

Mid-point Transverse Process to pleura (MTP) block using liposomal bupivacaine for pain control following cholecystectomy: A case report

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Introduction

- ❖ The paravertebral block (PVB) is an effective technique to provide postoperative pain relief for abdominal surgeries.
- ❖ In patients on anticoagulation, more superficial thoracic wall blocks are preferred due to lower risks of complications.
- ❖ **Mid-point Transverse Process to pleura (MTP)** block is a newer superficial block, which provide comparable pain relief to PVB [1].
- ❖ Herein we present MTP block using Liposomal Bupivacaine for patient undergoing laparoscopic cholecystectomy.

Material and methods

- ❖ As this case report is devoid of patient identifiable information, it is exempt from IRB review as per University of Pittsburgh Medical Center policy. Patient Informed consent for the procedure and abstract submission was obtained

Case report

- ❖ A 37-year-old female with a history of HTN, COPD, hypothyroid, DM 2, PCOS, Class 3 Obesity with a BMI >40, anxiety, and gastric Sleeve (in 2020) presents for a laparoscopic cholecystectomy for symptomatic cholelithiasis.
- ❖ Patient has been complaining of multiple episodes of biliary colic for a few years and has been on chronic NSAIDs for pain.
- ❖ After a thorough discussion, the patient consented to getting a **Bilateral (MTP)** block using Liposomal Bupivacaine prior to her surgery
- ❖ Standard anesthetic monitoring devices including electrocardiogram, capnography, pulse oximetry, and noninvasive blood pressure were applied.
- ❖ The nerve block was then performed as part of the multimodal pain management
- ❖ After preoxygenation, general anesthesia was induced, Intubation was performed smoothly. Surgery lasted for about 60 mins. Intra-op the patient received 4 mg IV Zofran, 4 mg IV Decadron, and a 50 mg IV ketamine.
- ❖ A total narcotics of 1 mg IV Dilaudid was given prior to emergence from anesthesia. Pain assessment, 1 h after surgery in PACU, was 2/10

