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Continuous Transversus Abdominis Plane Block for Renal Transplant Recipients

To the Editor:

Until recently, we have used transversus abdominis plane (TAP) block in combination with morphine patient-controlled analgesia (PCA) postoperatively in renal transplant recipients. However, as a result of the long duration of surgery, although TAP block decreases the need for intraoperative analgesia, the analgesic effect of the block fades postoperatively. To prolong the analgesic effect, we used a continuous infusion of local anesthetic via the TAP catheter, placed preoperatively under ultrasound guidance. The main problems experienced with this technique were technical: difficulty feeding the catheter into the TAP space; leakage of local anesthetic through the orifices at the sides of the catheter; a relatively low success rate (50%) in terms of catheter placement and, consequently, analgesic effect; and possible interference with the surgical field.

We have subsequently developed a technique whereby the catheter is placed into the TAP plane by the surgeon under direct vision: the surgical dissection creates a small space (1 cm wide × 3–5 cm long) between the transversus abdominis and internal oblique muscles in the lateral side of the wound. The tip of a 16-gauge epidural needle (Portex™ Epidural Minipack, Smiths Medical Australasia Pty, Brisbane, Australia) is inserted through the dissected space, the internal and external oblique muscles, the subcutaneous tissue and the skin, passing through the skin approximately 2 cm from the upper end of the

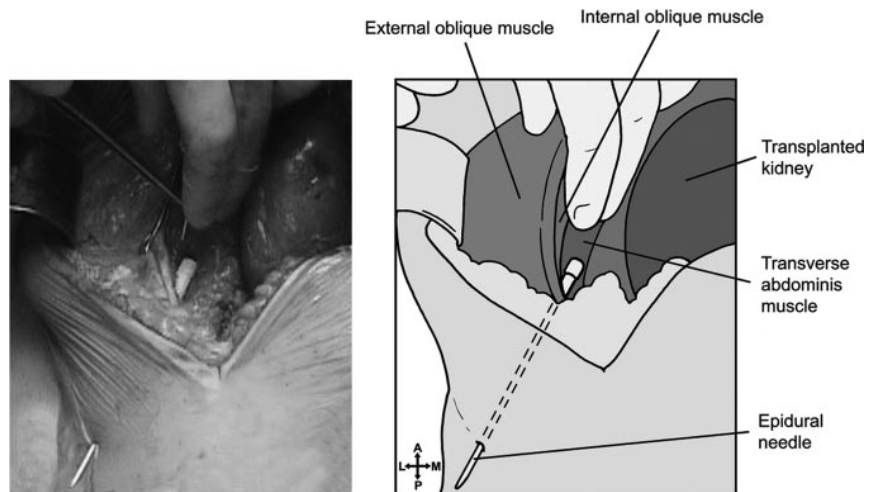


Figure 1. An epidural needle is inserted through the dissected space, the internal and external oblique muscles, the subcutaneous tissue, and the skin, passing through the skin approximately 2 cm from the upper end of the incision. A = anterior; P = posterior; L = lateral; M = medial.

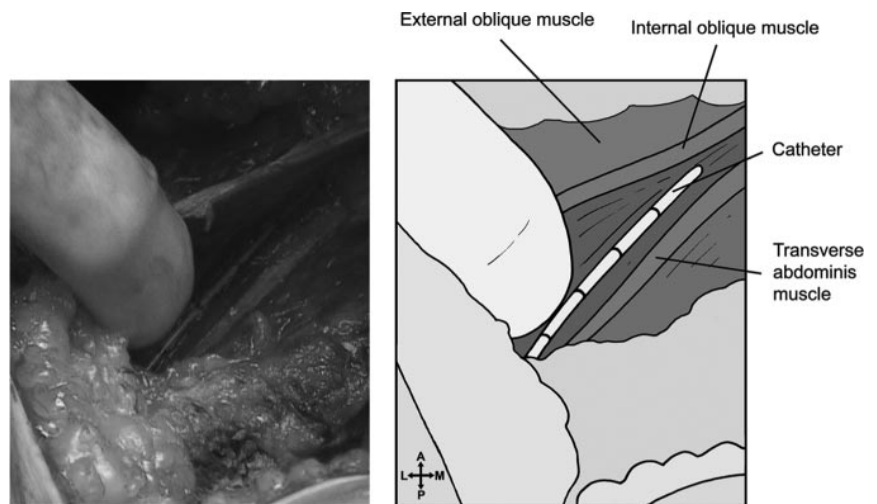


Figure 2. Epidural catheter positioned between the transversus abdominis and internal oblique muscle. A = anterior; P = posterior; L = lateral; M = medial.

Table 1. Comparison of Analgesia Achieved with Continuous TAP Block + Morphine PCA Versus Morphine PCA Alone in Renal Transplant Recipients

Analgesia	No. of patients	Amount of morphine used (mg)		Median pain score	PCA duration (h)
		Median	Range		
Continuous TAP + morphine PCA	7	13.5	4–34	1	24
Morphine PCA	35	61.5	9–167	1	42

PCA = patient-controlled analgesia; TAP = transversus abdominis plane.

incision (Fig. 1). A multiorifice catheter is placed through an introducer epidural needle, leaving 5–6 cm of the catheter positioned between the transversus abdominis and internal oblique muscles (Fig. 2). The needle

is removed and the surgical wound is then closed. The catheter is secured to the skin and a standard epidural catheter dressing applied. After closure of the surgical wound, before awakening the patient, 20

mL of 0.375% levobupivacaine is injected through the catheter. Continuous infusion is initiated in the recovery room. We use a continuous infusion of 0.15% bupivacaine 10 mL/h over 24 h delivered via a CADD-Prizm® PCS II epidural pump (Smiths Medical MD, St. Paul, MN). Ward nurses disconnect the infusion 24 h after initiation and surgeons remove the catheter.

We retrospectively reviewed the results from our last 7 patients comparing the results with those from 35 previously audited patients receiving morphine PCA only. As shown in Table 1, during the first 24 postoperative hours, TAP block reduced mean IV morphine requirements by more than 80% and halved PCA duration while pain

scores were no different (scale 0–3; 0 = no pain, 3 = worst possible pain).

Our early experience leads us to favor this technique, because it allows anatomically accurate placing of the TAP catheter and prolongs the analgesic effect of TAP block. However, as with every new technique, there is a learning curve for surgeons. There are also questions concerning the optimal amount and type of local anesthetic to be continuously injected.

Finally, a recent study shows that TAP block has the potential to cause systemic toxicity if local anesthetic spills over into the adjacent muscles.¹ A randomized controlled trial is required to compare the analgesic effect of single-injection

TAP block with continuous TAP block and thereby confirm the efficacy (or lack) of the continuous TAP block technique.

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