



Successful Management of Chronic Intercostal Neuralgia Pain with Regional Anesthetic Techniques in the Outpatient Setting

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Introduction

- Effective treatment of chronic pain can lead to improvements in a patient’s mental health and physical functioning.
- Regional anesthetic techniques can provide adequate pain relief while avoiding systemic side effects of opioids and nonopioids, such as respiratory depression, sedation, gastrointestinal upset, and risk of addiction.
- Increasingly, there is evolving evidence to support the use of regional techniques beyond the peri-operative arena for treating chronic pain in the outpatient setting.
- While the exact mechanism of their benefit is unknown, potential mechanisms include the reduction of central sensitization by blocking nociceptive input, anti-inflammatory effects of local anesthetics, suppression of adrenergic responses, and alteration in neuroplasticity.
- A 2018 study demonstrated that Erector Spinae Plane block provided more effective pain relief and functional improvement than a lumbar epidural steroid injection for chronic radicular pain, demonstrating how regional techniques can become an effective component of a multimodal regimen.

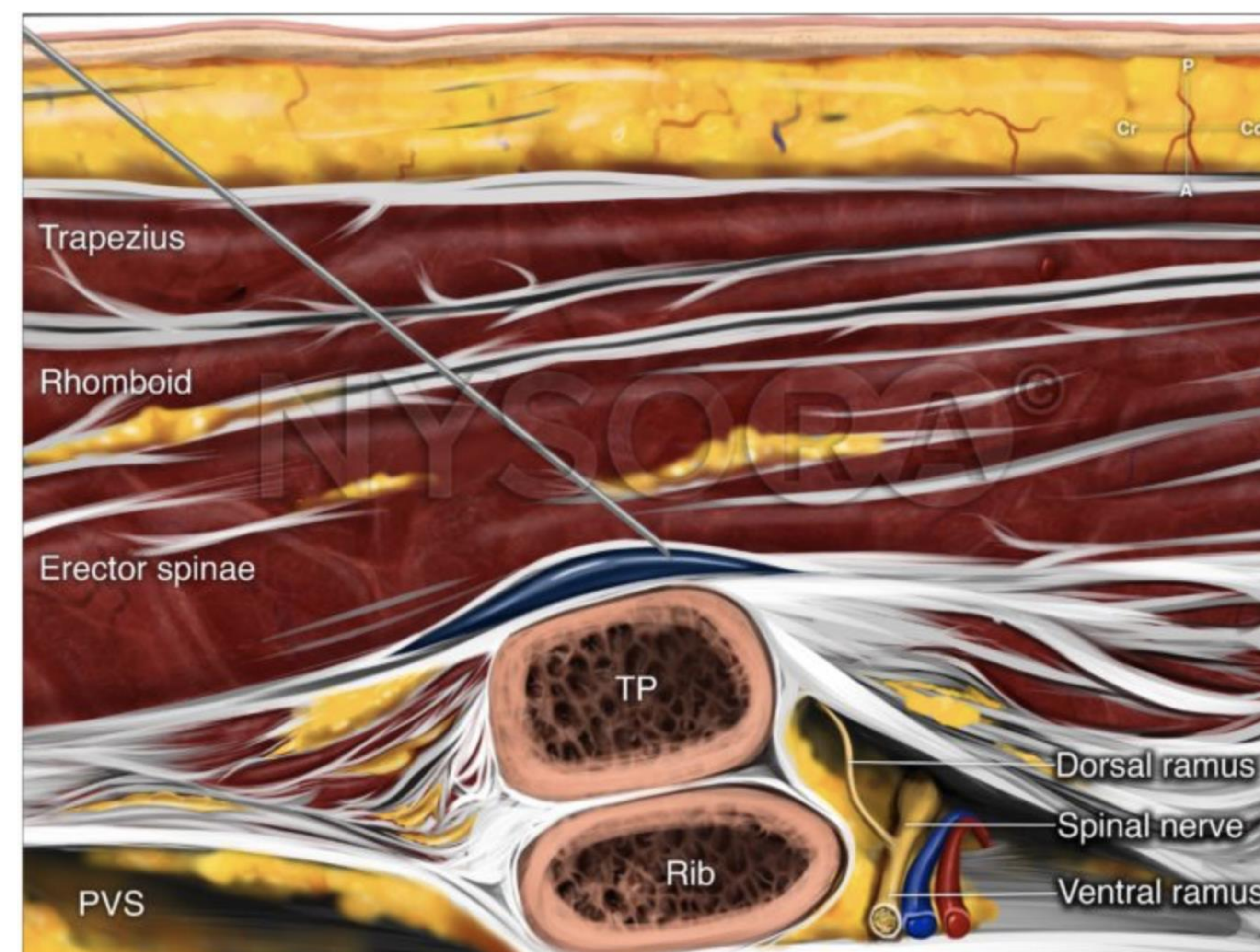
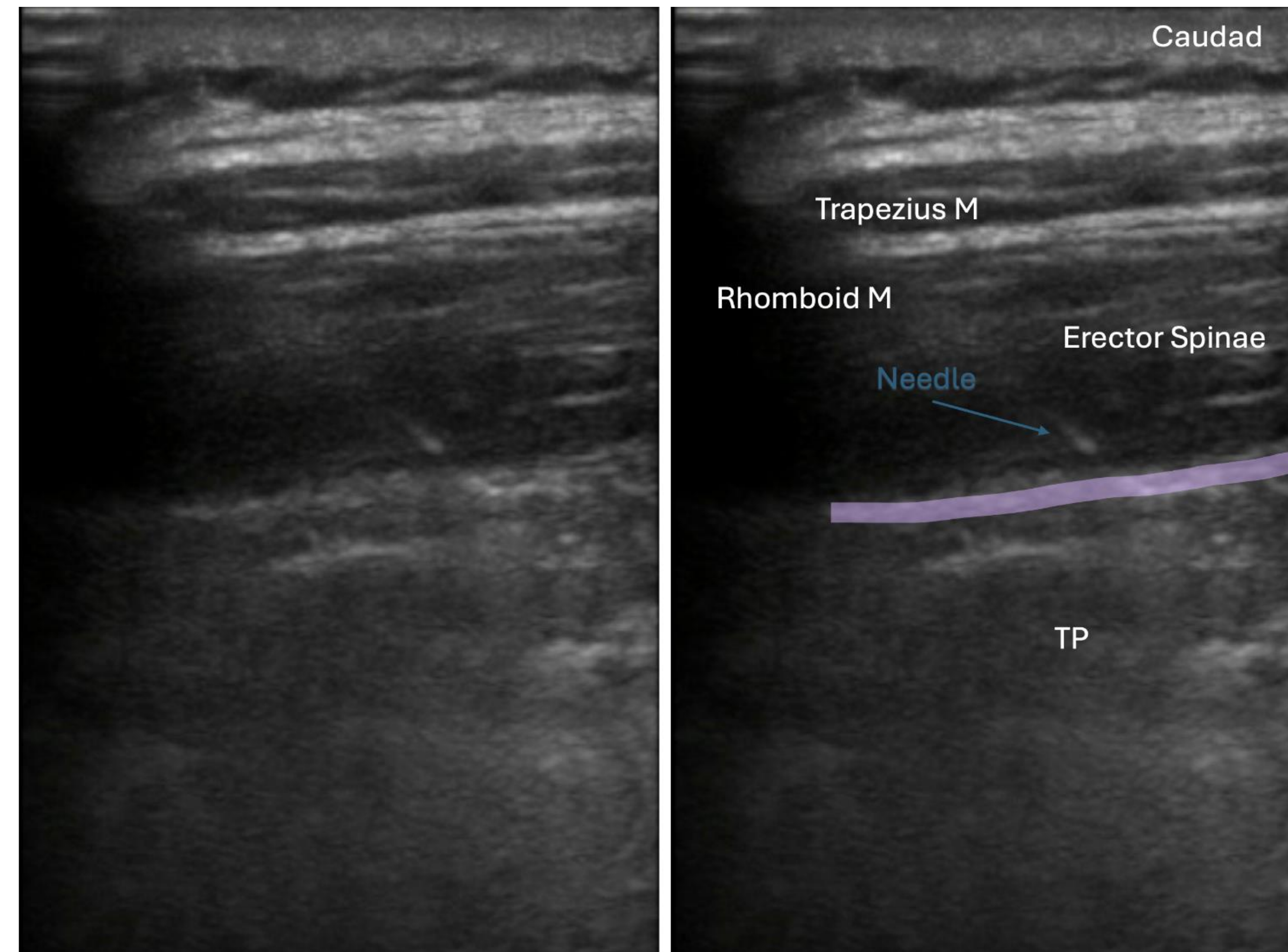
Materials and Methods

