



Quadratus Lumborum Block with Liposomal Bupivacaine for Kidney Transplantation in Two Pediatric Patients

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INTRODUCTION

- Adequate pain control is crucial for pediatric transplant recipients' overall well-being and comfort. It alleviates suffering, promotes earlier mobilization and improves respiratory function (1).
- Quadratus lumborum (QL) blocks provide effective analgesia in kidney transplant surgeries (1).
- There are few prior studies of using liposomal bupivacaine (LB) for QL blocks, especially in pediatric patients.
- We report the use of LB in a QL block for two patients who underwent kidney transplant surgery.

METHODS

- This case report falls under the scope of an approved IRB protocol at the University of Pittsburgh.
- Use of liposomal bupivacaine (EXPAREL, Pacira BioSciences, Inc.) was approved by the surgeon and pharmacy leadership. Patients' guardians provided written consent for its use.
- Data was gathered from the electronic medical records, including daily progress notes, nursing flow sheets, and medication administration records.

CASE STUDY

- Two patients: **17-year-old female (17A)** and a **16-year-old female (16B)**
- Both patients underwent kidney transplant surgery receiving organs from the same deceased donor on the same evening.
- The same surgeon performed both procedures. Surgery required a single right lower quadrant incision.

Patient Characteristics		
	Patient 17A	Patient 16B
Age (y)	17	16
Gender	F	F
Weight (kg)	90.7	77.4
BMI (kg/m2)	32.5	29.5
Education	HS Senior	HS Junior
Medical History	Chronic kidney disease, tubulointerstitial nephritis, steroid-induced diabetes mellitus	End-stage renal disease of unknown etiology, hemodialysis dependent, hypertension, anxiety, depression
Operating Room Time (m)	240	210
Time to perform QL (m)	8	4

CASE STUDY (CONT.)

Timeline:

Preoperative Phase

- Consent
- Pharmacy, surgeon approval



Intraoperative Phase

- Induction
- QL block
- Analgesic medications administered
- Extubation
- Transfer to ICU



Postoperative Phase

- Post-op days 0-4
- Pain assessment
- Analgesic medications administered

Quadratus Lumborum Block:

