

# Open Appendectomy Using Ultrasound Guided Transversus Abdominis Plane Block: A Case Report

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## Abstract

**Introduction:** TAB block has been used as an analgesic adjuvant in many abdominal surgeries with fair reliability, but it has never been used as an anesthetic technique.

**Case Presentation:** In this case report, a 19-year-old male underwent an open appendectomy using ultrasound-guided TAP block as a single anesthetic technique.

**Conclusions:** It was concluded that under certain circumstances TAP block can be used as an anesthetic modality

**Keywords:** Anesthetics, Local, Appendectomy

## 1. Introduction

Nowadays, regional anesthetic techniques are widely used as solo anesthesia or adjuvant to general anaesthesia. It is safer with a less range of complications and prolonged duration of analgesia. The recent introduction of ultrasound assistances has increased safety and the rate of success (1-3).

Transversus abdominis plane (TAP) block has been widely used as an analgesic modality in lower abdominal surgery, but it did not succeed in working alone as an anesthetic technique. Also, it was used only as a local block in minor interventions such as gastrostomy (4, 5).

In this case report, TAP block was used alone in a patient who refused to have both spinal and general anaesthesia and agreed to have to do open appendectomy under any means of local blocks.

## 2. Case Presentation

A 19-year-old male weighing 63 Kg was presented to the emergency department, in Samtah General Hospital in the south of the kingdom of Saudi Arabia, complaining of acute abdomen which was diagnosed to be appendicitis. The diagnosis was confirmed by the ultrasound and CT of abdomen and the decision was to do open appendectomy.

In preoperative assessment, the patient was medically free, fasting and showing normal laboratories. He was very anxious about losing his consciousness and consequently he totally refused general anaesthesia. Moreover, he refused to have spinal anesthesia. The best modality that was

available at that moment was TAP block with adjuvant local anesthetics infiltration and intravenous opioids with the promise to preserve his consciousness all through the surgery.

In the operating room, full monitoring was connected (non invasive blood pressure, oxygen saturation, and ECG), intravenous line was inserted, and TAP block was done using ultrasound machine linear probe under complete aseptic technique.

The patient was lying flat and his abdomen was exposed. He was cleaned by chlorohexidine gluconate and isopropyl alcohol (chloraPrep®). The linear probe (HFL38x, 13-6 MHz) of M-Turbo® ultrasound system (Sonosite, Bothell, WA, USA) machine was covered by sterile sheath and the probe was located over the right side moving from medial to lateral until the three muscle planes were recognized midway between the costal margin and iliac crest (6). Local anesthesia 5 mL lignocaine 1% was infiltrated and then a spinal needle (Quincke 22G) was advanced in the plane under the guidance of ultrasound image until it reached the transversus abdominis plane. 30 mL of 0.5% bupivacaine was injected in real time and the hypoechoic shades of local anesthesia spread were followed and confirmed.

After 15 minutes, the area covered by the block was checked and it was found to be anaesthetized. The surgeon was allowed to start, with instructions, to give adjuvant boluses of lignocaine 2% when needed. Fortunately the appendix was exposed in the right iliac fossa (mediocaecal) and the surgery was easy and short (15 minutes). The patient was given sedation and analgesia in the form of Fen-

tanyl 50 mcg + midazolam 2 mg only and the surgeon did not give any local anaesthetic infiltration. His vital signs were within normal all through the operations. He did not complain of pain, traction, or vomiting.

In the postoperative care unit, the patient was lying flat and pain free, he could ambulate and void urine and was completely satisfied.

### 3. Discussion

TAP block is now used widely as an analgesic technique; it does not give satisfactory results in the case of anaesthesia. Likewise, it was weak in controlling visceral pain. These problems gave a great limitation to this block and restricted its use. There were many studies that tried to increase the scope of TAP block by changing the medications or adding drugs that might prolong or augment its effect such as Clonidine, Dexmedetomidine, and dexamethasone (7-9). Also, some studies recommended to put a catheter and to make a continuous local anaesthesia block (10, 11).

All the previous trials were concerned with TAP block as an analgesic modality with total inconvenience of being an anaesthesia technique. However, there was a trial that used TAP as a solo technique as an alternative to local anaesthesia infiltration in open gastrotomy (4) which showed good results and reliability. Also, "double TAP block" (Transversus Abdominis Plane (TAP) and ilioinguinal/iliohypogastric nerve blocks as mentioned by the author) has been used in open inguinal hernia repair and was shown to be effective in comparison with TAP block alone (5).

In this case report, the patient was obligating the anaesthesia team to use TAP block alone which, fortunately, had excellent results. There were some factors that aided in this success such as patient insistence; he refused all other types of anaesthesia and was a partner in the decision. Also, being a thin patient (63 Kg and BMI of 21) which facilitated the surgical access could be a helping factor. Moreover, the surgeon was being skillful. Lastly, another factor could be the anatomical site of the appendix which was mediocaecal.

This case report can raise the interest to set criteria that permit the use of TAP block in appendectomy as an anaesthetic technique. Moreover, it can be tried in other types of surgery such as inguinal hernia.

#### 3.1. Conclusion

TAB block can be used as a modality of anaesthesia in appendectomy.

### Footnotes

**Authors' Contribution:** Hassan Mohamed Ali: sharer in the design, data analysis and interpretation, revising, and final approval; Ashraf Hamed Shehata: main sharer in data design, data collection, data analysis and interpretation, drafting, revising, and final approval.

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