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The role of interfascial plane blocks in chronic pain treatment: A brief report of three cases

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To the Editor,

Nowadays, chronic pain is a significant problem that affects the majority of society.[1] Ultrasound (US)-guided nerve block techniques are an essential component of the multimodal approach to chronic pain management. US-guided fascial plane blocks have gained popularity in daily anesthesia and pain medicine practice. They may be performed for chronic pain management alone or as an adjuvant to a multimodal approach. The fascial system in the body may have an important role in the development of chronic pain. As it contains numerous mechano- and chemoreceptors, the interfascial planes participate in the regulation of force transmission, sensory functions, and wound healing. Dysfunctions in proprioception, myofascial pain, and muscle cramps are related to the deep fascia because of this extensive receptor network within the fascial system.[2] For these reasons, fascia may play an important role in chronic pain. Administration of local anesthetic into fascial planes may affect free nerve endings, and hydrodissection of these planes may release adhesions, thereby relieving chronic pain. Adhesions play an important role in the development of chronic pain.[3] Activation of mechanoreceptors and proprioceptors within the fascia and fascial planes, as well as the connective septa of adhesions, may alter fascial sliding. Opening the fascial plane with local anesthetic facilitates the spread of the solution by disrupting adhesions and connective septa.[4,5] In chronic pain, multiple fascial changes and adhesions are present within fascial planes; therefore, fascia may represent a key target in chronic pain management. Based on this information in the literature, we performed several fascial plane blocks in patients with chronic pain in our pain medicine department. In this report, we share our successful experiences with fascial plane blocks in patients with chronic pain.

Written informed consent was obtained from the patients for the procedures and for publication. Patient 1 was a 32-year-old male (173 cm, 91 kg) with left-sided abdominal and sternal pain who was referred to our pain medicine department. His pain extended from the sternum, nipple, epigastrium, and arcus costarum to the mid-axillary line and the umbilicus. He had experienced pain for three years. We decided to perform a pecto-intercostal fascial plane block (PIFPB) and a modified thoracoabdominal nerve block through a perichondrial approach (M-TAPA). Under sterile conditions, we used a high-frequency (11–12 MHz) linear transducer (B. Braun, Philips, Xperius, USA) and a 22G, 100 mm needle (Stimuplex® Ultra 360®, B. Braun, USA). Following infiltration of the skin with 2 ml of 2% lidocaine, PIFPB was performed in the fascial plane between the pectoralis major and internal intercostal muscles at the level of the fourth intercostal space. Subsequently, M-TAPA was performed between the internal oblique and transversus abdominis

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Table 1. The demographic data, pain scores, interventions, and the volume used for the blocks of the patients

Patient	Gender	Age	Height/weight	Block	Content of local anesthetic	Volume	NRS
1	Male	32	173 cm, 91 kg	PIFPB + M-TAPA	10 ml of 0.5% bupivacaine, 4 mg dexamethasone, and 9 ml of isotonic solution	Totally 40 ml	9→1
2	Female	45	160 cm, 78 kg	PIFPB + M-TAPA	10 ml of 0.5% bupivacaine, 4 mg dexamethasone, and 9 ml of isotonic solution	Totally 40 ml	9→2
3	Male	42	171 cm, 95 kg	TTMPB	10 ml of 0.5% bupivacaine, 4 mg dexamethasone, and 9 ml of isotonic solution	Totally 40 ml	10→2

Cm: Centimeter; kg: Kilogram; PIFPB: Pectointercostal fascial plane block; M-TAPA: Modified thoracoabdominal nerves block through perichondrial approach; TTMPB: Transverse thoracic muscle plane block; mg: Milligram; ml: Milliliter; NRS: Numerical Rating Scale.

muscles at the level of the costal margin. A total of 20 ml of local anesthetic solution was used for each block, consisting of 10 ml of 0.5% bupivacaine, 4 mg dexamethasone, and 9 ml isotonic solution (total volume 40 ml). The patient's Numerical Rating Scale (NRS) score was 9 before the procedure and decreased to 1 at 45 minutes after the intervention. Oral dexketoprofen 25 mg twice daily was prescribed. The patient was followed for three months, during which no additional analgesic medication or invasive intervention was required.

Patient 2 was a 45-year-old female patient (160 cm, 78 kg) with left-sided thoracoabdominal pain. Her pain was localized to the left side of the sternum, within the T4–T7 parasternal intercostal space. In addition, she reported pain around the left epigastric region and along the arcus costarum line. She had experienced pain for two years. We decided to perform PIFPB and M-TAPA. The blocks were performed in the same manner as described for Patient 1, using the same volumes (20 ml+20 ml). Her NRS score was 9 before the procedure and decreased to 2 at 45 minutes after the intervention. She was prescribed oral dexketoprofen 25 mg every 8 hours and thiocolchicoside 8 mg. The patient was followed for three months, during which no additional analgesic medication or invasive intervention was required.

Patient 3 was a 42-year-old male patient (171 cm, 95 kg) presenting with angina-like chest pain. A stent had been placed in the left anterior descending artery 1.5 years earlier. He had undergone coronary angiography three times within the past year because of persistent chest pain; however, no abnormalities were detected in the coronary vessels. He was referred to our pain medicine department due to refractory and persistent chest pain. We decided to perform a transverse thoracic muscle plane block (TTMPB). The transverse thoracic muscle, internal thoracic artery, and veins were identified, and bilateral TTMPB was performed between the transverse thoracic and intercostal muscles. A total of 20 ml of local anesthetic solution was administered on each side (total volume 40ml). His NRS score was 10 before the procedure and decreased to 2 at 45 minutes after the intervention. He was prescribed oral paracetamol 1 g twice daily. The patient was followed for six months, during which no additional analgesic medication or invasive intervention was required. The demographic data, pain scores, interventions, and volumes used for the blocks are presented in Table 1.

There is growing evidence supporting the use of fascial plane blocks with local anesthetics and corticosteroids as part of a multimodal approach to chronic pain management. The anatomy and content of fascial planes play an important role in the mechanisms underlying chronic pain syndromes. Fascial plane blocks have a key role in releasing interfascial adhesions and are therefore recommended in chronic pain management. In our patients, we performed relatively novel blocks, including PIFPB, M-TAPA, and TTMPB. To the best of our knowledge, there are currently no reports describing the use of these fascial plane blocks in the management of chronic pain. Long-term follow-up revealed no

need for additional analgesic medication. Based on our experience, fascial plane blocks may be used effectively in the management of chronic pain.

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