

Quadratus Lumborum Block

Intraoperative teaching · CA-2

THE QUESTION

Where the evidence disagrees

This topic was selected because an evidence synthesis beats a textbook on it: the trials disagree, or the guidance has moved recently.

THE EVIDENCE

What each source contributes, and how strong it is

Study design first — a cohort and a randomised trial do not carry the same weight.

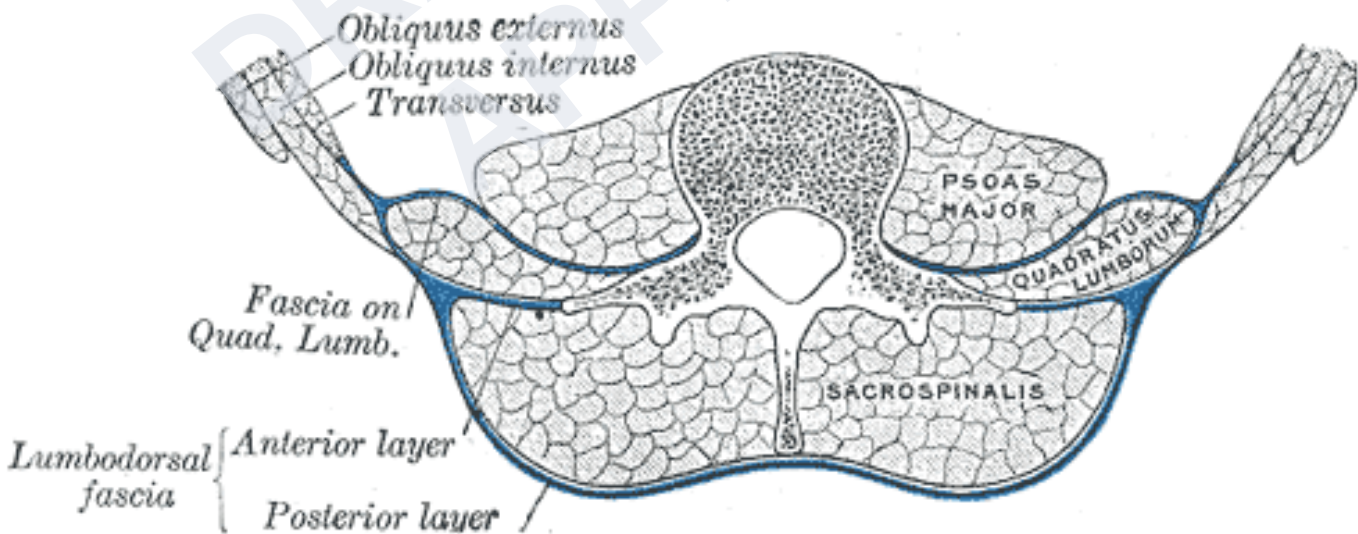
Design	Year	Journal	What it found
Guideline	2021	Anaesthesia	This PROSPECT guideline recommends quadratus lumborum blocks for elective caesarean
Meta-analysis	2025	British journal of anaesthesia	This meta-analysis found that combining a quadratus lumborum block with a fascia
Randomised trial	2025	Lithuania)	This randomized controlled trial found that for laparoscopic cholecystectomy,
Cohort	2025	Scientific reports	This randomized controlled trial found that for posterior lumbar interbody fusion,
Review	2025	Pain management	This review found that quadratus lumborum blocks offer a promising alternative for
Meta-analysis	2025	Journal of minimally invasive gyne	This meta-analysis found that while quadratus lumborum block statistically reduced

6 resolved citations behind this deck; every point above traces to one of them.

THE ANATOMY

The three named approaches are three faces of one muscle

A transverse section of the posterior abdominal wall showing quadratus lumborum with the fascia on its anterior surface, the anterior and posterior layers of the lumbodorsal fascia enclosing sacrospinalis, psoas major medially, and the external oblique, internal oblique and transversus aponeuroses meeting the fascia at the lateral border.



Henry Vandyke Carter — Diagram of a transverse section of the posterior abdominal wall, to show the disposition of the lumbodorsal fascia. · <https://commons.wikimedia.org/wiki/File:Gray388.png>
Henry Vandyke Carter · public-domain · <https://commons.wikimedia.org/wiki/File:Gray388.png>

Quadratus lumborum is a fascial-plane block: lateral, posterior or anterior simply names which face of this muscle the needle tip is allowed to stop on.

