

Background

- Pain in liver transplant patients is a well understood sequela of the surgery. Effective pain management is crucial for optimizing recovery¹
- Limited pharmacologic and neuraxial options given unpredictability of drug metabolism and high risk of coagulopathy, respectively^{3,4}
- Peripheral technique such as the external oblique intercostal (EOI) block offers a potential solution

EOI Block

- Proposed anatomic coverage of the lateral and anterior branches of the cutaneous intercostal nerves from T6-T10^{2,3}
- Performed between midclavicular and anterior axillary line over the sixth rib via an in plane approach in a cranial to caudal direction
- Anatomy (superficial to deep): subcutaneous tissue, external oblique muscle, intercostal muscles, ribs, pleura, and lungs
- Volume dependent fascial plane block
- Limited data on the use of the EOI block in the setting of liver transplant

Case

- 39-year-old male with a history of Budd Chiari syndrome in the setting of JAK2+ Polycythemia Vera complicated by chronic pain on chronic opioids underwent DCD liver transplant
- Post-transplant course was complicated by acute on chronic pain which was limiting his recovery despite both oral and IV multimodals
- Patient was on heparin drip that was unable to be paused, thus a neuraxial technique was contraindicated
- Performed bilateral EOI single shot blocks using 0.25% bupivacaine; 30 cc on right and 20 cc on left
 - Resulted in significant pain relief and a decrease in opioid use over a twenty-four-hour period
- Following day right sided EOI Catheter was placed and infused with 0.2% ropivacaine at 2cc per hour with a 20 cc bolus delivered Q6 hours
- Patient received significant relief and was able to wean hydromorphone PCA
- On the 5th day the catheter clotted off and was removed
- At this point patients pain was controlled with PO multimodal analgesia alone thus catheter was not replaced

Discussion

- Though there is limited data on the use of the EOI block in the setting of liver transplant, its efficacy demonstrated in open hepatectomies and proposed anatomic coverage suggests this block may be ideal for post liver transplant patients^{2,3}
- This case further demonstrates the potential efficacy of the EOI block in this patient population
- Further studies are needed to compare its efficacy with other regional and neuraxial techniques in the perioperative period.

Methods

- A literature review was performed investigating the EOI block in the setting of liver transplant.
- Patient gave verbal consent to write this case report.
- Per Colorado Multiple Institutional Review Board (COMIRB) policy this report is exempt from IRB review

References

1. Belfiore, Jacopo et al. "Pain management in liver transplant recipients: a focus on current and future strategies." *Minerva anesthesiologica* vol. 90,5 (2024): 452-461. doi:10.23736/S0375-9393.24.17805-4
2. Elsharkawy, Hesham et al. "The External Oblique Intercostal Block: Anatomic Evaluation and Case Series." *Pain medicine (Malden, Mass.)* vol. 22,11 (2021): 2436-2442. doi:10.1093/pm/pnab296
3. Tong, Chaoyang et al. "Ultrasound-guided external oblique intercostal plane block with ropivacaine for analgesia after open hepatectomy- a randomized controlled study." *Anesthesiology*, 10.1097/ALN.0000000000005846. 11 Nov. 2025, doi:10.1097/ALN.0000000000005846
4. Tong, Kimhouy et al. "Implementation of a Multimodal Pain Management Order Set Reduces Perioperative Opioid Use after Liver Transplantation." *Pharmacotherapy* vol. 39,10 (2019): 975-982. doi:10.1002/phar.2322

