



CORRESPONDENCE

Transient abdominal motor block after a transversus abdominis plane block in an elderly patient

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Received: 14 January 2015 / Accepted: 10 February 2015 / Published online: 18 February 2015
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To the Editor,

The transversus abdominis plane (TAP) block provides postoperative analgesia after abdominal surgical procedures (i.e., bowel resection, appendectomy, cholecystectomy, hysterectomy, Cesarean delivery).¹ The TAP block targets the anterior rami of the T₇–L₁ thoracolumbar nerves which course between the transversus abdominis and the internal oblique muscle layers.¹ The resulting sensory anesthesia of the anterior-lateral abdominal wall results in effective analgesia with few side effects.^{1–3} Herein, we inform readers of the *Journal* of an interesting transient complication resulting from this popular block.

The patient provided written consent to publish this report. An 87-yr-old male, American Society of Anesthesiologists physical status class III, underwent emergency surgery for an incarcerated inguinal hernia. An ultrasound-guided TAP block was performed in the mid-axillary line. The patient was given an injection of 0.5% ropivacaine 20 mL with a 100-mm 21G short-bevel needle along the planned incision line and between the aponeurosis of the internal oblique and transversus abdominis muscles. Twenty minutes later the patient reported thermal and pain anesthesia of the anterior abdominal wall extending from T₉ to L₁. It was observed, however, that, when the patient coughed or increased intra-abdominal pressure, he developed a bulge (5 × 10 cm) that extended from the mid-axillary line to the rectus abdominis (Figure). His vital signs were stable and ultrasound showed a normal abdominal wall without

evidence of hematoma or hernia. Thirty minutes later, the extension of the area of anesthesia and the area of the bulge were unchanged. Following discussion with the patient, surgery proceeded as planned. Anesthesia and surgery were uneventful and the procedure was completed in approximately 50 min. The patient stayed in hospital overnight, and the following morning the bulge was no longer visible. Upon follow-up examination after surgery, the hernia repair scar was well healed.

The TAP block is thought safe, and serious complications (e.g., intravascular injections, liver laceration, and bowel perforation) are rare.^{1–3} In two such case reports of transient motor weakness from a TAP block, one describes two adults with femoral nerve impairment,² and another depicts an abdominal wall muscle impairment in a child.³ Untoward motor effects as well as failures of TAP block have been ascribed to imprecision in needle placement and to tracking the local anesthetic caudad.^{2,3} Ultrasound techniques should minimize such occurrences. In our case, the bulge was mid-abdominal, which suggests that the local anesthetic can spread cephalad at relatively high doses and volumes even when it is injected under ultrasound guidance.

In cadaver studies, open-field injections of a dye under the external oblique discoloured only the inguinal region and the femoral nerve;⁴ however, landmark- or ultrasound-guided percutaneous injections caused massive discolouration of the peritoneum and of the T₁₀–T₁₂ nerve roots.⁴ In our patient, the bulge was mid-abdominal, oblique-oriented from the right lumbar region toward the lateral edge of the rectus abdominis, and wider laterally than medially. A relaxation of the abdominal wall has been reported in herpes zoster and in surgical nerve injuries (i.e., as after kidney surgery) but only when all three horizontal muscles of the abdominal wall (i.e., the internal and

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Figure Appearance of the abdominal wall at rest (above) and with increased abdominal pressure (below)

external oblique and the transversus abdominis) are denervated and atrophic.⁵ Hence, the bulge in our patient was due to a segmental abdominal paresis from a motor block of a right thoracolumbar nerve, most likely T₁₀. The motor block may have been favoured by subclinical age-related neuropathy which increases sensitivity to local anesthetic. The possibility of a motor block should be considered, especially when the abdominal wall muscles are less well developed, as in young children, or weak, as in the elderly.

Conflicts of interest None declared.

Financial support and sponsorship None to declare.

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