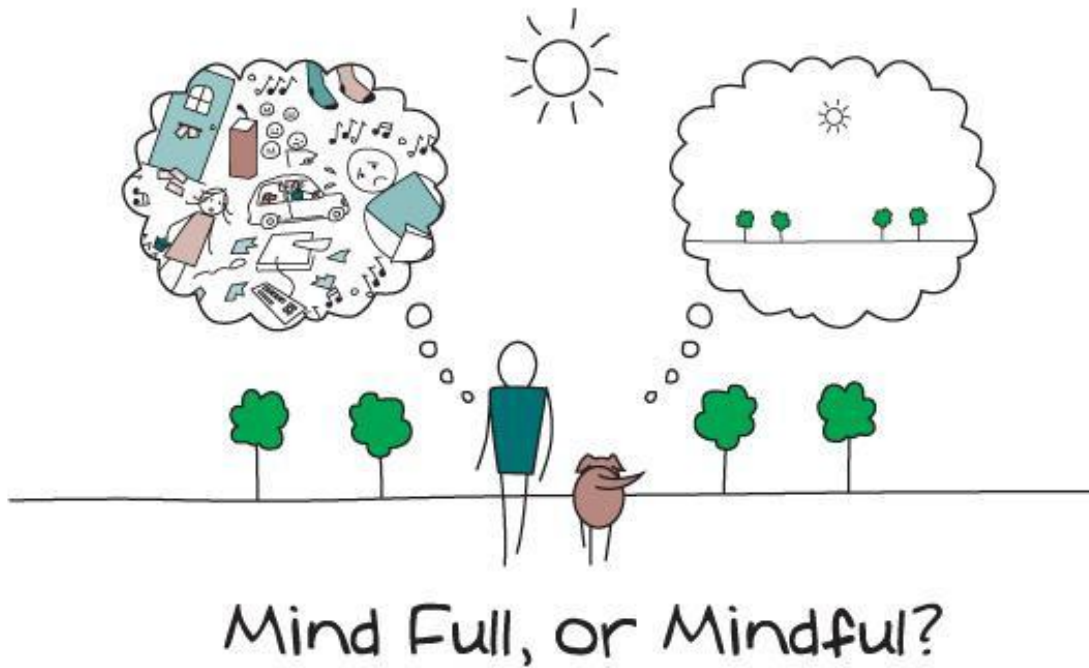
FASCIAL PLANE BLOCKS IN PEDIATRIC SURGERY-PRO

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FASCIAL PLANE BLOCKS IN PEDIATRIC SURGERY-PRO



MECHANISM OF ACTION: UNCLEAR?





