



Truncal Regional Anesthesia for a Patient with Prune Belly Syndrome Undergoing Kidney Transplant

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Introduction

- Prune belly syndrome (PBS) is a rare congenital disorder primarily affecting males characterized by underdeveloped abdominal wall musculature, urinary tract abnormalities and cryptorchidism. (1)
- Postoperative analgesia is essential for patients with PBS. Deficient abdominal wall musculature may exacerbate respiratory insufficiency due to splinting. (2,3)
- Altered anatomy of truncal musculature in PBS may prove challenging when performing common regional anesthesia procedures.
- We report the successful use of abdominal fascial plane blocks for postoperative analgesia after kidney transplant in a patient with PBS.

Case Report

- 44-year-old male with a history of PBS, obstructive uropathy with associated ESRD and several prior abdominal and urologic surgeries presented for a living-donor renal transplant.
- UTH institutional kidney transplant protocol includes quadratus lumborum (QL) blocks; however, the surgeon noted significant anatomical abnormalities including thin fascia, malrotation of the GI tract, and aberrant arterial supply to the pelvis. Presence of normal regional landmarks on ultrasound was uncertain.
- The regional anesthesia service noted a distended abdomen, and on ultrasound, observed significantly underdeveloped, thin abdominal wall muscles, with the entire thickness of the abdominal wall musculature measuring less than 0.5cm at some points. (4)
- Morphology was otherwise typical. Rectus, obliques, and QL muscles were identified. We performed an ultrasound-guided left QL block with 20 ml of 0.25% bupivacaine with 3 mg of preservative-free dexamethasone.
- Postoperatively, the patient required 10 mg of oral oxycodone and 0.2 mg of intravenous hydromorphone. Reported pain score was 2/10. His pain remained well controlled and was managed with an opioid-free multimodal regimen for the remainder of his hospitalization.

Images



Figure 1: Underdeveloped rectus (RM) and oblique muscles (OM) beneath a thick layer of subcutaneous tissue (SC). Bowel lies beneath the abdominal musculature

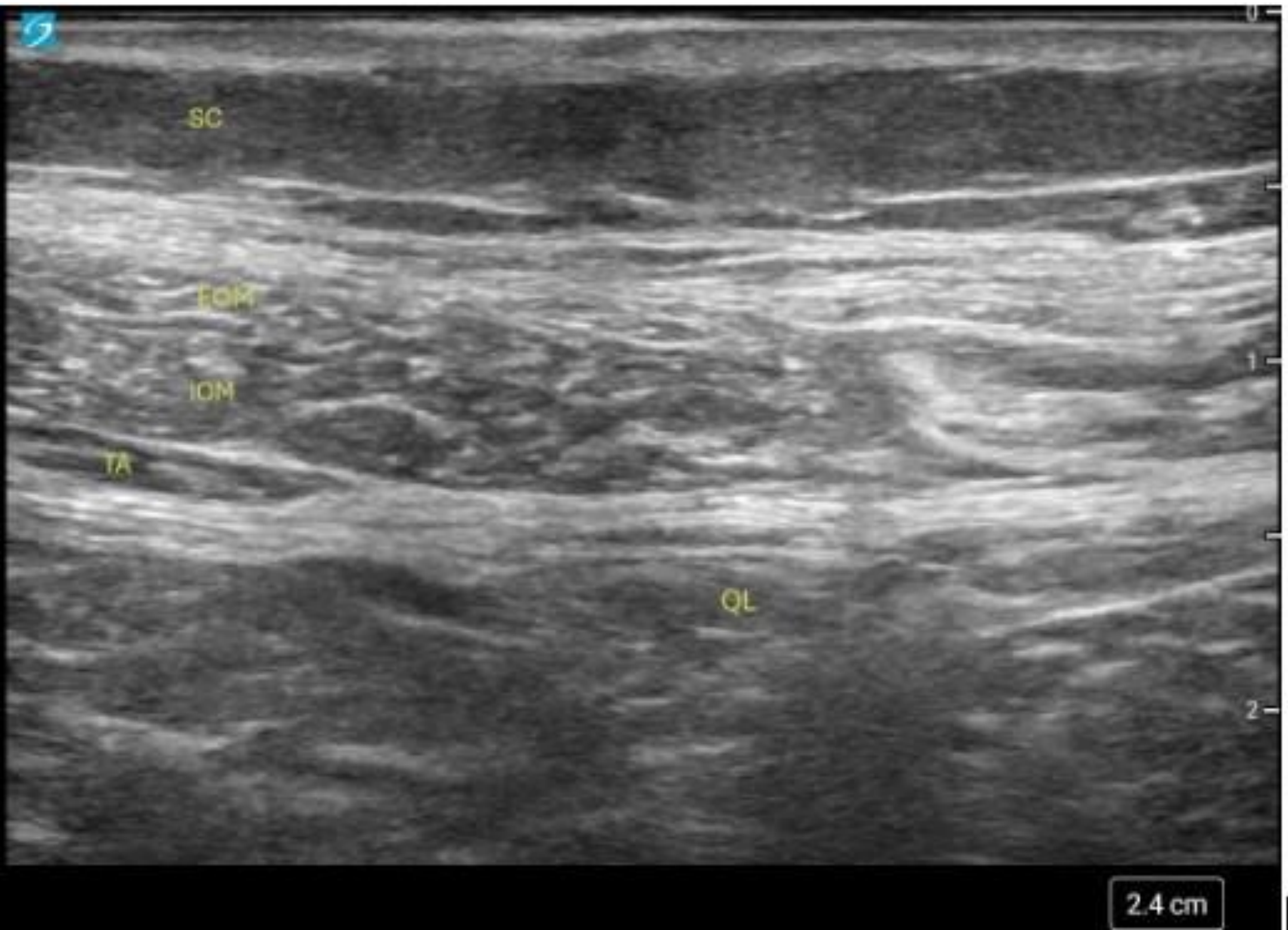


Figure 2: View of external oblique muscle (EOM), internal oblique muscle (IOM), transversus abdominis (TA), and quadratus lumborum (QL) muscles prior to QL block.

Discussion

- PBS-related abnormalities may require various surgical interventions ranging from orchiopexies to extensive abdominal/ urologic reconstruction.(2)
- Opioid-sparing multimodal analgesia, including regional anesthesia, is ideal due to potential postoperative respiratory insufficiency secondary to inadequate analgesia and deficient abdominal musculature (2,3).
- Commonly used fascial plane blocks for kidney transplant include erector spinae plane (ESP), quadratus lumborum (QL), and transversus abdominis (TAP) blocks (5).
- Aberrant anatomy in patients with PBS may make these techniques challenging. Our patient had notably thin, underdeveloped abdominal muscles, but typical musculature and fascial planes were present.
- Our patient’s response to the block suggests adequate spread of local anesthetic in the fascial plane despite anatomical aberrance, as his pain score was only 2/10 with minimal opioid requirements immediately post-op and non-opioid multimodal regimen the following days.
- Alternative techniques that avoid abdominal landmarks (eg neuraxial or ESP) may provide more reliable analgesia in these patients. Given the variability in patient presentation, a tailored regional anesthetic approach is necessary for each patient.

Abstract and References

