



## CASE REPORT

# A gross abdominal wall hematoma secondary to transversus abdominis plane block

*Transversus abdominis plan bloğuna bağı büyük bir karın duvarı hematomu*

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## Summary

We aimed to share our experience with an abdominal wall hematoma that developed after an ultrasonography-guided TAP block performed for the palliation of chronic abdominal wall pain. Bleeding was successfully stopped with coil embolization.

Keywords: Complication; hematoma; pain therapy; TAP block.

## Özet

Kronik karın duvarı ağrısının palyasyonu için ultrasonografi kılavuzluğunda yapılan TAP blok sonrasında gelişen ve koil embolizasyonu ile başarılı şekilde durdurulan karın duvarı hematomu ile ilgili deneyimimizin paylaşılması amaçlandı.

Anahtar sözcükler: Ağrı tedavisi; hematom; komplikasyon; TAP blok.

## Introduction

The transversus abdominis plane (TAP) block is frequently used as a regional anesthesia technique for perioperative unilateral abdominal wall analgesia.<sup>[1,2]</sup> With the use of ultrasound guidance, block performing has become easier, the success rate has increased, and the complications have significantly decreased.<sup>[1-3]</sup> This block was originally used for post-operative analgesia. After successful results, it has become increasingly used in the treatment of chronic pain pathologies involving the abdomen and abdominal wall. Herein, we would like to present a case of gross abdominal wall hematoma occurring after a TAP block for chronic abdominal pain therapy.

## Case Report

A 65-year-old female patient was referred to the algology clinic with left abdominal wall pain, thought to be secondary to the nephrectomy surgery she had 5 months ago. The pain score was 8/10 and was not relieved by oral analgesics such as nonsteroidal anti-inflammatory drugs or tramadol. The patient's medical history included end-stage renal disease,

coronary artery disease, atrial fibrillation, and uncomplicated cerebrovascular ischemia. She was using low molecular weight heparin therapy, and her laboratory tests (including the coagulation profile) were within normal limits. The laboratory data of the patient on the first admission and the day of the procedure were presented in Table 1. The patient was taken to the operating room to perform an ultrasound-guided left transversus abdominis plane block, 24 hours after the last dose of low molecular weight heparin. Under conscious sedation with 50 mcg fentanyl and 2 mg midazolam, routine hemodynamic monitoring was applied to the patient with electrocardiogram, pulse oximetry, and noninvasive blood pressure. After preparation of the block site and the ultrasound probe in a sterile manner, the patient was placed in the right lateral decubitus position. A high-frequency linear probe (LOGIQe® GE Medical Systems Co., Ltd. Jiangsu, China) was placed between the costal margin and iliac crest, and TAP block was performed with a 21G, 85 mm insulated needle (Braun Stimuplex Ultra 360; Melsungen, Germany) with an in-plane technique. Following the confirmation of the needle tip in the transversus ab-

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**Table 1.** The laboratory data of the patient on the first admission and the day of the procedure

Parameters	First admission	The day of procedure
Hemoglobin (g/dL)	9.0	9.1
Hematocrit (%)	28.1	28.8
Leucocyte (count/mm <sup>3</sup> )	9.19	11.2
Platelet (count/mm <sup>3</sup> )	453	426
Blood urine nitrogen	32	20
Creatinine	4.32	3.09
ALT (IU/L)	9	12
AST (IU/L)	6	10
Prothrombin time (s)	13.1	13.0
INR	0.97	0.96
Partial prothrombin time (s)	28.6	30.2
Na <sup>+</sup>	131	134
Ca <sup>++</sup>	8.6	9.2
K <sup>+</sup>	4.5	3.6

ALT: Alanine aminotransferase; AST: Aspartate aminotransferase; INR: International normalized ratio

dominis plane between the transversus abdominis and internal oblique muscles, 60 mg bupivacaine and 40 mg triamcinolone in a 25 mL saline solution was administered for the block. Within half an hour, the patient's pain gradually decreased, and no additional analgesic was used. The patient was discharged home after 24 hours of painless follow-up.