WHERE THE GUIDANCE SITS

What the guidelines and pooled evidence say

3 findings, each on the slide that follows.

ANAESTHESIA 2021

This PROSPECT guideline recommends quadratus lumborum blocks for elective caesarean

This PROSPECT guideline recommends quadratus lumborum blocks for elective caesarean section under neuraxial anaesthesia if intrathecal opioid was not...

BRITISH JOURNAL OF ANAESTHESIA 2025

This meta-analysis found that combining a quadratus lumborum block with a fascia

This meta-analysis found that combining a quadratus lumborum block with a fascia iliaca compartment block ranked highest for reducing total morphine...

JOURNAL OF MINIMALLY INVASIVE GYNECOLOGY 2025

This meta-analysis found that while quadratus lumborum block statistically reduced

This meta-analysis found that while quadratus lumborum block statistically reduced 24-hour morphine consumption by 4.61 mg in total laparoscopic...

WHERE THE GUIDANCE SITS

This PROSPECT guideline recommends quadratus lumborum blocks for elective caesarean

Guideline · Anaesthesia

This PROSPECT guideline recommends quadratus lumborum blocks for elective caesarean section under neuraxial anaesthesia if intrathecal opioid was not administered.

PROSPECT guideline for elective caesarean section: updated systematic review and procedure-specific postoperative pain management recommendations, Anaesthesia 2021 · PMID 33370462

WHERE THE GUIDANCE SITS

This meta-analysis found that combining a quadratus lumborum block with a fascia

Meta-analysis · British journal of anaesthesia

This meta-analysis found that combining a quadratus lumborum block with a fascia iliaca compartment block ranked highest for reducing total morphine consumption at 24 hours after primary total hip arthroplasty.

Regional anaesthesia modalities for primary total hip arthroplasty: a systematic review and component network meta-analysis, British journal of anaesthesia 2025 · PMID 40483183

WHERE THE GUIDANCE SITS

This meta-analysis found that while quadratus lumborum block statistically reduced

Meta-analysis · Journal of minimally invasive gyne

This meta-analysis found that while quadratus lumborum block statistically reduced 24-hour morphine consumption by 4.61 mg in total laparoscopic hysterectomy patients, this reduction was below the 10 mg minimal clinically important difference and did not decrease postoperative nausea and vomiting.

Quadratus Lumborum Block for Total Laparoscopic Hysterectomy: A Systematic Review and Meta-Analysis, Journal of minimally invasive gynecology 2025 · PMID 40154947

WHAT THE TRIALS FOUND

This randomized controlled trial found that for laparoscopic cholecystectomy,

Randomised trial · Lithuania)

This randomized controlled trial found that for laparoscopic cholecystectomy, ultrasound-guided quadratus lumborum plane block provided significantly lower Numerical Rating Scale pain scores up to 24 hours and required less tramadol compared to external oblique intercostal plane block.

Comparison of Ultrasound-Guided Quadratus Lumborum Plane Block and External Oblique Intercostal Plane Block for Postoperative Analgesia After Laparoscopic Cholecystectomy: A Two-Center Randomized Controlled Trial, Medicina (Kaunas, Lithuania) 2025 · PMID 41155827

IN PRACTICE

What the cohorts and reviews add

2 findings, each on the slide that follows.

SCIENTIFIC REPORTS 2025

This randomized controlled trial found that for posterior lumbar interbody fusion,

This randomized controlled trial found that for posterior lumbar interbody fusion, quadratus lumborum block at lateral supra-arcuate ligament with 20...

PAIN MANAGEMENT 2025

This review found that quadratus lumborum blocks offer a promising alternative for

This review found that quadratus lumborum blocks offer a promising alternative for post-caesarean delivery analgesia

IN PRACTICE

This randomized controlled trial found that for posterior lumbar interbody fusion,

Cohort · Scientific reports

This randomized controlled trial found that for posterior lumbar interbody fusion, quadratus lumborum block at lateral supra-arcuate ligament with 20 mL of 0.4% ropivacaine per side reduced PACU stay by 11 minutes and improved 12 h activity pain scores versus erector spinae plane block.

