

RAPTIR: Soaring to new heights for diaphragm-sparing regional anesthesia in humerus fractures

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CASE

Patient: A 70-year-old male with COPD presented with a displaced comminuted fracture of the left humeral head and neck following an assault.

Consultation: Acute pain service was consulted after open reduction and internal fixation of the left proximal humerus. Oxygen saturation was 92-94%, raising concern for phrenic nerve involvement associated with an interscalene approach to the brachial plexus block. Access to an infraclavicular approach was limited by the patient’s range of motion and the location of his surgical incision.

Treatment: Combined RAPTIR and suprascapular blocks were performed under continuous ultrasound guidance. A total bolus of 30 mL of 0.5% ropivacaine was administered, followed by continuous peripheral nerve catheter infusions of 3 mL/hr and 7 mL/hr of 0.2% ropivacaine into the suprascapular and RAPTIR blocks, respectively.



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Outcome: The patient immediately reported significant and sustained pain reduction from 9/10 to 3/10 on the numerical rating scale and experienced no change in respiratory status. His oxycodone requirement decreased by an average of 25% following the block, and he no longer required IV morphine for breakthrough analgesia.

Discharge: The catheters remained in place for 5 days, enabling engagement in physical therapy prior to discharge to acute inpatient rehabilitation.

Discussion

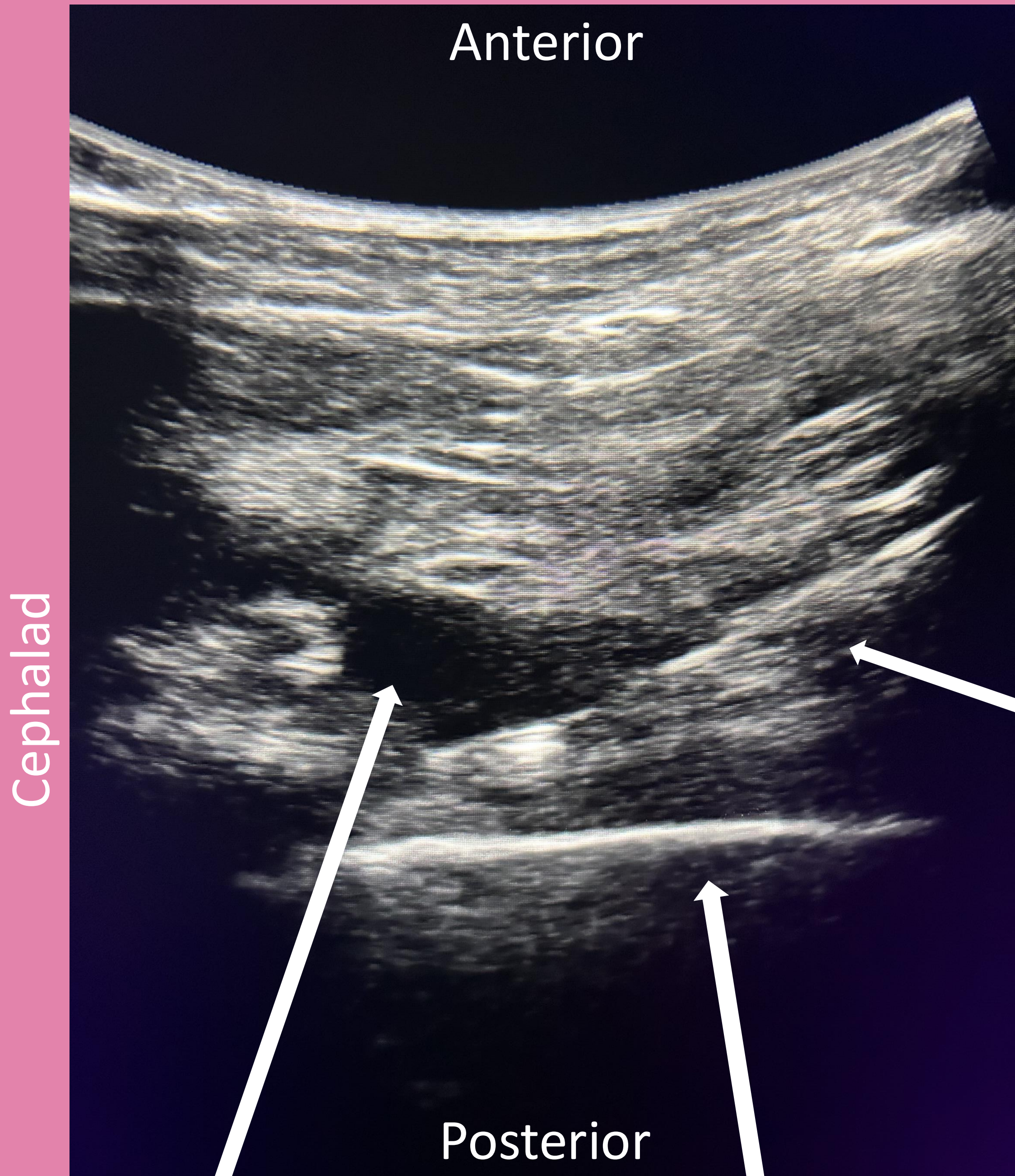
- The shoulder joint and proximal humerus are mainly innervated by the axillary and suprascapular nerves, with contributions from the musculocutaneous and lateral pectoral nerves.
- The RAPTIR and suprascapular combination offers similar coverage with fewer pulmonary complications than the interscalene approach.
- Additionally, the RAPTIR approach does not require arm abduction, which may be preferable over the infraclavicular approach for some patients
- Short-term opioid use in acute care has been linked to poor clinical outcomes in COPD patients, likely due to decreased respiratory effort and ventilation. This combination of blocks significantly reduced the patient’s need for rescue opioids.