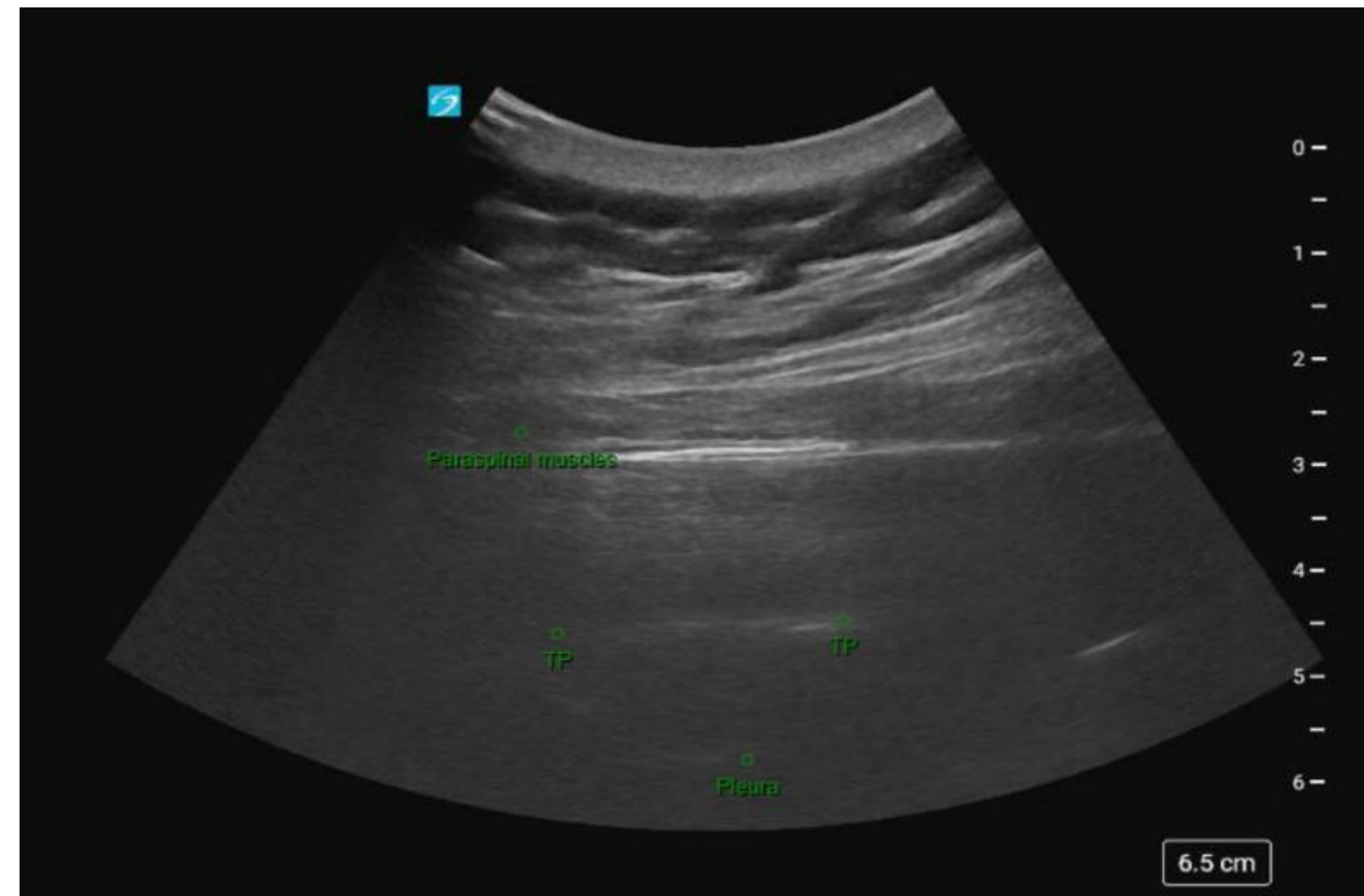


Figure 1: Ultrasound image illustrating the injection site in ITP block, located posterior to the superior costotransverse ligament (SCTL), and approximately halfway between the posterior aspect of the transverse processes and the pleura. PVS: paravertebral space.

