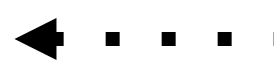
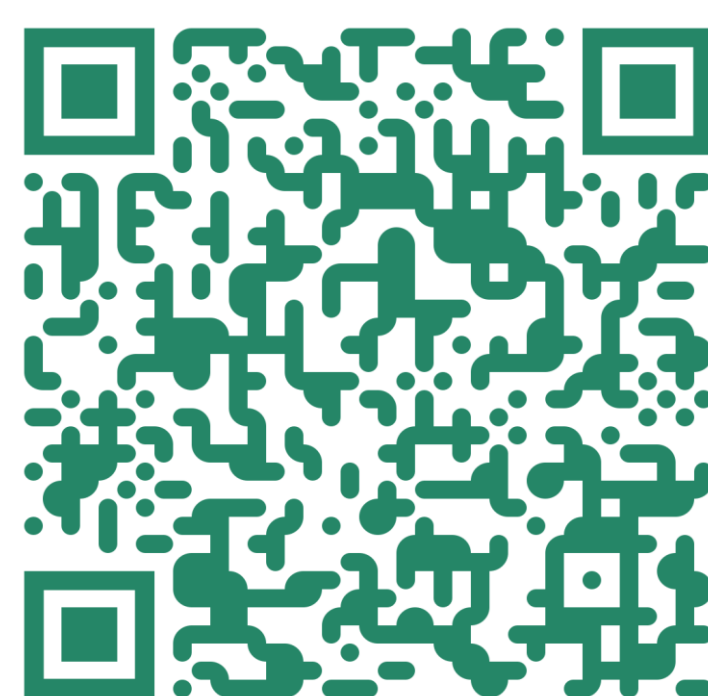


BACKGROUND

- Regional techniques are helpful in hip fractures for reducing pain and opioid-related adverse effects.
- Compared to general anesthetic alone, lumbar plexus block reduces blood loss, opioid consumption and related complications; provides better analgesia than continuous femoral nerve blockade in total hip replacement.^{1,2}
- Posterior approach is cumbersome for the patient and provider and carries significant risks.

CASE

- 44 year old man with prior THA complicated by infection and s/p two antibiotic spacer revisions presented for revision arthroplasty.
- History of opioid use disorder now on buprenorphine-naloxone 8-2mg once daily, and trying to wean off completely.
- Past admissions complicated by difficult to control pain, required rescue lumbar plexus catheter following last hip surgery.
- Consented for continuous ALPINE catheter and GA.
- Catheter placed; proceeded with GA and received IV hydromorphone, dexmedetomidine, ketamine, and ketorolac.



Novel Anterior Lumbar Plexus via Inguinal Entry (ALPINE) catheter for repeat hip surgery in a patient with opioid use disorder