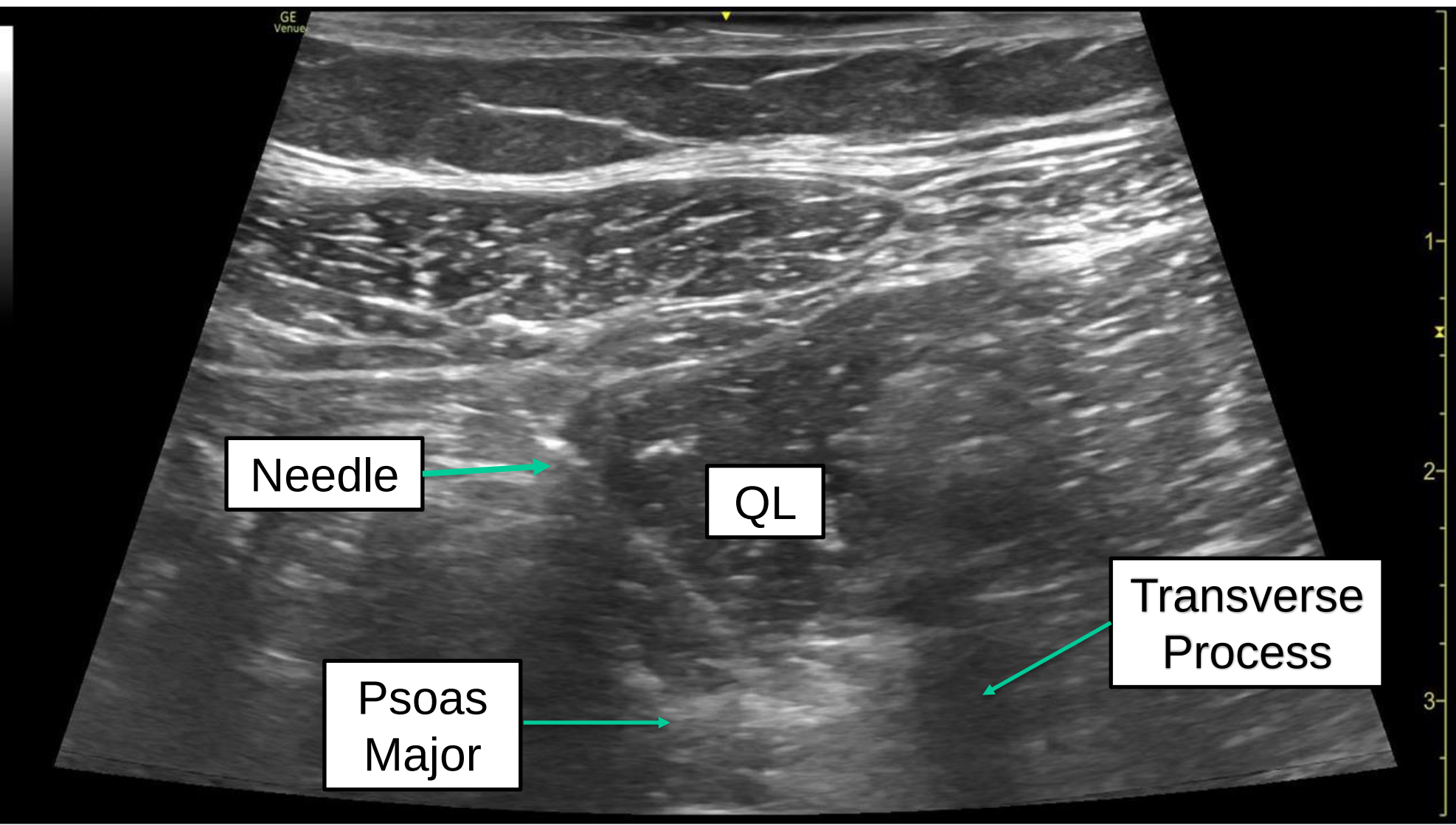
After intubation, an ultrasound-guided right-sided quadratus lumborum block using an anterior approach was performed by an attending regional anesthesiologist (see image). An admixture of liposomal bupivacaine and plain bupivacaine was injected. Dose and volume listed below.

Perioperative Pain Medications:

Analgesic Medications Administered		
	Patient 17A	Patient 16B
Intraoperative	Fentanyl 550 mcg Methadone (IV) 5 mg Acetaminophen 1000 mg Dexmedetomidine 32 mcg Liposomal bupivacaine 266 mg Plain bupivacaine 50 mg Total volume 30 ml	Fentanyl 300 mcg Methadone (IV) 5 mg Acetaminophen 1000 mg Dexmedetomidine 12 mcg Liposomal bupivacaine 266 mg Plain bupivacaine 25 mg Total volume 25 ml
QL Block		
Postoperative (totals for POD 0-4)	Hydromorphone (IV) 400 mcg Oxycodone 0 mg Acetaminophen 13 g	Hydromorphone (IV) 600 mcg Oxycodone 5 mg Acetaminophen 11 g

Pain Assessment:

Post-operative Day	Patient 17A			Patient 16B		
	MME/kg	Average 24-Hour pain score*	Max pain score*	MME/kg	Average 24-Hour pain score*	Max pain score*
0	0.1	0	0	0	0	0
1	0	0	0	0.1	0	0
2	0	4	4	0.2	3	4
3	0	4.5	5	0	0	0
4	0	0	0	0	0	0
Total	0.1	-	-	0.3	-	-
MME-morphine milliequivalents per body weight; *Numeric Rating Pain Score 0-10						



DISCUSSION

- For our patients, anterior approach quadratus lumborum blocks with liposomal bupivacaine provided effective and sustained pain relief with minimal opioid administration and improved our patients' recovery outcomes.
- A recently published meta-analysis found no clinical superiority for using LB in abdominal fascial plane blocks compared to plain bupivacaine. Of note, there was only one QL block study, which used a lateral approach, included (3).
- Further studies are required to better understand the efficacy and safety of liposomal bupivacaine in kidney transplant recipients receiving QL blocks.

REFERENCES

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Author Notes

We sincerely thank Carol Vetterly and Marian Michaels, leaders of the Pharmacy and Therapeutics Committee at CHP, for their assistance.