Quadratus lumborum block at lateral supra-arcuate ligament versus erector spinae plane block for perioperative analgesia and postoperative recovery in posterior lumbar interbody fusion: a randomized controlled trial, Scientific reports 2025 · PMID 41168374

IN PRACTICE

This review found that quadratus lumborum blocks offer a promising alternative for

Review · Pain management

This review found that quadratus lumborum blocks offer a promising alternative for post-caesarean delivery analgesia, though no single field block technique has demonstrated clear superiority over the other.

Post-caesarean delivery pain management, Pain management 2025 · PMID 40652293

INDICATIONS

When this is the right block

QL BLOCK FOR CAESAREAN DELIVERY META-ANALYSIS, ANESTHESIOLOGY 2021

Caesarean delivery when intrathecal morphine was not given

Across 12 trials in 924 patients, quadratus lumborum block improved analgesia only in the absence of spinal morphine, reducing 24-hour morphine equivalents by 18 mg and pain at 4 to 6 hours by 1.5 cm, and improving the 48-hour pain area-under-curve by 4.4 cm·h, beyond the clinically important threshold of 3.96.

QL BLOCK SYSTEMATIC REVIEW AND META-ANALYSIS, CAN J ANAESTH 2020

Abdominal wall and hip surgery where no block is the alternative

Across 42 randomised trials, quadratus lumborum block reduced opioid use after caesarean delivery by 24.1 mg oral morphine equivalents in the first 24 hours compared with placebo or no block, with lower pain scores and opioid use across the other surgical procedures studied.

QL BLOCK FOR HIP ARTHROPLASTY META-ANALYSIS, J ARTHROPLASTY 2023

Hip arthroplasty, for pain on moving rather than at rest

Across 11 randomised trials in 830 patients, quadratus lumborum block reduced pain scores on mobilisation at 12, 24 and 48 hours with both statistical and clinical significance, reduced 48-hour opioid consumption past the minimal clinically important difference, and lowered postoperative nausea and vomiting — while scores at rest did not reach that threshold.

CONTRAINDICATIONS

When it is not

LOCAL ANESTHETIC DOSING FOR FASCIAL PLANE BLOCKS, CAN J ANAESTH 2025

A total dose that crosses the weight-based maximum

This is a high-volume fascial plane block, and the pharmacokinetic literature on such blocks records several patients crossing the toxic plasma threshold, with mild neurologic symptoms and seizures reported. Calculate the weight-based dose, lower the concentration as the volume rises, aspirate and dose incrementally.

QL BLOCK FOR CAESAREAN DELIVERY META-ANALYSIS, ANESTHESIOLOGY 2021

A patient who has already had intrathecal morphine

Adding quadratus lumborum block to spinal morphine changed 24-hour morphine consumption by 0 mg and pain at 4 to 6 hours by 0.1 cm — no benefit on moderate quality evidence. Its clinical utility appears limited to situations where spinal morphine is not used.

QL BLOCK SYSTEMATIC REVIEW AND META-ANALYSIS, CAN J ANAESTH 2020

Expecting it to outperform an established regional technique

Compared with other regional analgesic techniques the analgesic benefit of the quadratus lumborum block was only marginal, and the included trials used different variants of the block across many surgery types, so the review's own authors call their conclusions preliminary.

ASRA ANTITHROMBOTIC GUIDELINES, 5TH EDITION, REG ANESTH PAIN MED 2025

Antithrombotic therapy still inside the ASRA interval

The needle path here runs deep to the abdominal wall against the quadratus lumborum, where a haematoma is neither visible nor compressible. ASRA's fifth edition proposes conservative interruption times before neural blockade; use them.

PEARLS

What experience adds

QL VERSUS TAP BLOCK FOR ABDOMINAL SURGERY META-ANALYSIS, BMC ANESTHESIOLOGY 2020

It beat the TAP block after abdominal surgery

Across eight randomised trials in 564 patients, quadratus lumborum block gave lower pain scores at 2, 4, 6, 12 and 24 hours, lower 24-hour morphine consumption and a longer duration of analgesia than TAP block, with no difference in postoperative nausea and vomiting.

