Turk J Anaesth Reanim 2015; 43: 424-6 DOI: 10.5152/TJAR.2015.89410

Case Report

Colostomy with Transversus Abdominis Plane Block

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Abstract

Transversus abdominis plane (TAP) block is one of the abdominal field block. The TAP block is used for both anaesthetic management and post-operative pain therapy in lower abdominal surgery. TAP block is a procedure in which local anaesthetic agents are applied to the anatomic neurofacial space between the internal oblique and the transversus abdominis muscle. TAP block is a good method for post-operative pain control as well as allows for short operations involving the abdominal area. In this article, a case of colostomy under TAP block is presented.

Keywords: Transversus abdominis plane block, ultrasonography, colostomy

Introduction

The transversus abdominis plane (TAP) block, which is an abdominal field block, was first defined by Rafi in 2001 as a procedure in which local anaesthetic agents are injected in the space between the transversus abdominis and internal oblique muscles. The injection targets the nerves in the anterolateral wall of the abdomen (1). In 2007, Hebbart et al. (2) emphasized for the first time that the ultrasound-guided (USG) TAP block could be more effectively and safely applied. With the increasing use of ultrasonography, the TAP block is used for many indications in the literature (3).

This study aimed to present our experience of the TAP block that was applied to a patient who had a clinical picture of ileus that developed because of metastatic colon cancer and who was scheduled to undergo colostomy.

Case Presentation

While a 74-year-old male patient, who weighed 62 kg and who was included in the ASA II risk group, was being followed up in the clinic of oncology for primary cranial tumour, he was urgently taken to surgery for an open colostomy because of the development of ileus secondary to a tumoural lesion that was associated with metastatic colon carcinoma. The history of the patient, from whom written informed consent was obtained, revealed that he had been operated for cranial tumour 4 years ago, and he had received chemotherapy at regular intervals in the clinic of oncology. The history of the patient, who developed impaired general health condition after chemotherapy, included hypertension and ischemic heart disease. The values of arterial blood pressure were within normal intervals, and the ejection fraction was at the level of 30% because of ischemic heart disease. In the physical examination, bilateral decreased respiratory sounds associated with metastatic lesions in the lungs and respiratory distress because of the pressure caused by acid fluid accumulated in the abdomen were observed. The patient had a Glasgow coma score of 13, and ECG was performed, SpO_2 and non-invasive blood pressure were monitored and 5 litre min^{-1} O_2 was administered via a mask. For the post-operative follow-up of the patient, whose SpO_2 values varied between 90% and 92%, preparation was made for intensive care. In the anaesthesia management of the patient, neuroaxial (epidural anaesthesia) block was primarily planned. The patient could not be positioned because of severe abdominal pain and distension. Because of high pre- and post-operative risk, the USG-TAP block was preferred instead of general anaesthesia. The region planned to undergo colostomy under sterile conditions was unilaterally applied USG-guided TAP block with bupivacaine at the concentration of 20 cc 0,25% (right side) (Figure 1). After the TAP block was performed, vital findings of the patient did not change. The surgical operation was initiated 15 min after the procedure. For open loop-

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Received : 12.12.2014
Accepted : 16.03.2015

type colostomy, from the sigmoid colon, a circular cutaneous and subcutaneous incision with a diameter of 4 cm was made (Figure 2). Approximately 3000 cc of acid fluid was drained from the patient who experienced no pain during the process. A partial improvement was observed in respiratory parameters; however, there was no change in blood pressure and heart rhythm. The intestines were removed out of incision for determining the bowel loops during colostomy (Figure 3). In the meantime, 1 mg midazolam and 1 mcg kg^{-1} fentanyl were intravenously administered for treating pain that occurred because of peritoneal stretch. During the operation that lasted for approximately 40 min, no complications developed, and thus, no additional intervention was required. The patient was followed up for 30 min in the recovery unit after surgery and then transferred to the related clinic. An additional analgesic was not required during the post-operative 48-h period.

Discussion

The TAP block can be used in many surgical interventions that are related to the lower abdominal region (3). One of the most common indications in literature is to provide pain control after caesarean sections. In most studies that were conducted for post-operative pain control after caesarean section, the primary endpoint was to investigate pain control and analgesic consumption (4). In another study, the TAP block was used for treating uncontrollable pain of two patients with a pelvic ring fracture (5). It was reported that an effective pain treatment with the TAP block administration was given to a patient who underwent upper midline incision because of duodenal perforation and sigmoid colon perforation (6). In a study comparing post-operative analgesic consumption, the use of morphine was reported to be low in patients who were administered the TAP block for post-operative pain treatment after laparoscopic colorectal surgery (7). The TAP block administration, which is often used for post-operative analgesia as stated in the literature, is rarely used for anaesthesia. In the literature, in a patient who had a high risk for general anaesthesia and central regional block and underwent hemiarthroplasty, 20 mg ketamine and 2 mg midazolam were administered along with the TAP block. His spontaneous respiration was maintained, and a successful intervention was performed with 40 mL h^{-1} (6.4 mg kg h^{-1}) propofol infusion (8). In our case, a comfortable anaesthesia was provided by administering 1 mg midazolam and 1 mcg kg^{-1} fentanyl with the TAP block to the patient as he had a high risk for general anaesthesia and could not be administered the central regional block.

In the TAP block administration, unilateral local anaesthetic volume of 15–20 mL is generally preferred in adults (9). It was emphasized that a volume of 20 mL of an anaesthetic agent affected T10-L1 nerves and was appropriate in surgical procedures that were related to the lower abdominal region (10). In our case, the unilateral TAP block was

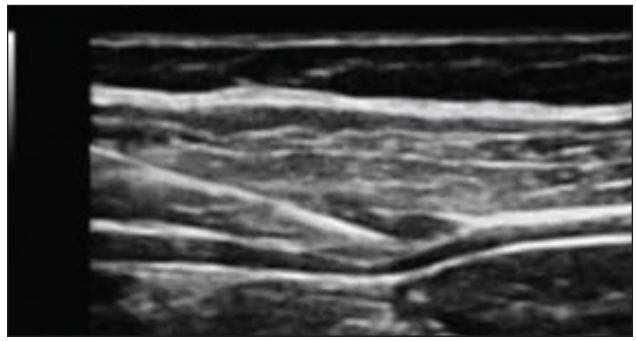

Figure 1. Image of transversus abdominis space and needle in ultrasonography

Figure 2. Surgical incision

Figure 3. Bowel loops that were removed out of the abdomen after transversus abdominis plane block

successfully administered at a volume of 20 mL under US guidance, as stated in the literature. The patient did not require an additional analgesic during the post-operative 48 h-period.

Conclusion

In patients with severe organ failure and poor health condition who cannot be administered central blocks, the USG-TAP block enables both effective and reliable surgery and extended post-operative pain control in short interventions of the abdominal region.

Informed Consent: Written informed consent was obtained from patient who participated in this case.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - Ü.Y.T.; Design - Ü.Y.T., A.D., M.Ş.; Supervision - Ü.Y.T., H.K.; Funding - A.D.K., M.B.; Materials - Ü.Y.T.; Data Collection and/or Processing - A.D.K.; Analysis and/or Interpretation - Ü.Y.T., A.D., M.Ş., HK.; Literature Review - Ü.Y.T., A.D.K., M.B; Writer - Ü.Y.T., A.D.K.; Critical Review - H.K., M.Ş., M.B.; Other - A.D., M.Ş.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study has received no financial support.

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