



CASE REPORTS

Bilateral quadratus lumborum block for management of persistent postoperative paralytic ileus: a case report

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Abstract We report the case of a 62-year-old female who suffered from a persistent postoperative paralytic ileus following an urgent open cholecystectomy. On the fifth postoperative day we performed a bilateral Quadratus Lumborum Block (QLB) type 1 which resulted in a progressive resolution of the condition. This case report highlights that QLB is not only limited to somatic pain control, but it can also be used to alleviate visceral pain, namely in the context of paralytic ileus management in the postoperative period.

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Introduction

QLB is a peripheral nerve blockade technique that generates an analgesic effect by blocking the spinal nerves from T6–T9 to L1–L3, which may provide somatic and visceral analgesia.^{1,2}

Case report

We describe the case of a 62-year-old female presenting a cholecystitis, with an unremarkable past medical history. She underwent an urgent laparoscopic cholecystectomy under general anesthesia that was converted to an

open surgery performed through a subcostal incision. At the end of surgery, the incision was infiltrated with ropivacaine (20 mL of a 0.75% solution), and the patient was given a single-shot right subcostal transverse abdominal plane block with ropivacaine (20 mL of a 0,5% solution), which provided satisfactory analgesia, associated to systemic analgesia of tramadol (300 mg.h⁻¹ infusion intravenously – IV), paracetamol (1 g, 3 times a day IV) and metamizole (1 g, 2 times a day IV), and parecoxib (40 mg, 2 times a day IV).

At 24 hours postoperatively, the patient referred moderate pain at the incision site (the Numeric Pain Rate Scale – NPRS – score was 3). After the first 24 hours, the patient developed a condition compatible to a paralytic ileus that became particularly disturbing in the following days. Bowel sounds were absent, and the patient was unable to ambulate, rest, or tolerate an enteral diet.

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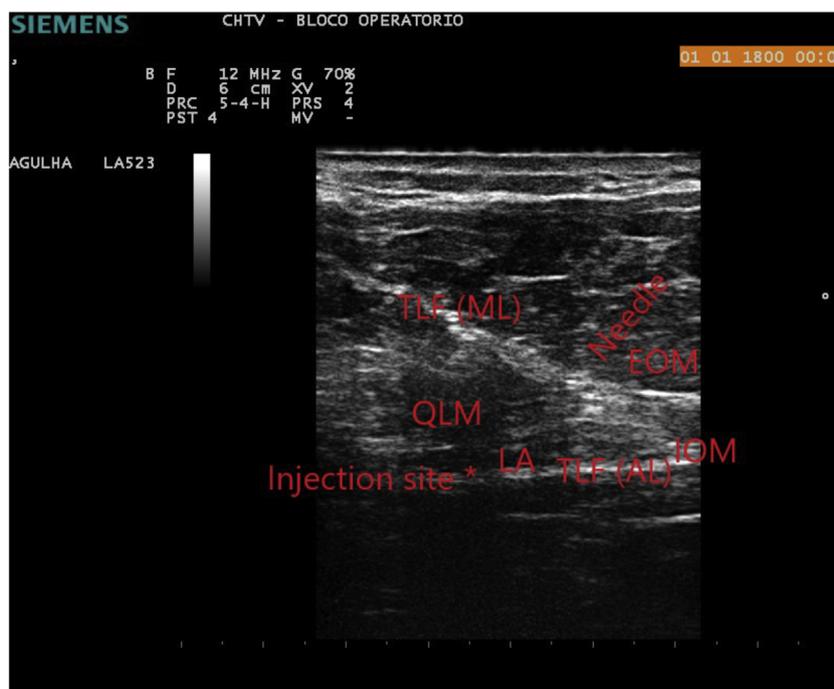


Figure 1 Demonstration of Quadratus Lumborum Block type I performance. The needle insertion is done from anterior to posterior direction under ultrasound visualization (a linear probe was used). The injection is performed when significant resistance is found during needle path at the anterior layer of the thoracolumbar fascia TLF (AL). The LA spread is visible between the Quadratus Lumborum muscle and the TLF (AL). Further details are described in the main body text of this article. TLF (ML), Thoracolumbar Fascia (Middle Layer); TLF (AL), Thoracolumbar Fascia (Anterior Layer); QLM, Quadratus Lumborum Muscle; IOM, Internal Oblique Muscle; EOM, External Oblique Muscle.