PROSPECT GUIDELINE FOR ELECTIVE CAESAREAN SECTION, ANAESTHESIA 2021

PROSPECT puts fascial plane blocks in the second branch

For elective caesarean section the guideline recommends intrathecal morphine 50-100 µg or diamorphine 300 µg pre-operatively; wound infiltration, continuous wound infusion or fascial plane blocks such as TAP or quadratus lumborum blocks are recommended if intrathecal opioid was not administered.

Name the three layers out loud before the needle moves

External oblique, internal oblique, transversus, then the quadratus belly against the transverse process — say each one as you identify it. A block described by its name rather than by the layers you actually saw is a block nobody can audit afterwards.

IN THE ROOM

What this changes about the next case

Colour is the strength of the evidence behind each step, not the urgency.

- 1** This PROSPECT guideline recommends quadratus lumborum blocks for elective caesarean section under neuraxial anaesthesia if intrathecal opioid was not administered.
- 2** This meta-analysis found that combining a quadratus lumborum block with a fascia iliaca compartment block ranked highest for reducing total morphine consumption at 24 hours after primary total hip arthroplasty.
- 3** This meta-analysis found that while quadratus lumborum block statistically reduced 24-hour morphine consumption by 4.61 mg in total laparoscopic hysterectomy patients, this reduction was below the 10 mg minimal clinically important difference and did not decrease postoperative nausea and vomiting.
- 4** This randomized controlled trial found that for laparoscopic cholecystectomy, ultrasound-guided quadratus lumborum plane block provided significantly lower Numerical Rating Scale pain scores up to 24 hours and required less tramadol compared to external oblique intercostal plane block.
- 5** This randomized controlled trial found that for posterior lumbar interbody fusion, quadratus lumborum block at lateral supra-arcuate ligament with 20 mL of 0.4% ropivacaine per side reduced PACU stay by 11 minutes and improved 12 h activity pain scores versus erector spinae plane block.

KEY TAKEAWAYS

What to carry into the next case

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Anaesthesia 2021

This meta-analysis found that combining a quadratus lumborum block with a fascia
British journal of anaesthesia 2025

This randomized controlled trial found that for laparoscopic cholecystectomy,
Lithuania) 2025

This randomized controlled trial found that for posterior lumbar interbody fusion,
Scientific reports 2025

This PROSPECT guideline recommends quadratus lumborum blocks for elective caesarean

QUESTIONS I'LL ASK YOU IN THE ROOM

1. How does your plan change if the patient is not optimised?
2. What is the physiology behind what we just did?
3. Talk me through the trade-off you made there.

4. What would make you abandon this plan and do something else?

BOARD QUESTIONS

1. A meta-analysis of eight randomised trials in 564 patients having abdominal surgery compared the quadratus lumborum block with the transversus abdominis plane block. Summarise the pain, opioid and side-effect findings, and state the anatomical reason the quadratus lumborum block would be expected to come out ahead.
2. A larger meta-analysis pooled 22 randomised trials, 777 patients given a transversus abdominis plane block and 783 given a quadratus lumborum block. Which way did the differences in opioid consumption and 24-hour pain score fall, and by how much?
 - A. Morphine consumption was about 3.9 mg higher and 24-hour pain score about 0.5 points higher in the transversus abdominis plane group
 - B. Morphine consumption was about 3.9 mg higher and 24-hour pain score about 0.5 points higher in the quadratus lumborum group
 - C. Morphine consumption was about 12 mg higher in the transversus abdominis plane group, with no difference in 24-hour pain score
 - D. Neither morphine consumption nor 24-hour pain score differed between the two blocks
3. A procedure-specific meta-analysis of five randomised trials in 255 patients having inguinal hernia repair compared the quadratus lumborum block with the transversus abdominis plane block. The pooled pain difference was a mean of -0.45 points (95% CI -0.75 to -0.14, $p = 0.004$) with I-squared of 94%, and there was no difference in 24-hour opioid consumption. Is that a reason to change your block for hernia repair? Justify your answer from the numbers.

ANSWER KEY

1. Pain scores favoured the quadratus lumborum block at every time point measured — 2, 4, 6, 12 and 24 hours — 24-hour morphine consumption was lower, and the duration of analgesia was longer. Postoperative nausea and vomiting did not differ between the two. The anatomical rationale usually offered is the site of deposition: the quadratus lumborum block places injectate against the quadratus lumborum muscle, posterior to the transversalis fascia, while the transversus abdominis plane block places it between two muscle layers of the abdominal wall. Say that as background rather than as a finding — this meta-analysis pooled clinical outcomes and made no anatomical measurements, so it cannot show that the difference in deposition is what produced the pain and opioid results.