Fascial plane blocks: from microanatomy to clinical applications

Carmelo Pirri^{a,*}, Debora Emanuela Torre^{b,*} and Carla Stecco^a

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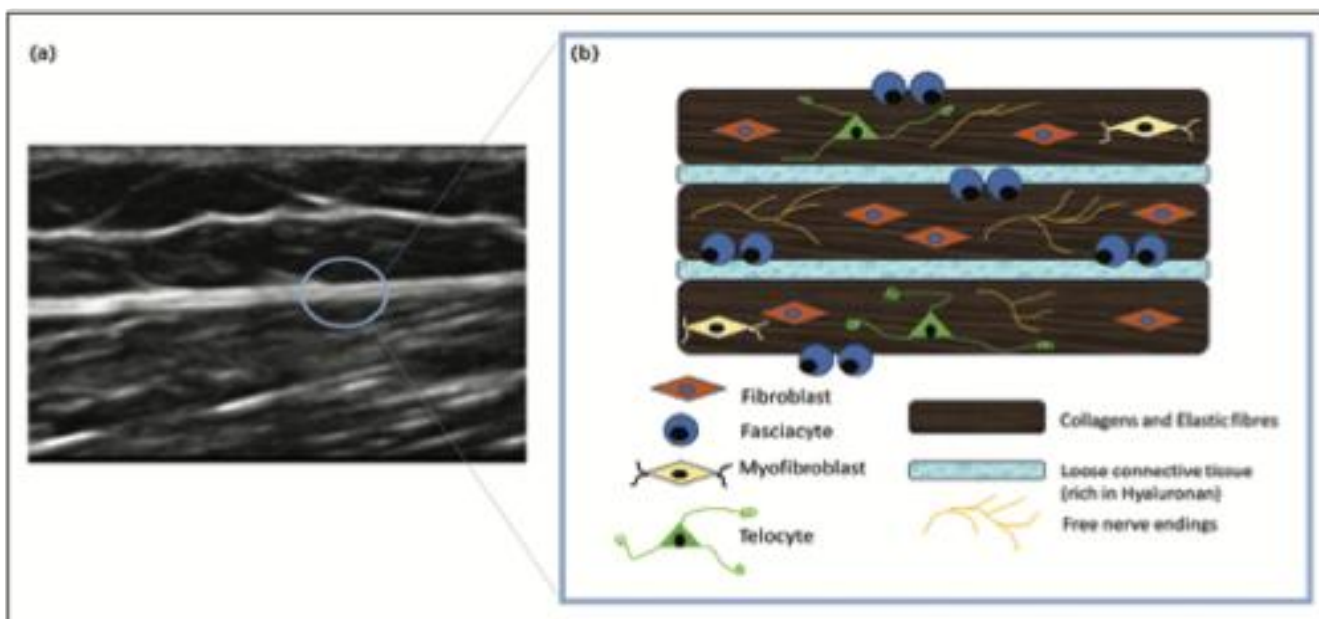


FIGURE 1. (a) Ultrasound Imaging of deep/muscular fascia, in particular fascia lata. (b) Schematic representation of microscopic anatomy of deep/muscular fascia.

KEY POINTS

- Fascia is a connective tissue comprising several microscopic elements that allow it to serve as an effective medium for local anaesthetic spread during fascial plane blocks (FPBs).
- Fascial plane blocks represent a significant advancement in regional anaesthesia, providing effective analgesia through a novel mechanism that capitalises on fasciae's micro and macro anatomical features.
- From a microanatomical standpoint, the deep/muscular fascia comprises various cells within the extracellular matrix and numerous nerve fibres defining its sensory role.
- Understanding the cellular and molecular composition of fascia helps to optimise the clinical application of FPBs, enhancing their efficacy and reliability in pain management.

Systematic Review and Meta-Analysis

Efficacy of erector spinae plane block versus caudal block for postoperative analgesia in paediatric surgery: A systematic review and meta-analysis

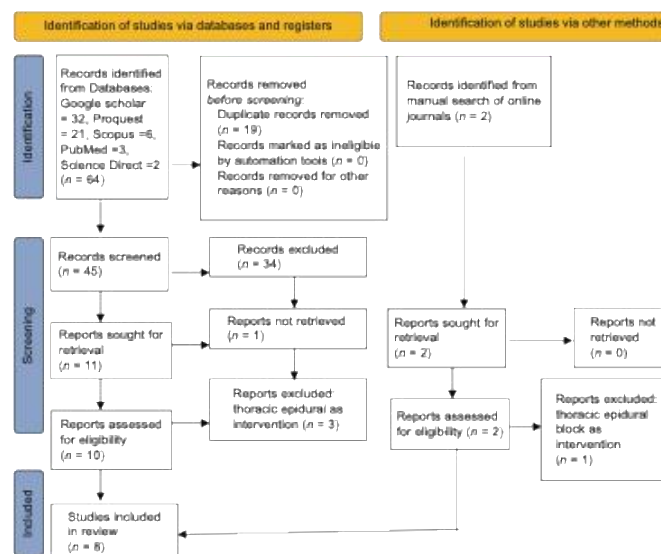


Figure 2: Study selection process based on Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) flow chart

CONCLUSION

The ESPB appears to be a reliable technique for providing prolonged postoperative analgesia, as evidenced by its ability to reduce pain intensity scores more effectively than CB. However, further research is recommended to validate these findings across diverse paediatric populations and a wider range of surgical procedures. Additionally, comparative studies focusing on complication rates and the impact on haemodynamic parameters between these two techniques would enhance understanding of their safety and efficacy profiles.