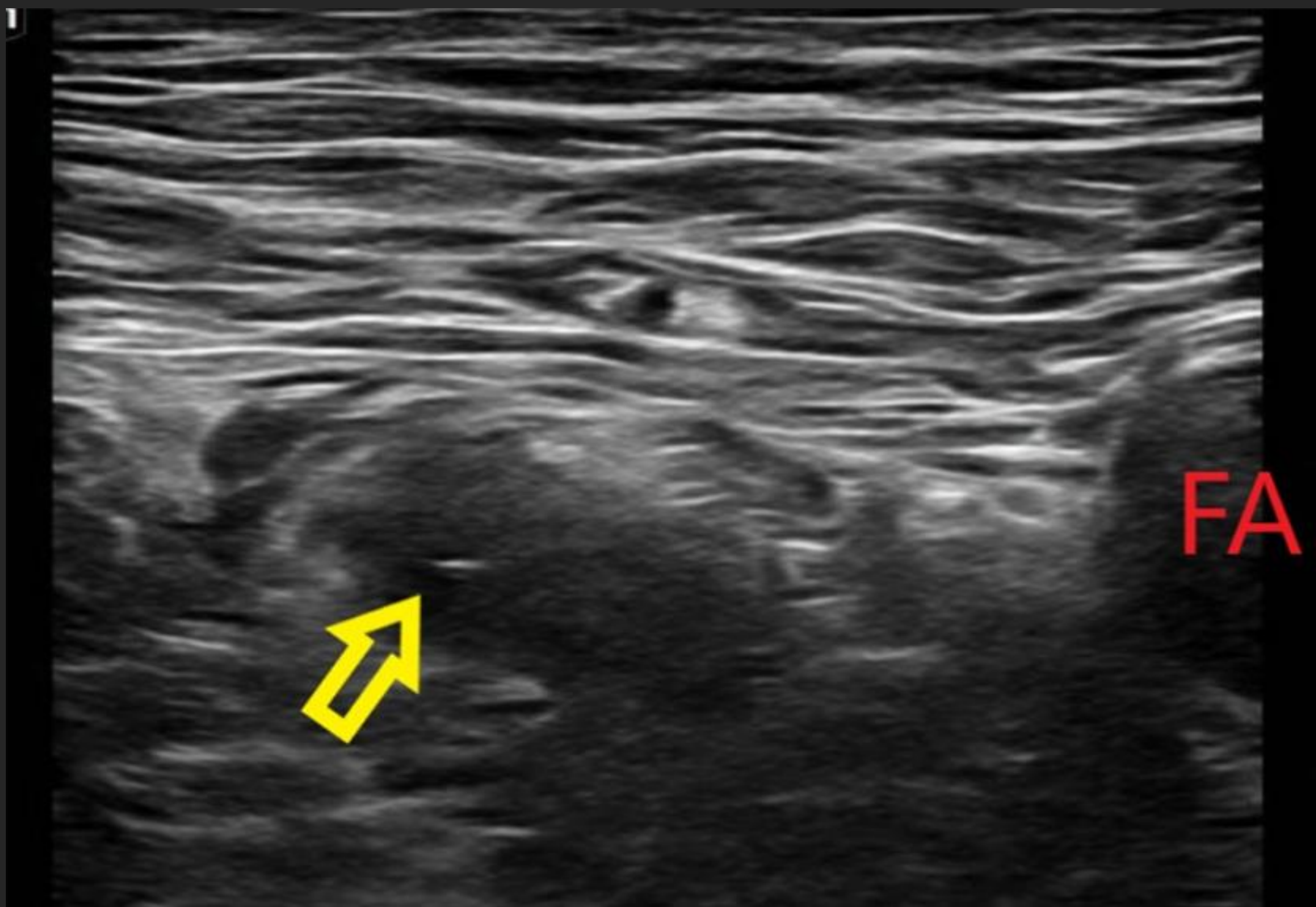
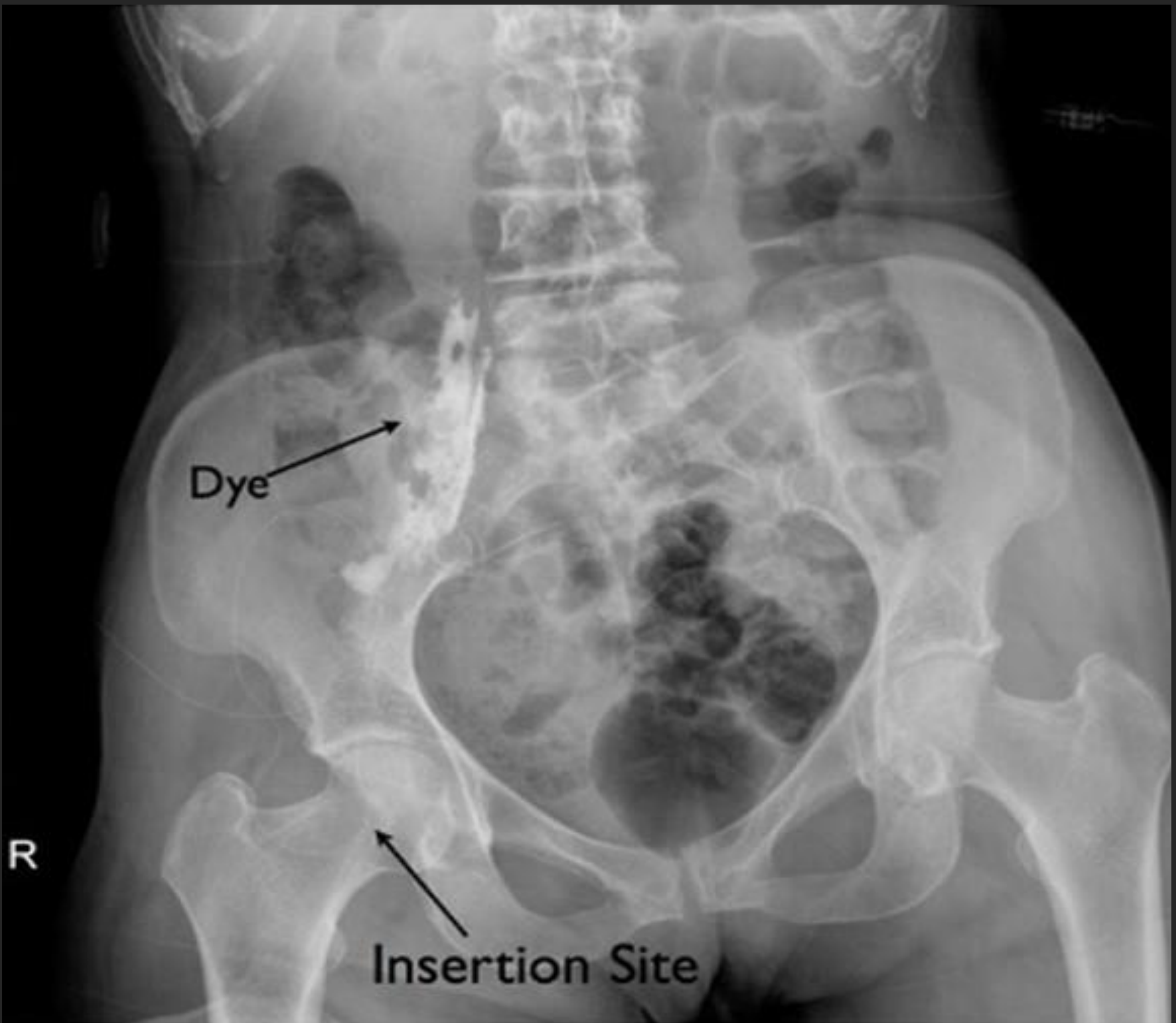