The pooled effect sizes here are large but rest on eight small trials with differing surgery and technique; treat the direction as better established than the magnitude.

Liu X et al., *Quadratus lumborum block versus transversus abdominis plane block for postoperative analgesia in patients undergoing abdominal surgeries: a systematic review and meta-analysis of randomized controlled trials*, BMC Anesthesiol 2020 · PMID 32122319

2. A. Morphine consumption was about 3.9 mg higher and 24-hour pain score about 0.5 points higher in the transversus abdominis plane group

Fentanyl consumption ran about 24 micrograms higher in the transversus abdominis plane group as well, and more of those patients requested analgesia. The direction matches the smaller meta-analysis, but note the size: half a point on a visual analogue scale and about 4 mg of morphine over 24 hours are real but modest. This meta-analysis compared analgesia; it reports no comparison of procedural difficulty or block-related harm, so it establishes which block scores better on these outcomes, not that the difference is worth whatever adopting it costs.

Wang Y et al., *Effects of transversus abdominis plane block versus quadratus lumborum block on postoperative analgesia: a meta-analysis of randomized controlled trials*, BMC Anesthesiol 2020 · PMID 32366275

3. Not on this evidence. Three things in that result argue against changing. The effect size is under half a point on a pain scale, and the review never translates it into a benefit a patient would feel. The I-squared of 94% means the trials disagreed almost completely, so the pooled point estimate is not describing a consistent effect. And the outcome that would corroborate a real analgesic difference — 24-hour opioid consumption — showed no difference at all. The reviewers put their own finding as "QLB may offer superior pain reduction. However, its effect on opioid consumption remains unclear", which is a good deal short of a reason to change technique.

Statistical significance, clinical significance and consistency are three separate questions. This paper answers the first and leaves the other two open, and the review's own conclusion says the effect on opioid consumption remains unclear.

Marcolin P et al., *Quadratus lumborum block versus transversus abdominis plane block for inguinal hernia repair: A systematic review and meta-analysis with trial sequential analysis*, World J Surg 2024 · PMID 38265244

This PROSPECT guideline recommends quadratus lumborum blocks for elective caesarean

SOURCES

[1] PROSPECT guideline for elective caesarean section: updated systematic review and procedure-specific postoperative pain management recommendations, Anaesthesia 2021 · PMID 33370462

[2] Regional anaesthesia modalities for primary total hip arthroplasty: a systematic review and component network meta-analysis, British journal of anaesthesia 2025 · PMID 40483183

[3] Comparison of Ultrasound-Guided Quadratus Lumborum Plane Block and External Oblique Intercostal Plane Block for Postoperative Analgesia After Laparoscopic Cholecystectomy: A Two-Center Randomized Controlled Trial, Medicina (Kaunas, Lithuania) 2025 · PMID 41155827

[4] Quadratus lumborum block at lateral supra-arcuate ligament versus erector spinae plane block for perioperative analgesia and postoperative recovery in

posterior lumbar interbody fusion: a randomized controlled trial, Scientific reports 2025 · PMID 41168374

[5] Post-cesarean delivery pain management, Pain management 2025 · PMID 40652293

[6] Quadratus Lumborum Block for Total Laparoscopic Hysterectomy: A Systematic Review and Meta-Analysis, Journal of minimally invasive gynecology 2025 · PMID 40154947

[7] QL block for caesarean delivery meta-analysis, Anesthesiology 2021 · PMID 33206131

[8] QL block systematic review and meta-analysis, Can J Anaesth 2020 · PMID 32808097

[9] QL block for hip arthroplasty meta-analysis, J Arthroplasty 2023 · PMID 35921999

[10] Local anesthetic dosing for fascial plane blocks, Can J Anaesth 2025 · PMID 40954415

[11] ASRA antithrombotic guidelines, 5th edition, Reg Anesth Pain Med 2025 · PMID 39880411

[12] QL versus TAP block for abdominal surgery meta-analysis, BMC Anesthesiol 2020 · PMID 32122319

DRAFT — NOT
APPROVED