ASRA PAIN MEDICINE

51st Annual Regional Anesthesiology and Acute Pain Medicine Meeting

Quadratus Lumborum Catheters for Comprehensive Analgesia Following DIEP Flap Reconstruction – A Case Series

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Introduction

• **Deep inferior epigastric perforator (DIEP) flap breast reconstruction** results in substantial postoperative pain due to extensive **anterior abdominal wall donor-site dissection**.

• **Neuraxial analgesia is often avoided** due to concerns regarding hypotension and effects on free-flap perfusion.

• Regional techniques such as **TAP blocks have demonstrated variable analgesic benefit**

• Continuous **quadratus lumborum (QL) catheters** may provide broader abdominal wall analgesia by targeting the **thoracolumbar fascial plane**

Methods

Adult patients undergoing **unilateral or bilateral DIEP flap reconstruction** were included in a retrospective review

➢ **QL catheter group:** bilateral QL catheters
➢ **Control group:** surgical infiltration only, no regional

• Catheters were placed after induction of general anesthesia.
• Infusion protocol: **0.2 % ropivacaine at 2 mL/hr with intermittent boluses of 15–20 mL every 3–4 hours.**
• All patients received standardized multimodal analgesia: **acetaminophen, celecoxib, methocarbamol, opioids PRN.**

Outcomes: **NRS pain scores, opioid consumption (MME), length of stay, catheter duration, and complications.**

Case Series - Results

Total 46 patients undergoing DIEP flap reconstruction
• **QL catheter group:** 26 patients
• **Control group:** 20 patients

Patients receiving QL catheters had **substantially lower postoperative opioid consumption** across POD 0–3.

➢ Mean opioid consumption (MME):
POD 0: 6.9 vs 24.3 (-17.4 MME)
POD 1: 10.4 vs 30.5 (-20.1 MME)
POD 2: 13.5 vs 30.1 (-16.6 MME)
POD 3: 14.3 vs 26.3 (-12 MME)

45–70% reduction in opioid use.

➢ **Episodes of severe pain (NRS 7–10) were also lower in the QL catheter group – 40-75% reduction, most significant POD2 & 3**
➢ No catheter-related complications or adverse events
➢ Postoperative outcomes are summarized in **Table 1**.

Table 1. Postoperative outcomes after DIEP flap reconstruction

Outcome	QL catheter group (n = 26)	No regional block (n = 20)
Opioid consumption POD 0 (MME), mean	6.9	24.3
Opioid consumption POD 1 (MME), mean	10.4	30.5
Opioid consumption POD 2 (MME), mean	13.5	30.1
Opioid consumption POD 3 (MME), mean	14.3	26.3
Severe pain episodes POD 0 (NRS 7–10), mean	1.3	2.2
Severe pain episodes POD 1 (NRS 7–10), mean	0.96	2.0
Severe pain episodes POD 2 (NRS 7–10), mean	0.27	1.2
Severe pain episodes POD 3 (NRS 7–10), mean	0.27	1.1
Catheter duration (days), typical	3–4	N/A
Block-related complications	0	N/A

Values are presented descriptively. Opioid consumption is reported as morphine milligram equivalents (MME). No formal statistical comparisons were performed due to the retrospective nature of the study.

Discussion

• Pain after DIEP flap reconstruction is driven primarily by **abdominal wall donor-site tissue disruption**.
• Epidural, TAP, ESP techniques have been described, but limited by **hypotension** and **incomplete duration or coverage**.
• In this series, continuous **QL catheter analgesia** was associated with **markedly lower opioid consumption** and **fewer severe pain episodes**.
• These findings support **QL catheters as a viable opioid-sparing analgesic strategy** for DIEP flap reconstruction within ERAS pathways.

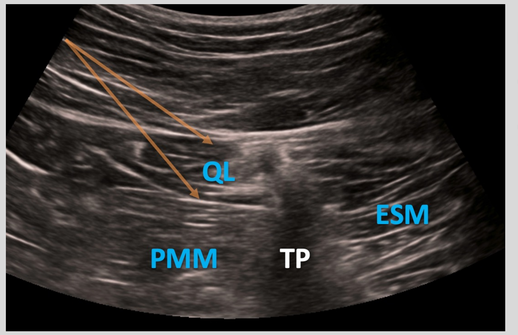

Figure 1. Ultrasound QL block anatomy. Orange lines indicate catheter trajectory. QL: quadratus lumborum; PMM: psoas major; ESM: erector spinae; TP: transverse process.

Abstract & References