



POST-OPERATIVE PAIN MANAGEMENT IN PAEDIATRIC PATIENTS: QUADRATUS LUMBORUM BLOCK VIA INTRAMUSCULAR APPROACH

Anesthesiology

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ABSTRACT

Quadratus lumborum block is a relatively new regional anesthetic technique first described by R. Blanco in 2007¹. We are presenting a case report in which bilateral Intramuscular Ultrasound Guided Quadratus Lumborum Block (QLB) was given for postoperative analgesia in a 12 year old child, who underwent appendectomy plus inguinal herniotomy for left inguinal hernia under general anesthesia. After surgery patient complained of pain and to avoid hemodynamic side effects of drugs, QLB was considered. Patient got relief after 10 minutes with VAS score of 3/10. Rescue analgesia (paracetamol) for next 12 hours was greatly reduced. So QLB provides an effective postoperative analgesia in pediatric patients.

KEYWORDS

Paediatric, Analgesia, Quadratus lumborum block.

1. Introduction

Quadratus lumborum block is a relatively new regional anesthetic technique first described by R. Blanco in 2007¹. This technique provides effective postoperative analgesia after abdominal and retroperitoneal surgeries^{2,3}. Its use has been reported in both adult and pediatric patients^{3,4}.

We present a case report where postoperative analgesia was provided by bilateral transmuscular Quadratus lumborum block, in a patient who underwent appendectomy plus herniotomy, after due permission from his parents.

2. Case Report

A 12 year old boy weighing 30kg, otherwise healthy was scheduled to undergo appendectomy and herniotomy for left inguinal hernia. A routine surgery for the above procedure was performed under general anesthesia using standard technique. After extubation he complained of severe pain with VAS 8/10 on both sides of abdomen postoperatively, he was administered intravenously inj. fentanyl 2µg/kg with no relief even after 15 minutes of observation. Epidural was not considered to avoid its hemodynamic side effects. So it was decided to give bilateral Quadratus lumborum block (QLB) through intramuscular approach. Oral informed consent was taken from the patient's parent after describing QLB. Patient was administered inhalational agent sevoflurane through bag and mask. Patient was positioned right lateral for left QLB and left lateral for right QLB. Under all aseptic precautions bilateral ultrasound guided QLB was performed on both sides through intramuscular approach using high frequency linear probe placed slightly cephalad to iliac crest in posterior axillary line. Quadratus lumborum muscle was visualized [figure 1] and a 23G spinal needle was inserted in the plane. Needle tip was advanced inside the muscle and after testing for negative aspiration, 3ml of saline was injected (hydro dissection) to confirm the position of needle tip [figure 2], 12ml of 0.25% bupivacaine was injected on each side. Then inhalational agent was discontinued and patient was monitored till awake. Pain relief was experienced after 10 minutes with VAS score of 3/10 and after 12 hours, first dose of rescue analgesia (iv paracetamol-10mg kg⁻¹) was given on demand with pain relief VAS=4/10. No other side effects were noted. Patient was followed after one week for, no local injection site side effects like rash, ulcer or boils were seen and also no muscle atrophy was seen.



Figure 1: Ultrasound image showing muscles QL-Quadratus Lumborum; EQ – External Oblique; IQ – Internal Oblique; TA – Transversus Abdominis.



Figure 2: Ultrasonic image showing insertion of needle inside QL muscle hydrodissection and ; QL: Quadratus Lumborum.

3. Discussion

There are several approaches regarding QLB: type 1, type 2, type 3 (transmuscular) and intramuscular.⁵ The intramuscular approach is easy to perform because the point of injection is inside the muscle. In a study on intramuscular injection of bupivacaine in rats, dose dependent increase in glutamate levels and myonecrosis was seen.⁶ But there are many case reports, in which intramuscular approach of QLB was used and no muscular atrophy was seen on long follow up.⁷ In our case also after follow up of one week no muscle atrophy was observed. QLB provides wider spread of local anesthetic from dermatome T5 to L1.⁸ Postoperative pain is the most important parameter to be managed after abdominal and retroperitoneal surgeries, in both adults as well as pediatric patients.

In adults multimodal approach with pharmacological agents like opioids and NSAIDs, local anesthetic infiltration at the wound site or intraperitoneal and epidural analgesia have been used so far. Availability of USG has led to use of various blocks like TAP block, ilioinguinal nerve block, celiac plexus block, QL block etc. In pediatric patients, the options are relatively few, mostly drugs and caudal analgesia.

The USG guided QLB offers excellent postoperative analgesia as in our case. It is relatively easy and safe, when performed under US guidance. It saves the children, of all side effects like postoperative nausea and vomiting, pain of injection and other hemodynamic side effects. Extensive search of literature shows that this block has not been much reported for pediatric population. Quadratus lumborum block is an effective regional anesthesia technique for postoperative pain relief after abdominal surgeries in pediatric patients.

4. References

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