

Unilateral US guided TAP block for abdominal surgery

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Citation

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Abstract

The use of Ultrasound (US) guided nerve blocks is evolving. Currently the trend in regional blocks is moving slowly from using electric nerve stimulation to the use of US techniques. In patients undergoing anesthesia for abdominal surgery, perioperative pain relief is a major issue. Perioperative pain relief interventions believed to reduce co-morbidities among surgical patients. Conventional pain relief techniques involve the use of opioid analgesic drugs with their untoward effects. We report a case of laparoscopic surgery where we used US guided transversus abdominis plane (TAP) block for intra and postoperative pain relief.

CASE REPORT

A-48-yr old male patient was scheduled to undergo laparoscopic right inguinal and epigastric hernia repair under general anesthesia. His body weight was 84kg and he was otherwise healthy with no previous medical diseases. Preoperative visit revealed an ASA I patient with normal laboratory tests. After connecting the patient to routine monitoring induction of anesthesia was achieved with sufentanil 10mic and propofol 200mg. Endotracheal intubation was facilitated with atracurium 40mg. Maintenance of anesthesia was achieved with O2/air and 1MAC sevoflurane. Unilateral right sided TAP block was performed using US guided technique (high frequency ,5-13MHz linear transducer, LOGIQ e, GE). Using the transducer visualization of the abdominal wall compartments was achieved on the right side at mid clavicular line. The different layers visualized were, from below upward: the moving bowel, peritoneum, transversus abdominis muscle, internal oblique and external oblique muscles (Figure 1). Using a long 2 inches insulated needle (Braun Melsungen, Germany) puncture the abdominal wall linear to the transducer was performed. Under US scanning the shaft of the needle was visualized piercing the external then internal oblique muscles. Between the internal oblique and the transversus abdominis muscles the needle was placed and bupivacaine 25ml (0.25%) was injected followed by separation of the plane between the two muscles. Surgery then commenced with one port subumbilical and one port on the right side plus two other ports in the left side of the abdominal wall. Hemodynamic changes were recorded throughout the procedure which included peritoneal

insufflation of CO2 at 15mmHg. The operation lasted for 70 min and it was uneventful. The hemodynamic data at different stages of surgery are given in table 1. Throughout the procedure the patient received only 10mic sufentanil at induction of anesthesia. In the recovery room he received 2mg morphine i.v then PCA with morphine started and continued for 24hr where the total dose given over that period was 21mg, then PCA was discontinued.

Figure 1

Figure 1: US scanning showed different abdominal wall layers.

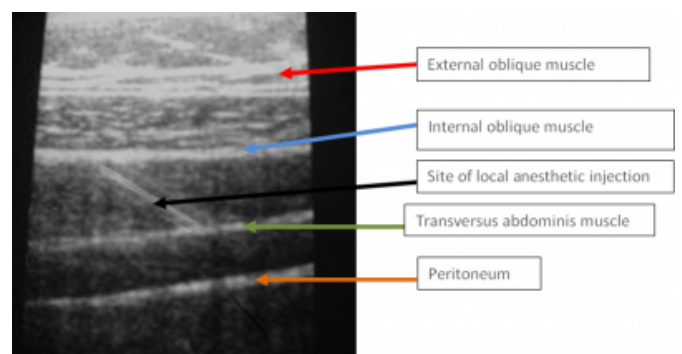


Figure 2

Table 1: Hemodynamic changes during different surgical phases

	Pre-induction	Induction	Sub-umbilical Incision	Right-side ports insertion	Left- side ports insertion
Heart rate/min	75	85	65	63	68
Mean Bp mmHg	70	80	70	65	70

DISCUSSION

TAP block is fairly new technique. Few reports were published describing the technique and its usefulness in abdominal and prostatic surgery. The technique described based on the so called Petit triangle. The borders of "Petit" triangle formed of latissimus dorsi muscle posteriorly, external oblique muscle anteriorly and iliac crest forming the base (1). Blind TAP block was first described by Rafi who clearly states that the floor of the triangle "Petit" is the internal oblique muscle (2). However, he stated also that in obese patients identifying the triangle may be difficult. Reid stated that there is danger of overestimating the ease of this block in obese population (3). In his recent report Hebbard described the technique of US guided TAP block (4). The author concluded that TAP block is a genuine alternative to epidural analgesia with less potential complications. Also he added that TAP block can be used in conjunction with PCA as multimodal analgesia as simple alternative when an epidural is contraindicated. Also he concluded that US imaging allows the TAP block to be safely and precisely accessed. In this case we reported excellent analgesia with unilateral US guided TAP block intraoperatively. Surprisingly this patient received only 10mic sufentanil during surgery which means an effective analgesia achieved with TAP block. Also analgesia has extended to the immediate postoperative period where the patient received 2mg morphine only in the recovery period. What surprised

me is the contra-lateral analgesia. Though the surgery for hernia repair was entirely right sided procedure but upon inserting the abdominal surgical ports on the left side the hemodynamics remained stable which means excellent analgesia even on the contra-lateral side. Anatomically the internal oblique and transversus abdominis muscle have common insertion onto the linea alba, pubic crest and pectin and also they have common nerve supply, intercostal nerves 7-11, subcostal, iliohypogastric and ilioinguinal nerves. We think that contra-lateral analgesia in our case might explained by diffusion of the local anesthetics to that side and hence pain relief.

In conclusion, we believe that US guided TAP block provides effective intraoperative analgesia for abdominal laparoscopic surgery. At this stage and based on one case report we can't draw definite conclusion on the efficacy of unilateral US TAP block in abdominal surgery. Therefore large randomized studies are needed to prove our hypothesis.

References

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