Figure 1: Ultrasound view of femoral nerve, artery, out-of-plane needle tip and 0.5% bupivacaine (5mL) spread deep to fascia iliaca. Catheter then threaded cranially until resistance met (15-20cm), bolused with additional 15mL bupivacaine and secured.

Figure 2: Radio-opaque iohexol dye spread in iliopsoas pattern immediately lateral to distal lumbar vertebral bodies suggestive of lumbar plexus placement using ALPINE technique.



POSTOPERATIVE COURSE

- 0.2% ropivacaine at 6mL/hr infused via catheter with 3mL PCA bolus feature every 30 minutes until removal on postoperative day 3.
- Also received continuous IV ketamine infusion at 0.15mg/kg/hr until POD5 and multimodal regimen (acetaminophen, ketorolac, gabapentin, PRN oral hydromorphone).
- Discharged home POD6 with hydromorphone taper.
- Never required re-initiation of buprenorphine treatment during or after hospitalization.

DISCUSSION

- Combination of ALPINE catheter and multimodal analgesic regimen improved this patient's pain course even with discontinuation of buprenorphine
- Lumbar plexus block may be superior for hip surgery, but single shot inguinal para-vascular techniques likely insufficient to reach lumbar plexus.³
- Correct placement of ALPINE catheters was verified with fluoroscopy in our early cases (Fig 2).
- ALPINE technique represents a novel and simplified US-guided approach to lumbar plexus block.
- Further research warranted to explore pain outcomes, length of stay, morbidity/mortality, etc.

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2. *J Bone Joint Surg Am* 91 (1): 29-37
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