

Inadvertent epidural spread after an anterior quadratus lumborum block

Dear Editor,

The anterior quadratus lumborum block (QLB) is used as a regional anesthesia technique for certain hip surgical procedures.^[1] Case report, cadaveric and radio-opaque contrast studies after anterior QLB reveal the spread into paravertebral space.^[2,3]

A 21-year-old, 44-kg woman admitted with fracture acetabulum was scheduled for open reduction and internal fixation using an anterior approach. General anesthesia was induced with fentanyl 50 µg, propofol 150 mg, and cisatracurium 8 mg followed by endotracheal intubation with 7.0 sized cuffed endotracheal tube and maintained over oxygen: air and sevoflurane using volume-controlled ventilation. Consent was obtained for performing the block and for using images for sharing in scientific journal.

A gel pad was placed under ipsilateral pelvis and a low frequency 2–6-MHz array curved transducer (M-Turbo,

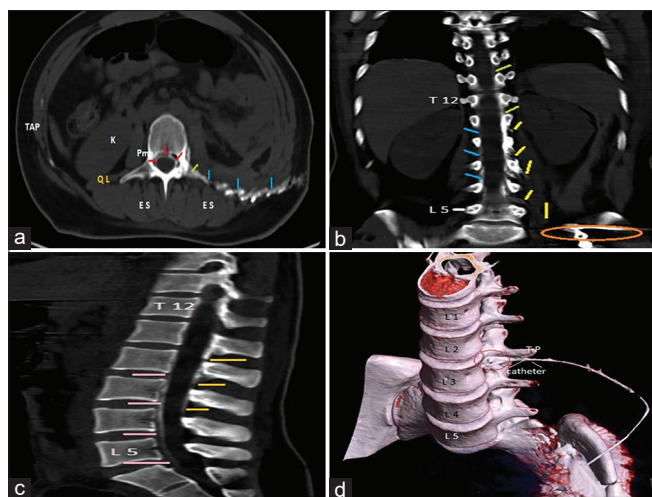


Figure 1: (a) Axial view. Catheter course (Blue lines) from posterior of QL to anterior and into lumbar paravertebral area; Epidural spread—Red lines; TAP—Transversus abdominis plane; K—Kidney; PMA—Psoas major muscle; QL—Quadratus lumborum muscle; ES—Erector spinae muscle. (b) CT coronal view. Right epidural spread—Blue lines (right); Left paravertebral spread in the psoas major is on the side (left) of catheter insertion (yellow lines); Left high epidural spread at T12–L1 and T10–11 (light green); Surgical site—Orange circle. (c) CT sagittal spread. The circumferential epidural spread is noted by anterior (light pink), posterior (dark yellow), and lateral (blue) spread of contrast in the epidural space. (d) The volume rendering technique depicting the catheter (white lines) in the lumbar paravertebral space at the upper border of level of L3, instead of ATLF; TP – transverse process; Red oval – Catheter tip seems to be in left lumbar paravertebral space

Sonosite Inc) was placed across midaxillary line. The ultrasound (US) probe was covered with sterile biofilm (Tegaderm, 3M). External oblique, internal oblique (IOM), and transversus abdominis muscles were traced posteriorly under US guidance until quadratus lumborum muscle (QLM) was visualized deep to IOM and middle layer of thoracolumbar fascia (TLF). A Tuohy needle was inserted from posterior to anterior aspect, using an in-plane approach under asepsis. The needle tip passed the middle layer of TLF and QLM ending in anterior TLF and 25 mL of 0.375% ropivacaine with 12.5 µg of dexmedetomidine was injected slowly. A 20 G catheter was introduced and was inserted up to 5 cm beyond the tip of Tuohy needle. Before extubation, we administered 1 g paracetamol. The patient was transferred to recovery with stable hemodynamics.

An infusion of 8 mL/h 0.1% ropivacaine was administered into the QLM plane. Visual analog scale scores at various time points were 0–1 for the first 24 h. Shortly after the patient woke up, she complained of bilateral weakness in quadriceps and calf muscles. Bilateral knee and ankle reflexes were attenuated; therefore, infusion rate was reduced to 4 mL/h which led to marginal neurological improvement in both lower limbs. To exclude an epidural

spread, contrast-enhanced computerized tomography (CT) scan was done.

In the axial plane, the catheter course [Figure 1a] could be seen posterior to QLM, penetrating the ATLF (anterior thoracolumbar fascia) and the contrast could be observed in the lumbar paravertebral area and the entire epidural space—posterior, lateral, and anterior. In the coronal plane [Figure 1b], bilateral contrast distribution was observed from the level of T8–9 to L5–S1. In sagittal sections [Figure 1c], dense contrast could be visualized in the thoracic and caudal area. The volume rendering technique CT image depicted the catheter in the paravertebral space [Figure 1d]. There was complete neurological recovery in next 36 h.

Blanco described the QL1 (lateral) and QL2 (posterior) approaches.^[4] Borglum introduced the TMQLB (trans-muscular quadratus lumborum block) i.e., anterior approach.^[5] The probable reason of paravertebral and epidural spread could be breach of ATLF by catheter as course of catheter in quadratus lumborum plane (QLP) is unpredictable. In this case, the epidural spread was probably because of catheter breaching the ATLF due to excessive force to negotiate the resistance offered by ATLF.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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References

1. Ueshima H, Yoshiyama S, Otake H. The ultrasound-guided continuous transmuscular quadratus lumborum block is an effective analgesia for total hip arthroplasty. *J Clin Anesth* 2016;31:35.
2. Dam M, Moriggl B, Hansen CK, Hoermann R, Bendten T, Børglum J. The pathway of injectate spread with the transmuscular quadratus lumborum block: A cadaver study. *Anesth Analg* 2017;125:303-12.
3. Wikner M. Unexpected motor weakness following quadratus lumborum block for gynaecological laparoscopy. *Anaesthesia* 2017;72:230-2.
4. Blanco R. Optimal point of injection: the quadratus lumborum type I and II blocks. *Anesthesia* 2013;68:4.
5. Børglum J, Moriggl B, Jensen K, Lønnqvist PA, Christensen AF, Sauter A, *et al.* Ultrasound-guided transmuscular quadratus lumborum blockade. *Br J Anaesth* 2013;110:3. Available from: http://bj.oxfordjournals.org/forum/topic/brjana_el%3b9919.

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