



Fig 1. Staged photograph showing the transducer and needle orientation during ilioinguinal block. Note the transducer angled in toward the anterior superior iliac spine, in line toward the umbilicus.

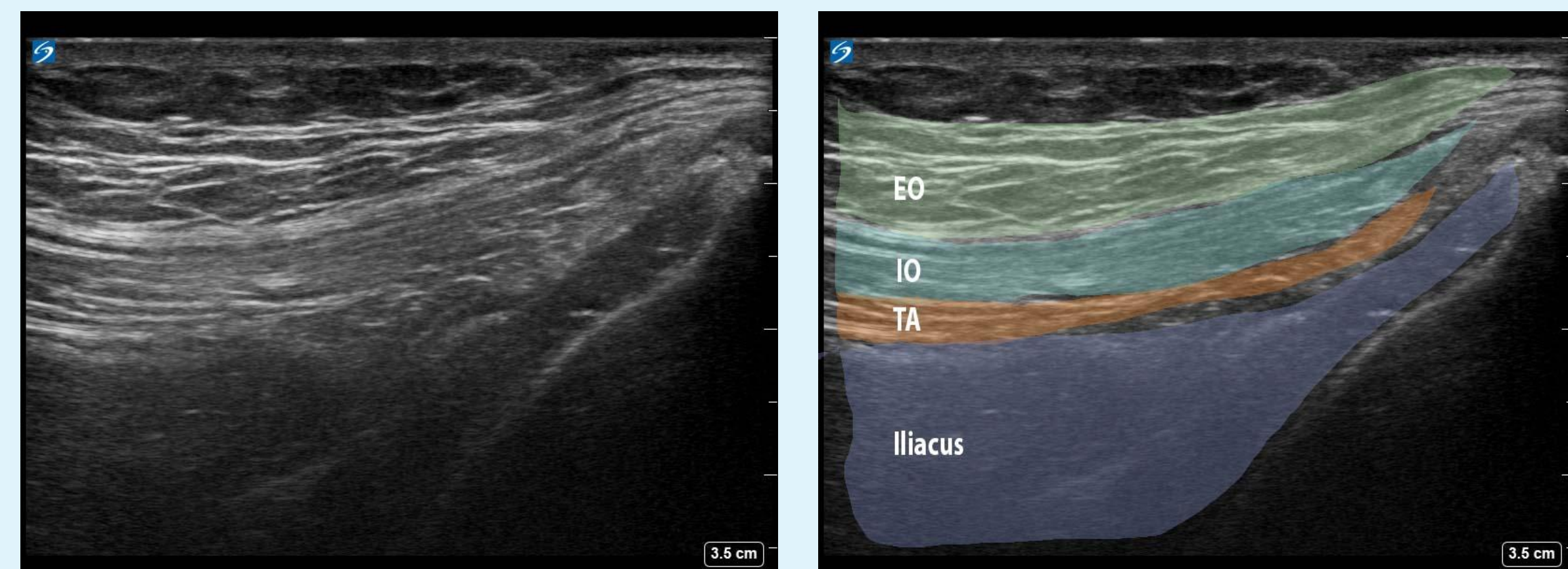


Figure 2a: Ultrasound image showing anatomy prior to IL/IH block.

Figure 2b: Ultrasound image with false color overlay showing anatomy prior to IL/IH block.

