

External Oblique Intercostal Catheters for Pain Control in Open Living Donor Hepatectomy

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Introduction

Hepatectomies are a common surgical procedure many anesthesiologists must manage, most often presenting for removal of cancer. Many of these will require open procedures with a large abdominal incision. Pain control can often be difficult and many institutions avoid epidurals given the possible coagulopathy associated with liver disease and hepatectomy. With an incision that is often a higher abdominal incision, the typical transversus abdominis plane block often does not provide full coverage. This is a case report of using external oblique intercostal plane blocks and catheters for pain control following an open living donor hepatectomy.

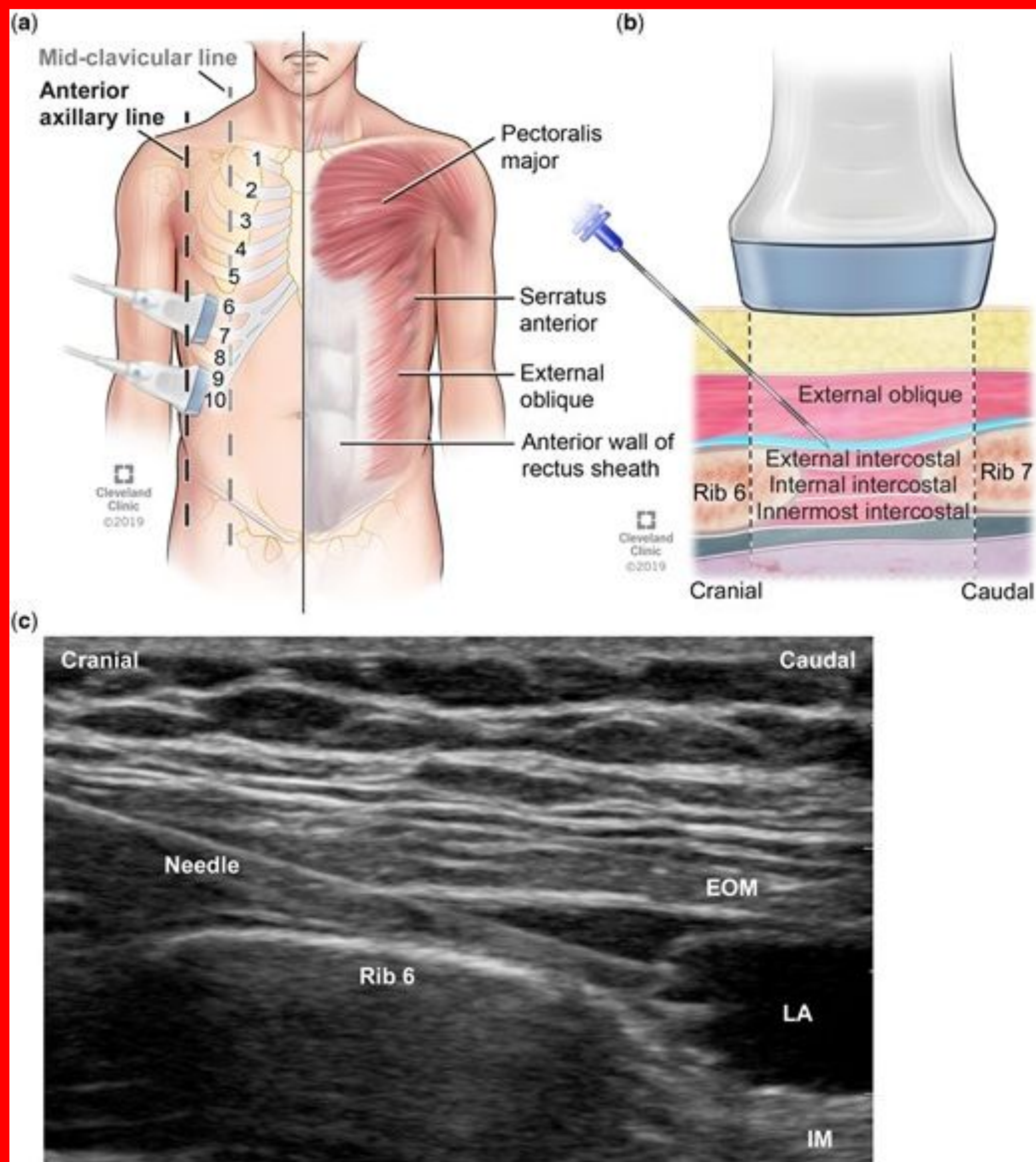
Materials and Methods

As a case report is devoid of patient identifiable information, it is exempt from IRB review requirements as per University of Wisconsin policy. Informed patient consent was obtained for the publication of this case report.

Case Presentation

A 31 year-old female with past medical history of chronic kidney disease stage II secondary to previous donation of a kidney and gilbert's disease presented for living donor hepatectomy. Intraoperative course was unremarkable. For pain intraoperatively she received 350 mcg of fentanyl, 25 mg of ketamine and 0.2 mg of hydromorphone. Prior to waking up the patient received bilateral external oblique intercostal plane blocks with a total of 25 mL of 0.25% bupivacaine with epinephrine and subsequent catheter placement. Postoperatively the peripheral nerve catheters infused 0.1% ropivacaine at 8 ml/hr bilaterally. She also received 1 g of tylenol daily and a hydromorphone PCA for breakthrough pain. Overnight immediately following the procedure her pain scores were rated 2/10 and she required no hydromorphone from her PCA. On the morning of POD #1, pain scores were 0/10. The patient required a total of 1.4 mg of hydromorphone since the operation. Approximately 24 hours following the procedure the patient's pain increased overnight, rating her pain 4/10 with rest and 7/10 with movement. Peripheral nerve catheter infusions were increased to 10 ml/hr bilaterally the morning of POD #2. On POD #3, pain was well controlled, her PCA was discontinued, and she was transitioned to oral oxycodone. On POD #4, the patient had excellent pain control and she requested removal of peripheral nerve catheters. She was discharged home on POD #4.

Technique



Case Discussion

Epidurals are often a common route of pain control for procedures requiring large abdominal incisions. However, coagulopathy is a concern regarding surgical procedures involving the liver, leading to the avoidance of epidurals in hepatectomies. Epidurals can also lead to issues with hypotension in the postoperative period. For these reasons, peripheral nerve blocks are often employed as an alternative. Given abdominal incisions for hepatectomies are often higher in the subxiphoid or subcostal position, typical transversus abdominal plane blocks do not provide adequate coverage. External oblique intercostal plane blocks cover roughly T6 to T10 dermatomes, including the lateral cutaneous branches of the intercostal nerves which contribute to upper abdominal wall innervation, whereas transversus abdominal plane blocks cover roughly T9 to T11 dermatomes. Therefore, it makes sense that external oblique intercostal plane blocks provide better analgesia for surgical incisions made subxiphoid or subcostal. Another advantage of these blocks is that the insertion site is further away from the surgical site. This allows catheters to be kept in place to infuse local anesthetic repeatedly, thus decreasing opioid requirements after surgery. Furthermore, external oblique intercostal blocks are superficial and easily identifiable in the supine position making it a plausible option even for obese patients who already have a greater risk of respiratory complications, such as atelectasis, postoperatively due to body habitus. While we are limited with this one case, it does support evidence found in other case studies using external oblique intercostal blocks for analgesia after abdominal surgeries. Currently, epidural analgesia is the gold standard for major abdominal surgery. However, there is not sufficient data comparing epidurals to external oblique intercostal nerve catheters in hepatectomies, which would be interesting to study further.

References

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