



A Retrospective Review of Quadratus Lumborum Block for Analgesia after Minimally Invasive Hysterectomy

John Ahn MD¹, Asaf Gans MD¹, Zasmine Hymes-Green MD¹, Mary Andrews MD¹, Wendy Jiang MS²

1. Department of Anesthesiology and Perioperative Medicine, University of Alabama at Birmingham, Birmingham, AL
2. UAB Heersink School of Medicine, Birmingham, AL



The University of Alabama at Birmingham

Introduction

- Analgesic efficacy of the quadratus lumborum block (QLB) for laparoscopic and robotic surgeries remain controversial [1-5].
- Hypothesis:** preoperative bilateral anterior QLB will reduce postoperative opioid consumption and pain severity in minimally invasive hysterectomies (MIH).

Methods

- Retrospective analysis of 1,673 patients who underwent robotic or laparoscopic hysterectomies at UAB between Jan. 2, 2019 and Dec. 28, 2023.
- 316 (18.9%) patients received preoperative bilateral QLB with 50-60 mL 0.25% ropivacaine, and remaining 1,357 (81.1%) did not receive the block.

Inclusion Criteria	Exclusion Criteria
Adults who underwent MIH	Age ≤ 18
Received QLB or did not receive block	Conversion to open hysterectomy
	Other truncal nerve block or intrathecal opioid

- Primary outcome:**
 - Cumulative 24-hr postoperative MME
- Secondary outcome:**
 - Cumulative MME at other postoperative time intervals (1, 6, 12, 48 hrs)
 - Pain scores at each time interval
 - Time to ambulation
 - Time to first postoperative opioid
 - Incidence of nausea
- Statistical analyses were performed using two-sample t-tests, chi-square tests, and log-rank tests.