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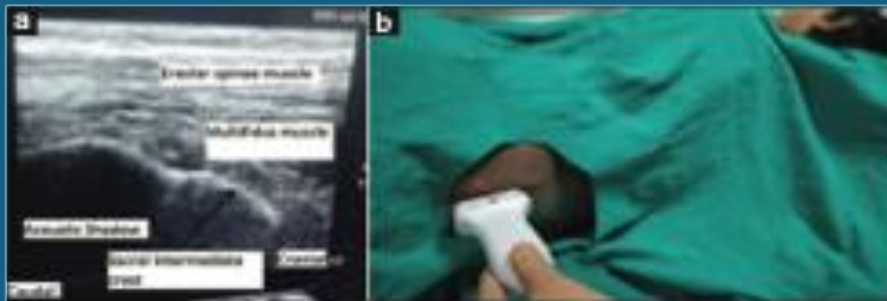


Figure 3: (a) Ultrasound image of parasagittal approach of sacral erector spinae block, (b) Ultrasound probe positioned in midline for midline approach of sacral erector spinae block



Figure 4: Ultrasound image of midline approach of sacral erector spinae block

Review Article

Sacral erector spinae block: A new era for postoperative analgesia—a narrative review

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Abstract

Erector spinae muscle extends throughout the cervical, thoracic, lumbar and sacral regions. Sacral erector spinae block is performed by depositing the local anaesthetic in the fascial plane deep to erector spinae muscle at sacral level. Local anaesthetic gets distributed in craniocaudal fascial plane and exerts its effect on ventral and dorsal rami of spinal nerves. Block at sacral level provides excellent postoperative analgesia. This block has been used as a sole anaesthetic technique as well. The rationale and focus of this narrative view are to provide an overview of the effectiveness and indications of sacral erector spinae block in addition to techniques used for this block. Sacral erector spinae block provides many advantages. It covers many dermatomes using longitudinal midline technique. It is safe as it is a superficial block. The block does not cause hypotension and bradycardia, hence there is no haemodynamic instability. The block is an excellent modality for postoperative analgesia, chronic pain relief as well as surgical anaesthesia. It works effectively for both children as well as adults and can prove a new era for postoperative analgesia in future.

Keywords: Analgesia, erector spinae muscle, local anesthetic, sacral

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E-mail: dr.aksu@gmail.com**Submitted:** 27-Feb-2025, **Accepted:** 28-Feb-2025, **Published:** 25-Mar-2025

Review Article

Fascial plane blocks in pediatric anesthesia: A narrative review

ABSTRACT

Regional anesthesia techniques have become a cornerstone of pain management in the adult population, providing adequate analgesia while minimizing systemic side effects. Despite the numerous benefits demonstrated in pediatric studies, the implementation of regional anesthesia in children remains insufficiently adopted in clinical settings. One primary concern preventing broader application is the potential for complications of these techniques in pediatric patients, which understandably raises apprehension among clinicians. However, the introduction of fascial plane blocks in the literature has led to a significant advancement in this field. These regional anesthesia techniques are increasingly being incorporated into routine clinical practice, as they are relatively easy to learn and apply and safe techniques. Fascial plane blocks provide adequate pain management while minimizing opioid consumption, which not only helps reduce the risk of opioid-related side effects but also contributes to a more comfortable perioperative and postoperative experience for young patients. These blocks can significantly enhance patient recovery and satisfaction by facilitating analgesia. This narrative review briefly summarizes different indications of fascial plane blocks and their effectiveness in managing pain among pediatric patients, illuminating critical points to consider when applying these techniques.

Key words: Fascial plane block, pediatric population, postoperative pain

Conclusion

Fascial plane blocks play an important role in postoperative pain management in pediatric patients as part of multimodal analgesia. Studies in the literature have shown that fascial plane blocks are successful in achieving postoperative analgesia in different pediatric surgeries [Table 1]. Fascial plane blocks provide safe and effective analgesia by reducing systemic opioid use in the pediatric population while accelerating the postoperative recovery process and increasing patient and parent satisfaction.