Twelve hours after discharge, she was admitted to the emergency room with complaints of acute abdominal pain and abdominal wall swelling (Fig. 2). On abdominal tomography, an actively bleeding acute hematoma of 160x140x110 mm in size was detected in the left side wall of the abdomen between the muscle and the fascia (Fig. 2). Angiography was performed urgently. An active bleeding focus was detected from the distal branch of the inferior epigastric artery and was embolized. After the procedure, the patient was taken to intensive care. The hemoglobin value of the patient before bleeding was 9.1 g/dL and it was 7.8 g/dL in the control after embolization. Blood transfusion was not given to the patient. Following a hemodynamically stable period of 36 hours in the intensive care unit, she was taken to the ward (Written informed consent has been obtained from the patient for the publication of this report).

**Figure 1.** Swelling due to hematoma is seen in the abdomen of the patient.**Figure 2.** Computed tomography image of the hematoma in the abdominal wall.

## Discussion

The transversus abdominis plane block is a regional anesthesia method that can provide unilateral analgesia in the anterolateral wall of the abdomen. The landmark technique, the first form of the block, was defined by Rafi in 2001,<sup>[4]</sup> and the ultrasonographic method was described by Hebbard in 2007.<sup>[5]</sup> It has quickly entered clinical use and has become widespread, especially due to its positive effects on post-operative multimodal analgesia, its easy perform-

ability, and fewer complications. Different methods have been described under the guidance of ultrasonography, and the indication portfolio has expanded considerably. With this block, medications are given to the fascial plane between the internal oblique and transversus abdominis muscles, to unilaterally block distal parts of T7-L1 of spinal nerves.<sup>[2,6,7]</sup> In our clinical practice of pain management, we use ultrasound-guided TAP block safely and effectively for abdominal wall pain.

Complications after peripheral regional anesthesia techniques have been reported rarely. The use of ultrasonography during regional anesthesia helps to reduce complications.<sup>[2,3,6]</sup> Technically, ultrasonography reduces bleeding complications, especially because it can show vascular structures. However, it is not possible to completely prevent vascular damage due to the low resolution of ultrasound, the inability to use auxiliary vascular imaging techniques, the deep vascular anatomy, or closure of vascular flow due to probe pressure. Despite ultrasound guidance, vascular injuries may occur during the application of peripheral blocks. While performing an ultrasound-guided TAP block, the muscle layers in the abdominal wall are seen, and medication is administered between the internal oblique and transversus abdominis muscles. During this period, a vascular structure is not sought in ultrasound under normal conditions. If there is a conspicuous structure, that structure is preserved. While we were performing our block, there was no striking vascular structure, and the block was done successfully.

In peripheral nerve blocks, the risk of serious hematoma is very low, and this risk is mostly valid for deep blocks. Most hemorrhagic complications have been described in patients using anticoagulants or antiplatelet drugs, or those with hereditary bleeding disorders.<sup>[8]</sup> The American Society of Regional Anesthesia (ASRA) has made recommendations for the use of anticoagulants or antiplatelet drugs for performing neuroaxial blocks and perineural catheter insertion or removal for “deep” peripheral nerve blocks. Following these recommendations while performing blocks can reduce complications. In this case, we considered these suggestions, but bleeding still occurred. We think that, although the patient’s coagulation tests were within normal limits and her anticoagulants were discontinued long enough prior to the procedure, there may have been a predis-

position to bleeding that could not be anticipated. In conclusion, the TAP block is a safe and effective regional technique for chronic abdominal wall pain. The complications of TAP block are very rare and preventable. Even rarely, vascular injury and hematoma can be observed after this procedure, even under ultrasound guidance. Guidelines can help in reducing such complications. In our case, the distal branches of the inferior epigastric artery, which were the source of the hematoma that developed after the TAP block, were embolized. The patient was discharged with full recovery after 36 hours of close follow-up in the intensive care.

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**Informed Consent: Written informed consent was obtained from patients who participated in this study.**

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