Results

Figure 2. Postoperative MMEs by group

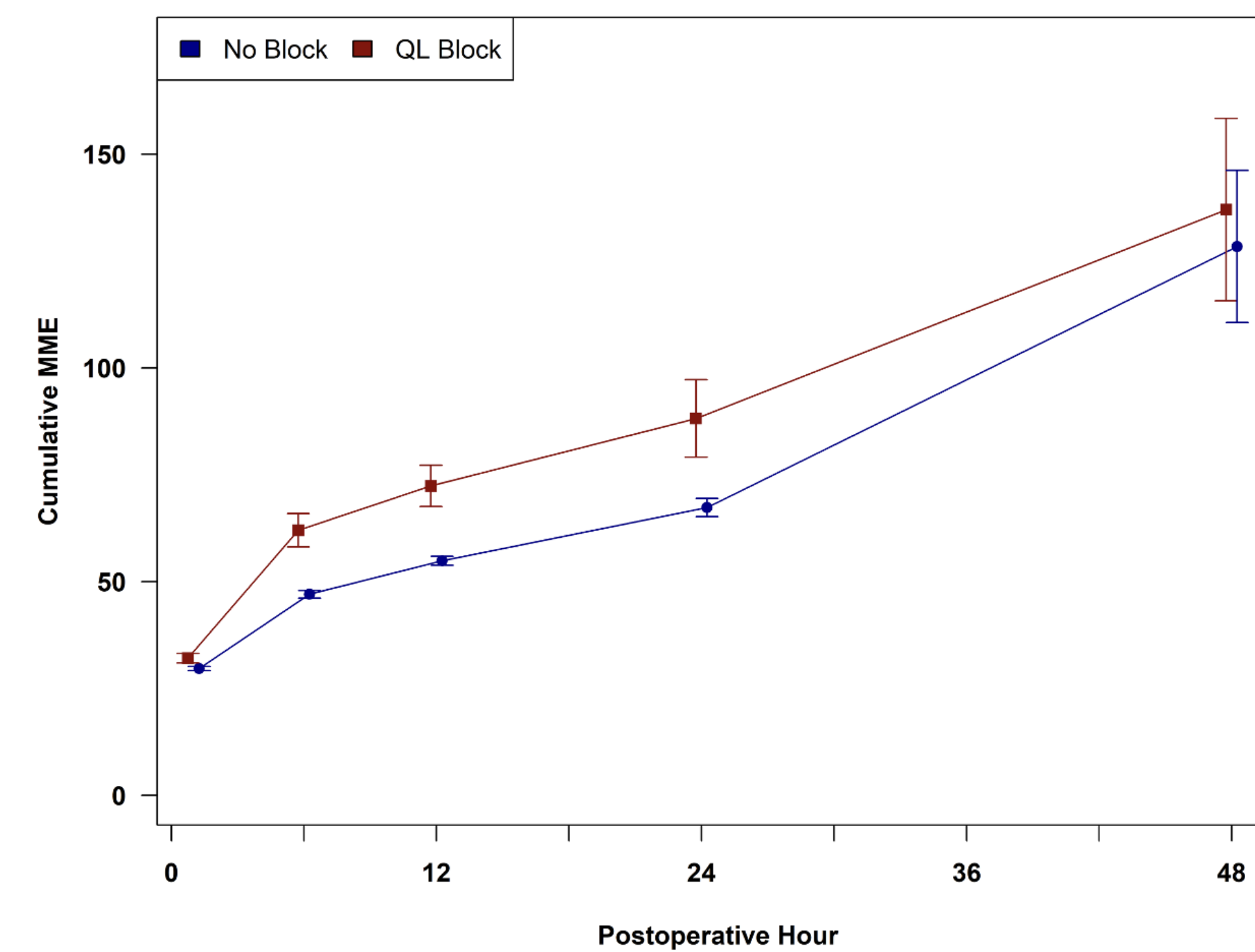
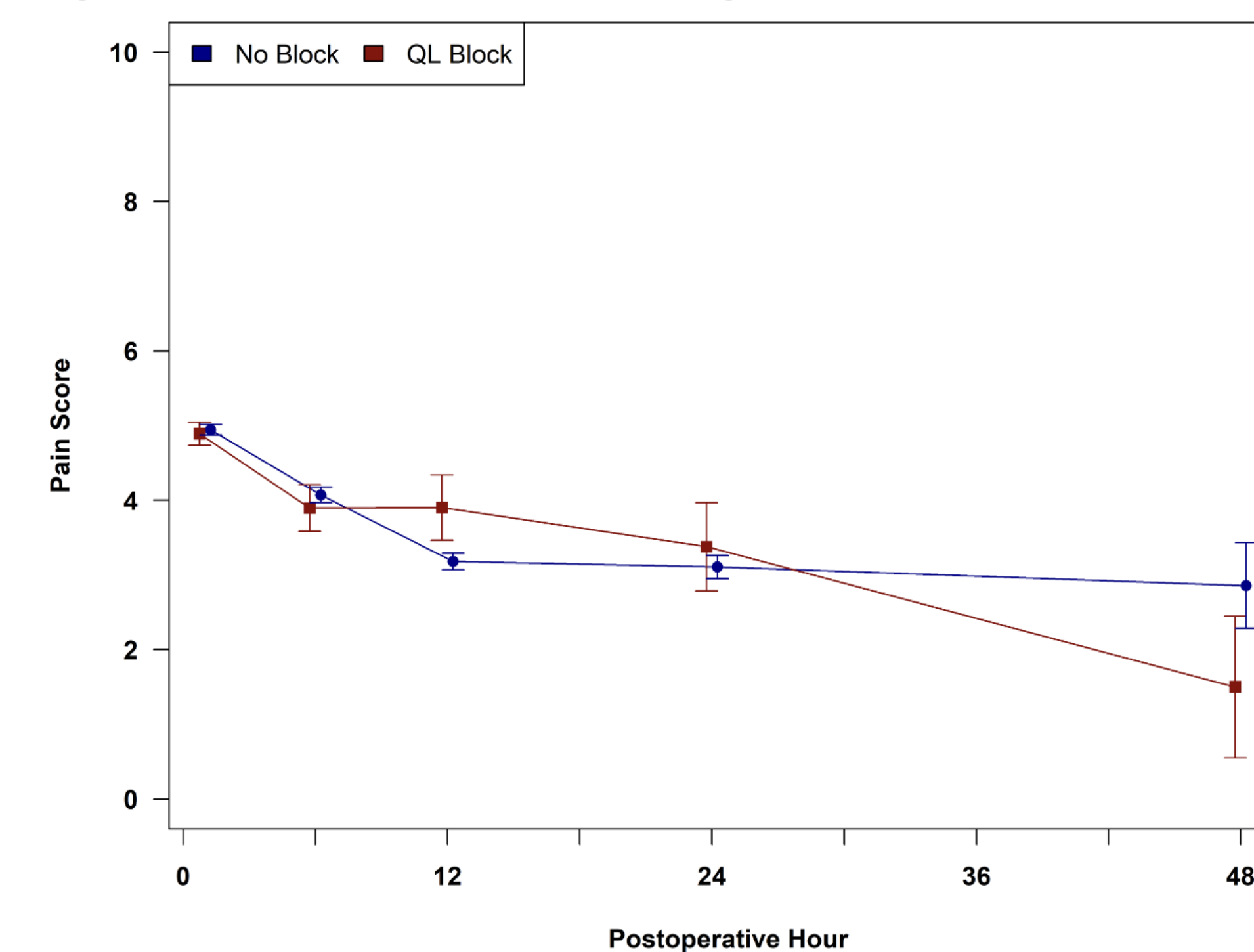