The efficacy of transversalis fascia plane block in pediatric inguinal herniotomy: a randomized controlled study

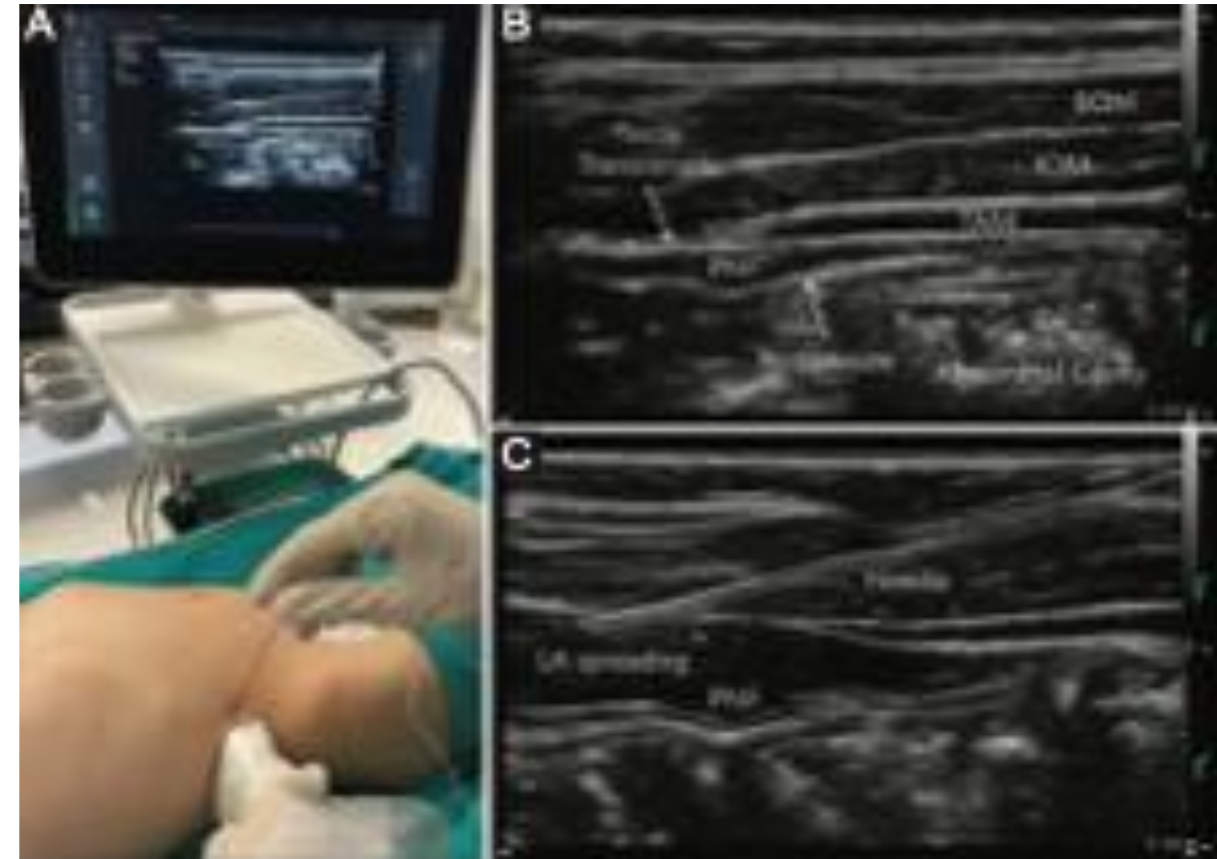
Eficacia del bloqueo del plano de la fascia transversal en la reparación de la herniotomía inguinal pediátrica: estudio controlado aleatorizado

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Conclusion

Through this study, we suggest that ultrasound-guided TFP block provides lower post-operative pain scores in pediatric inguinal hernia repair; furthermore, it is a simple, safe and practical technique. Further studies are warranted to verify these findings and define the block's clinical characteristics better.