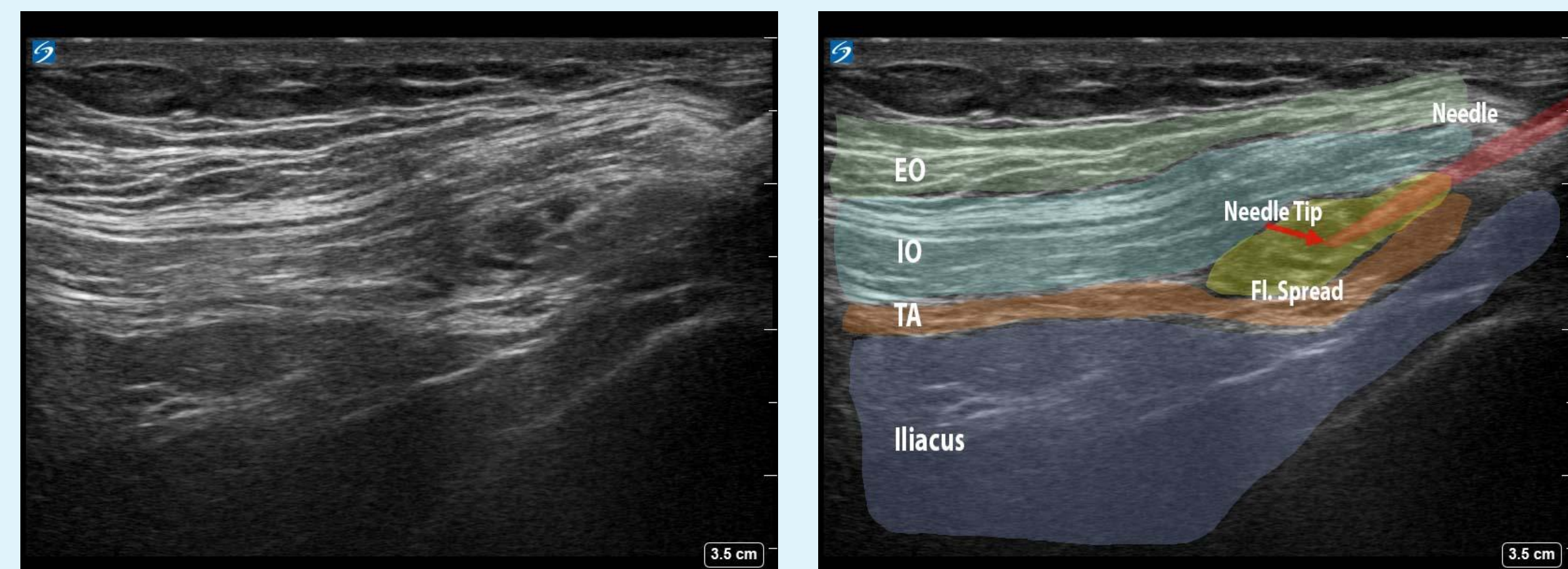


Figure 3a: Ultrasound image showing anatomy after IL/IH block with needle and local anesthetic fluid spread visible.

Figure 3b: Ultrasound image with false color overlay showing anatomy after IL/IH block with needle and local anesthetic fluid spread visible.

Abbreviations: EO = External Oblique, IO = Internal Oblique, TA = Transversus Abdominus

Multimodal opioid-sparing analgesia for EVAR procedures using ilioinguinal blocks: A Case Series

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Introduction

Endovascular aneurysm repair (EVAR) is a minimally invasive procedure commonly performed for abdominal aortic aneurysm (AAA). Patients undergoing EVAR tend to be older and have a greater incidence of major comorbidities that increase the risk of adverse drug events, including opioid analgesics^{1,2}. Given the ongoing opioid epidemic and its associated morbidity and mortality, it is important to consider opioid-sparing modalities to optimize patient care. We report the results of a case series of three patients undergoing EVAR in which a multimodal anesthetic regimen including ultrasound-guided ilioinguinal/iliohypogastric (II/IH) blocks were used to provide robust opioid-sparing postoperative analgesia. Our main question was how this multimodal regimen would impact postoperative pain and opioid requirements, and length of hospital stay in patients undergoing EVAR.

Case Series

We reviewed medical records of three patients who underwent elective EVAR at St. Vincent's Medical Center.

Case 1: 87 year old male with a past medical history of CAD, Hyperlipidemia, COPD, and lymphoma presented for repair of a 6 cm abdominal aneurysm.

Case 2: 70 year old male with a past medical history of anemia, ulcerative colitis, and psoriasis presented for repair of a 6 cm abdominal aneurysm.

Case 3: 92 year old male with a past medical history of hypertension, atrial fibrillation and hyperlipidemia presented for repair of a 6 cm abdominal aneurysm.

After a thorough discussion, all patient consented to bilateral ilioinguinal/iliohypogastric blocks (II/IH) as part of an enhanced recovery after surgery multimodal pain management plan.

Case Series (continued)

General anesthesia was induced with propofol, sevoflurane and rocuronium, and the trachea intubated after LTA spray with 4% lidocaine. As part of a multimodal anesthetic regimen, all patients received intraoperative dexmedetomidine 0.4-0.6 mcg/kg/hr and remifentanyl 0.1 mcg/kg/min for the duration of the procedure. Bilateral II/IH blocks were then performed. After wide chlorhexidine 4% prep, an ultrasound transducer probe (SonoSite PX, SonoSite Inc, Bothell, WA) was positioned in a longitudinal orientation on a line joining the anterior superior iliac spine and the umbilicus (Figure 1 and 2). A hyperechoic 22-gauge needle (B-Braun, Melsungen, Germany) was inserted in a lateral-to-medial direction using the in-plane technique (Figure 3). The correct tip position was confirmed by the visualization of linear fluid spreading in the myofascial plane between the internal oblique and the transverse abdominus muscles (Figure 4). After confirming needle tip position, a total of 15 milliliters of 0.25% bupivacaine with 5mg dexamethasone was injected in 5cc aliquots. This procedure was repeated on the opposite side for a total of 30 ml of local anesthetic. No other local anesthetics were used. After completion of surgery, all patients were taken to the postanesthesia care unit (PACU) and then to a cardiac stepdown unit. No patients required additional narcotics in the intraoperative or postoperative periods. All were discharged to home the next day.

Subject Number	Age (y)	Sex	Duration of Surgery (minutes)	Highest VAS During Hospital Stay	Length of Hospital Stay (days)
1	87	M	135	3	1
2	70	M	107	2	1
3	92	M	157	0	1

Discussion

No published case series to date describes multimodal opioid-sparing analgesia for EVAR procedures using II/IH blocks. In this retrospective case series, blockade of the II/IH nerves through single-shot injection provided analgesia at the inguinal region prior to suprapubic incision. Although complications associated with incorrect needle tip placements such as bowel perforation and postoperative hematoma have been documented in the past, they have been associated with using a blind technique³. We did not observe any adverse clinical events in this patient series. Using ultrasonography allows for a visual confirmation of accurate placement of both needle tip and local anesthetic, making this procedure safe and effective⁴.

Conclusion

Our findings on the efficacy of II/IH blocks for EVAR are consistent with other studies of local and regional anesthesia for EVAR⁵. All patients in this study had short hospital stays and reported low VAS with no additional use of narcotics. The combination of local anesthetics, anti-inflammatory agents, and modulation of nociceptive processing may explain our robust results. A large and multicenter study, specifically comparing the effectiveness of II/IH blocks to other anesthetic methods for EVAR, is warranted to confirm our study's findings.

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