Figure 3. Postoperative pain scores by group



- QLB group vs No Block group:**
 - ↑ 24-hr postoperative MME (88.17 vs 67.31, p < 0.014)
 - ↑ incidence of nausea (23.73% vs 17.02%, p < 0.005)
 - ↑ intraoperative use of ketorolac (20.25% vs 14.89%) and ketamine (32.59% vs 20.61%)
- No significant differences in pain scores at any time point, time to ambulation, and time to first postoperative opioid

Discussion

- Our single-center retrospective review suggests that bilateral anterior QLB may not be effective in decreasing postoperative MME and pain scores in MIH.
- Our results are like recent studies that showed no analgesic benefit in QLB for laparoscopic gynecologic surgery [4-5].
- Limitations of the study:
 - Retrospective design
 - Block effectiveness was not regularly tested prior to surgery
 - Variability in intraoperative analgesics administration
 - Differences in block execution due to resident training
 - Larger number of patients were in the no block group compared to the QLB group which may reflect our institution's ERAS protocols and surgeon preferences

Table 1. Primary and secondary outcomes

Variable	No Block (N = 1357)	QL Block (N = 316)	P
Cumulative postoperative MMEs, mean (SD)			
1 hour	29.65 (17.47)	32.08 (19.79)	0.030*
6 hours	47.03 (26.90)	62.01 (36.84)	< 0.001*
12 hours	54.86 (31.44)	72.38 (41.01)	< 0.001*
24 hours	67.31 (44.58)	88.17 (49.20)	0.014*
48 hours	128.38 (107.31)	137.00 (56.38)	0.827*
Pain scores			
1 hour	4.94 (2.62)	4.89 (2.66)	0.751*
6 hours	4.07 (3.14)	3.90 (2.87)	0.616*
12 hours	3.18 (3.16)	3.90 (3.42)	0.088*
24 hours	3.11 (3.14)	3.38 (3.14)	0.651*
48 hours	2.86 (3.36)	1.50 (2.51)	0.290*
Time to ambulation (hours), mean (SD)			
	9.46 (7.89)	8.29 (10.13)	0.274 ^v
Time to first postoperative opioid (minutes), mean (SD)			
	22.47 (12.33)	22.65 (12.56)	0.827 ^v
Nausea, N (%)			
	231 (17.02%)	75 (23.73%)	0.005 ^q

*p-values from t-test

^vp-value from log-rank test

^qp value from chi-square test

Conclusion

- In patients undergoing MIH, adding bilateral QLB to a multimodal analgesia regimen did not reduce postoperative opioid consumption at 24 hours or improve pain scores at any time point.