At 48 hours post-surgery, the patient experienced a NPRS score superior to 6, mostly with visceral pain features. An abdominal X-ray showed marked distension of the small bowel. The analgesia prescribed at this point was paracetamol (1 g, 3 times a day IV), metamizole (1 g, 2 times a day IV), parecoxib (40 mg, 2 times a day IV), and tramadol (100 mg, 3 times a day IV).

The patient kept this analgesic regimen during the following days. Nonetheless, due to the persistence of the condition (NPRS score was always superior to 6), on the fifth postoperative day a bilateral QLB type 1 was performed to alleviate the symptoms related to the paralytic ileus.

We informed the patient about the possible benefits and risks of the intervention. We informed that the technique is commonly used in different types of abdominal surgeries, although, to our knowledge, it had never been previously used for the management of the postoperative paralytic ileus.

After obtaining informed consent from the patient, he was monitored under pulse oximetry and continuous electrocardiography. Noninvasive arterial blood pressure was also measured every 3 minutes. The patient was kept in supine position, with her trunk slightly rotated to the opposite side.

Using routine aseptic technique, a high-frequency (6–12 MHz) linear ultrasound transducer probe in a sterile cover (Acuson P300®, Siemens AG®, Munich, Germany) was placed transversely between the costal margin and the iliac crest. The fascia surrounding the transversus abdominis muscle was tracked posteriorly to its origin, where the transversus abdominis muscle merges with the thoracolum-

bar fascia surrounding the quadratus lumborum muscle (Fig. 1). An 85-mm 22G long echogenic needle (Echoplex®, Vygon®, Ecouen, France) was inserted in-plane with the ultrasound probe. We injected 20 mL of a 0.5% ropivacaine solution between the anterior Thoracolumbar Fascia (TLF) layer and the Quadratus Lumborum Muscle (QLM) (QLB type 1) after negative aspiration (Fig. 1). Spreading of the local anesthetic was observed around the QLM. The procedure was repeated on the other side using the same positioning and technique.

The patient reported a significant amount of relief and the NPRS became inferior to 1. After the boluses, the patient was unable to feel cold in the upper, middle, and lower abdomen bilaterally. The patient referred diminished pain sensation to a pinprick test in the same area (T7–L1). These effects were noted for 18 hours. The patient managed to tolerate right or left lateral decubitus. Tramadol infusion and parecoxib were no longer administered and intravenous analgesia was adjusted to paracetamol (1 g, 3 times a day IV) and metamizole (2 g, 2 times a day IV). After 6 hours, she mentioned to hear bowel sounds, which were confirmed through auscultation. She referred the first episode of flatulence in the first day after the block. She started to ambulate the following day and was able to initiate a progressive liquid and solid oral diet. Between 24 and 48 hours, the patient presented NPRS < 2 in the subcostal region. She was discharged home 2 days after the type 1 QLB. Twenty-four hours after the block and in the next days until discharge she referred only discrete somatic patient in the right sub-

costal region at palpation. No visceral pain was reported later than 24 hours after the block.

The patient granted permission for the publication of this case report with anonymized details.

Discussion

To our knowledge, this is the first description of the use of the QLB in the resolution of a postoperative paralytic ileus, which confirms that the QLB can be used in other roles besides only somatic pain control.

The somatic and visceral analgesia provided by QLB is very important to avoid, minimize, or treat paralytic ileus. QLB may increase the range of motion in supine position, reduce pain, and limit opioid use, which are essential conditions to prevent an ileus.

The true mechanism of analgesia provided by QLB has not yet been fully clarified, nonetheless it is believed that the local anesthetics spreading along the TLF into the paravertebral space is responsible at least partially for its analgesic benefits.

In 2011, Carney et al.³ showed that contrast spreads from the L1–T5 segment of the paravertebral space. On the other hand, another publication⁴ did not show that contrast injected into the area around the QLM spreading into the paravertebral space.

We assume that the commonly observed visceral analgesia from the QLB, in our practice, may result from the spread of anesthetics to sympathetic ganglia chain or via splanchnic nerves.

The regular or as-required tramadol administration is proposed in the protocols for ileus prevention in order to limit the usage of typical opioids.

Following major elective abdominal surgery, the review of analgesic prescription with weaning of narcotics and sub-

stitution with regular paracetamol, regular non-steroidal anti-inflammatory drugs, if not contraindicated, is often an option. The QLB may contribute to ileus treatment indirectly by reducing the need of further typical or atypical opioid administration.

In conclusion, the QLB has been effective in pain control following several types of major abdominal procedures. In our case, the QLB also proved to be valuable in the management of a postoperative paralytic ileus condition.

Conflicts of interest

The authors declare no conflicts of interest.

Acknowledgements

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