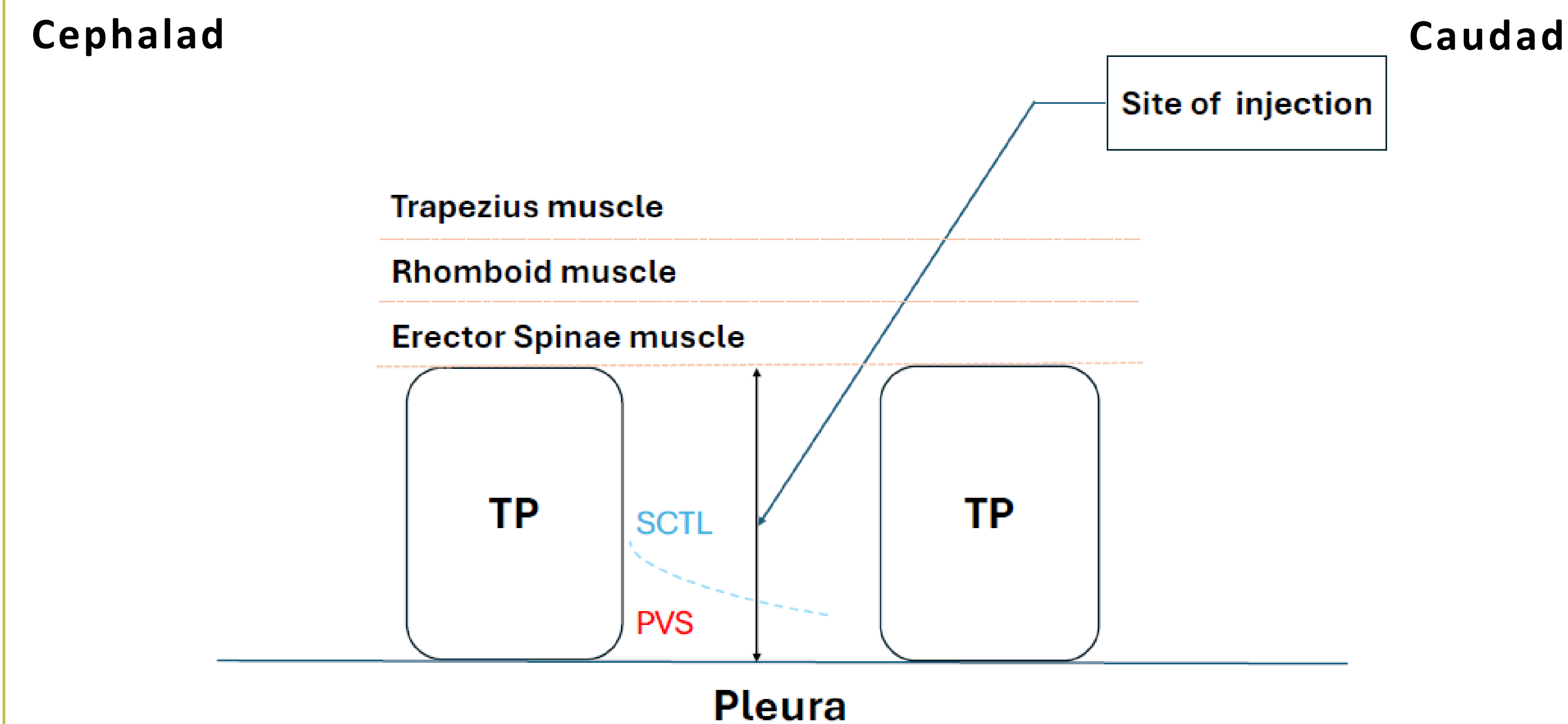


Figure 2: Schematic illustration showing the site of injection in ITP block. PVS: paravertebral space. SCTL: superior costotransverse ligament. TP: transverse process.

Case report

- ❖ Patient was later discharged home, reported that block lasted for about 3 days, and not needing to take any NSAIDs or oral opioids at home.

Discussion

- ❖ In MTP, local anesthetics are injected superficial to the superior costotransverse ligament (SCTL), at the midpoint between the transverse process and the pleura (figures 1&2)
- ❖ A cadaveric study demonstrated that dye injected at this point spread to the paravertebral space at the level of injection in 2 out of 3 cadavers [2].
- ❖ Similar findings were also obtained in another study, where dye injected posterior to the SCTL spread to the paravertebral space in 5 out of 5 cadavers [3].
- ❖ The spread of the injectate can be explained by the presence of fenestrations in the SCTL, allowing the medication to reach the paravertebral space [2].
- ❖ In our case, MTP block seemed to be effective in managing pain associated with cholecystectomy, as reflected in the low pain scores and minimum opioid requirement post-surgery.

References

- ❖ [1] Kahramanlar AA, Aksoy M, Ince I, Dostbil A, Karadeniz E. The Comparison of Postoperative Analgesic Efficacy of Ultrasound-Guided Paravertebral Block and Mid-Point Transverse Process Pleura Block in Mastectomy Surgeries: A Randomized Study. J Invest Surg. 2022 Sep;35(9):1694-1699. doi: 10.1080/08941939.2022.2098544. Epub 2022 Jul 17. PMID: 35848451.
- ❖ [2] Costache, I., de Neumann, L., Ramnanan, C. J., Goodwin, S. L., Pawa, A., Abdallah, F.W., & McCartney, C. J. L. (2017). The mid-point transverse process to pleura (MTP) block: a new end-point for thoracic paravertebral block. Anaesthesia, 72(10), 1230–1236
- ❖ [3] Nielsen, M. V., Moriggl, B., Hoermann, R., Nielsen, T. D., Bendtsen, T. F., & Borglum, J. (2019). Are single-injection erector spinae plane block and multipleinjection costotransverse block equivalent to thoracic paravertebral block?. Acta anaesthesiologica Scandinavica, 63(9), 1231–1238