References

- Baran O. Quadratus lumborum and erector spinae plane blocks are effective for analgesia in laparoscopic hysterectomy: a randomized controlled trial. Eur Rev Med Pharmacol Sci. 2023 Dec;27(23):11323-11333.
- Dam M, Hansen C, Poulsen TD, Azawi NH, Laier GH, Wolmarans M, Chan V, Bendtsen TF, Børglum J. Transmuscular quadratus lumborum block reduces opioid consumption and prolongs time to first opioid demand after laparoscopic nephrectomy. Reg Anesth Pain Med. 2021 Jan;46(1):18-24.
- Coppens S, Somville A, Hoogma DF, Dewinter G, Neyrinck A, Desmet M, Vandebroek A, D'Hoore A, Wolhuis A, Bislenghi G, Fieuws S, Rex S. The effect of anterior quadratus lumborum block on morphine consumption in minimally invasive colorectal surgery: a multicentre, double-blind, prospective randomised placebo-controlled trial. Anaesthesia. 2024 Jan;79(1):54-62.
- Hansen C, Dam M, Nielsen MV, Tanggaard KB, Poulsen TD, Bendtsen TF, Børglum J. Transmuscular quadratus lumborum block for total laparoscopic hysterectomy: a double-blind, randomized, placebo-controlled trial. Reg Anesth Pain Med. 2021 Jan;46(1):25-30.
- Fujimoto H, Irie T, Mihara T, Mizuno Y, Nomura T, Goto T. Effect of posterior quadratus lumborum blockade on the quality of recovery after major gynaecological laparoscopic surgery: A randomized controlled trial. Anaesth Intensive Care. 2019 Mar;47(2):146-151.

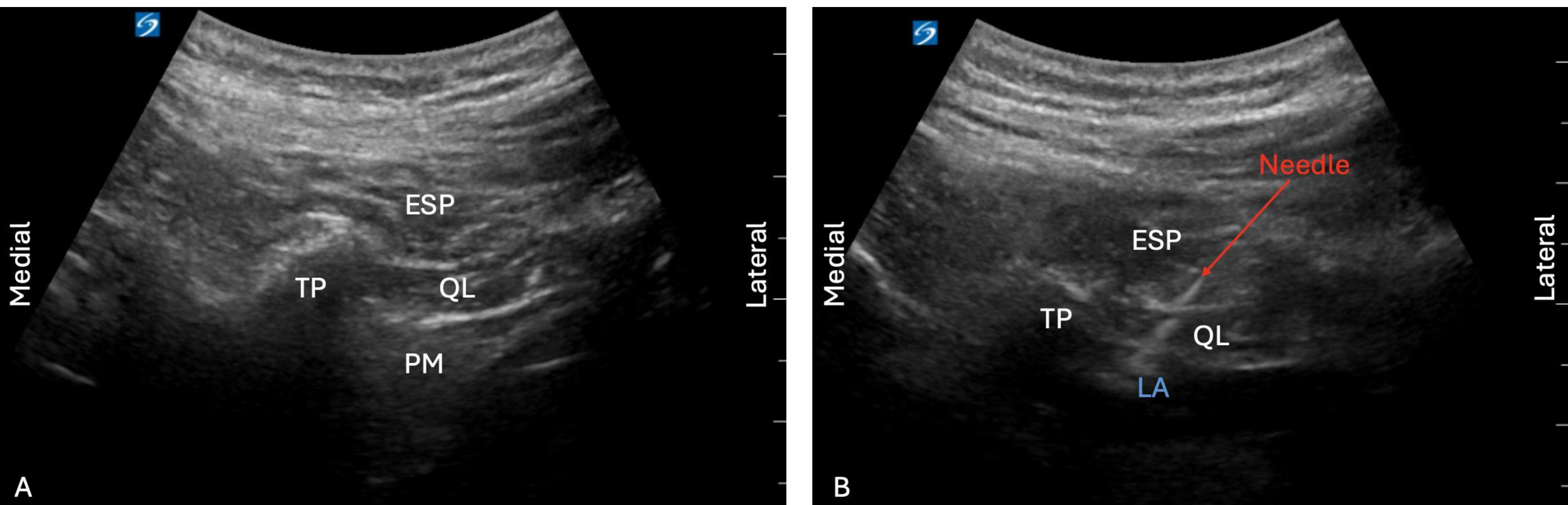


Figure 1. Anatomy of ultrasound-guided anterior QLB (A). Needle tip location and local anesthetic spread (B). TP, transverse process; ESP, erector spinae plane muscles; QL quadratus lumborum muscle; PM, psoas muscle; LA, local anesthetic