References

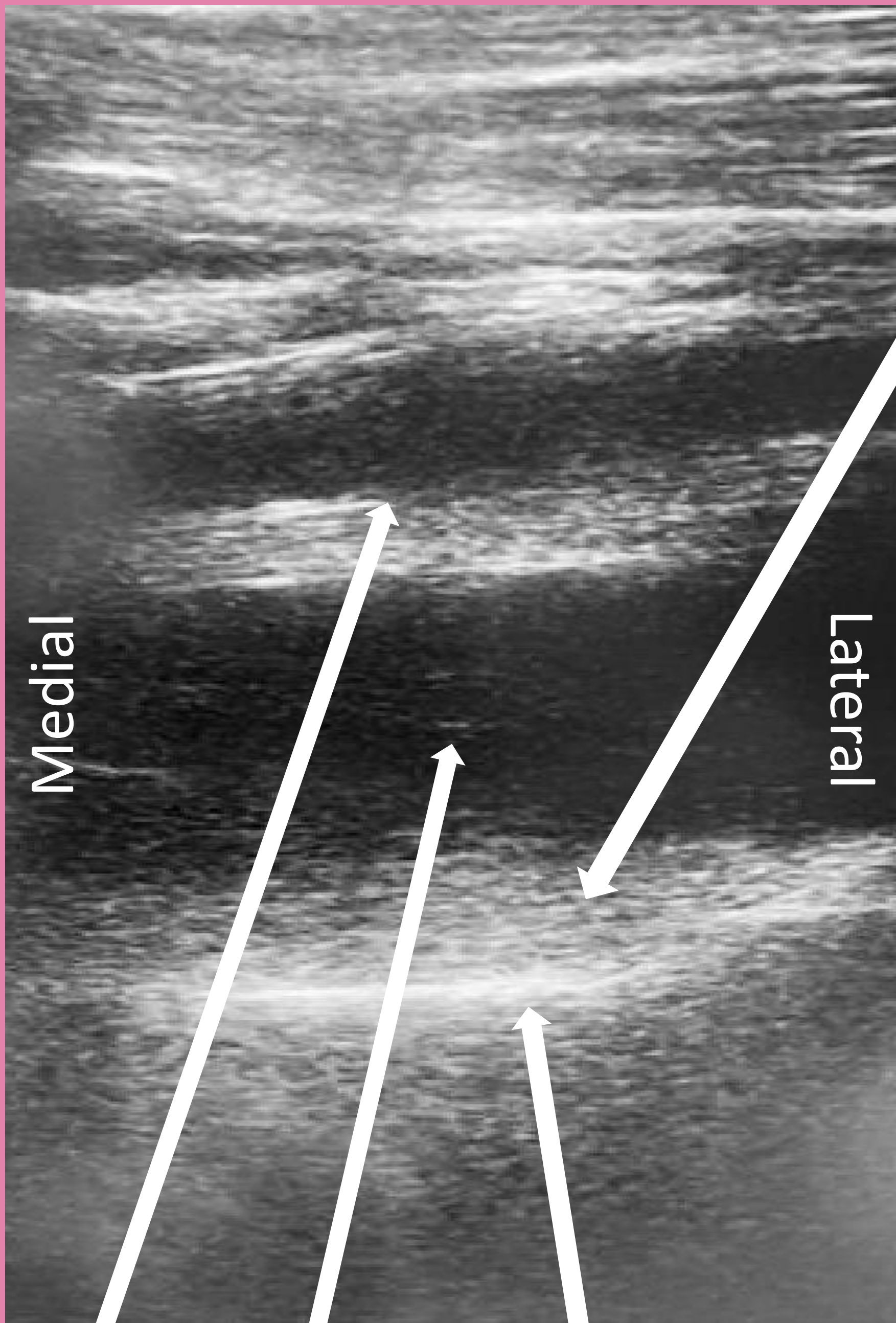
- Infraclavicular-SubOmohyoid block: a single-puncture technique for diaphragm- and opioid-sparing shoulder anaesthesia, *British Journal of Anaesthesia*, Volume 119, Issue 1, July 2017, Pages 170–171
- Additional references available on request, correspondence to Nicholas.Mangano@stonybrook.edu

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RAPTIR



Suprascapular Nerve Block



Needle trajectory

Needle trajectory

Cephalad

Posterior

Axillary artery

Clavicle

Medial

Lateral

Trapezius

Supraspinatus

Supra-
scapular
notch