Systematic Review and Meta-Analysis**Efficacy of erector spinae plane block versus caudal block for postoperative analgesia in paediatric surgery: A systematic review and meta-analysis**

It is an easy and safe technique with a lower risk of complications as the administration is given far away from major blood vessels, pleura, and also from the spinal cord,[23] thus making it a feasible part of a multimodal analgesia plan for such surgeries. CB is sometimes associated with potential complications such as epidural hematoma, dural puncture, hypotension, and urinary retention, and may delay motor blockade assessment for postoperative neurological evaluation.[24-28] Thus, alternatives such as ESPB are advantageous.

Crowe AM, Midović B. Local anesthetic toxicity following erector spinae plane block in a neonate: a case report. *Paediatr Anaesth*. 2022;32:479–81.

SAFETY



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DOI: 10.1111/pan.13373

SPECIAL INTEREST ARTICLE

WILEY **Pediatric Anesthesia**

Postoperative pain management in children: Guidance from the pain committee of the European Society for Paediatric Anaesthesiology (ESPA Pain Management Ladder Initiative)

Maria Vittinghoff¹ | Per-Arne Lönnqvist² | Valeria Mossetti³ | Stefan Heschl¹ |
Dusica Simic⁴ | Vesna Colovic⁵ | Dmytro Dmytriiev⁶ | Martin Hölzle⁷ | Marzena Zielinska⁸ |
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Guidelines

Postoperative Pain Management in children: guidance from the Pain Committee of the European Society for Paediatric Anaesthesiology (ESPA Pain Management Ladder Initiative) Part II

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Dusica Simic^d, Vesna Colovic^e, Martin Hölzle^f, Marzena Zielinska^g, Belen De José María^h,
Francesca Oppitz^j, Diana Butkovic^j, Neil S. Morton^k

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BMC Anesthesiology

REVIEW

Open Access

Pediatric fascial plane blocks: an educational review with technique, tips & tricks

Can Aksu¹ , Hadi Ufuk Yörükoğlu^{1*} , Sevim Cesur¹  and Alparslan Kuş¹ 

The question really requiring discussion is “Do the *NEW* fascial plane blocks add any value in pediatric patients?” Scientific meetings and the literature clearly show that clinicians who hesitate to apply neuraxial blocks, especially in upper body surgeries, due to lack of experience and training and possible risks, tend to use these new FPBs, such as ESP block and serratus plane block. But, in purely scientific terms, more time and data are clearly required in order to be able to answer that question.

In conclusion, on the one hand, there are very effective classic blocks capable of being applied to a small number of patients by a small number of experienced clinicians, while on the other hand, there are FPBs found to provide sufficient analgesia capable of being applied to more patients by larger numbers of clinicians, although further studies of the mechanism of action and effectiveness of these are still needed. Although FPBs clearly cannot replace epidural, caudal, paravertebral, or lumbar plexus blocks, we think that the period ahead will be that of “the rise of the ‘good-enough’ blocks” [72]. Therefore,

CONCLUSIONS

2.6 | Summary

In attempting to summarize the very extensive adult and pediatric literature on FPBs the following picture emerges:

1. The exact mode of action for most of the FPBs is unclear.
2. FPBs appear to be of additional value only when compared to no block or placebo and only for minor to moderate procedures but not major surgical interventions.
3. Contrary to many other regional anesthesia techniques, FPBs do not appear to provide surgical anesthesia, that is, it is not possible to perform surgery utilizing only an FPB. This may be due to a lack of visceral anesthesia of the FPBs. Thus, FPBs can only be viewed as at best an adjunct technique for perioperative analgesia.
4. There are currently no specific situations or indications where FPBs have been found clearly superior to other nerve-blocking alternatives.

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PERSPECT

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CONCLUSIONS

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TAKE HOME PLEASE



CONCLUSIONS

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Longqvist

In conclusion, it will now be up to the individual reader to judge whether the current knowledge base really provides ample evidence in favor of the use of FPBs in children or whether the choice instead would be to use traditional ultrasound-guided nerve-specific regional anesthetic techniques or perhaps instead using intravenous lidocaine infusion to improve the pediatric patient's postoperative analgesia.



I say yes

“Se si guarda troppo fisso una stella,
si perde di vista il firmamento.”

Edgar Allan Poe



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GRAZIE