- As this is a Case Report devoid of patient identifiers, no IRB approval was required per UMMC policy.
- Informed consent was obtained from the patient for this presentation.

Case Report

- Patient is a 36-year-old male s/p GSW in December 2022, resulting in ballistic injuries to the left lower chest, bilateral pneumothoraxes, injury to posterior wall of gastric fundus, and a ballistic injury to the posterior wall of the descending thoracic aorta at the level of T7.
- He underwent an exploratory laparotomy with bilateral chest tube placement. Imaging also revealed acute severely comminuted ballistic fracture of T7 vertebral body, for which he received T5-9 open internal stabilization, arthrodesis and reduction of fracture in Jan 2023.
- Patient was discharged to acute rehab and had been healing well. He was subsequently referred to Chronic Pain Management after developing sharp, throbbing allodynia/neuropathic chest wall pain localized to the right chest with radiation to the thoracic spine at a severity level of 8/10 on the numeric rating scale.
- Pain was intractable despite increasing dosages of Cymbalta, Neurontin, Tizanidine, and Robaxin. Treatment options were discussed in detail before proceeding with ultrasound-guided right thoracic erector spinae block at the T7 level in Aug 2023 (total 20 mL with 1 cc of 80 mg Depomedrol and 19 mL of Bupivacaine 0.5% injected along the fascial plane).
- The patient experienced a 60% immediate reduction in pain, with 100% pain relief for two months. There was a gradual recurrence, at which point a repeat block was performed under fluoroscopy in Jan 2024, achieving 100% pain reduction for three months. A request for repeat block in May 2024 was denied by insurance despite prior success. Patient continues to receive multimodal pharmacotherapy while our team continues the process for appeal.

Ultrasound Imaging



Obtained from Reference #6: NYSORA

Discussion

- The erector spinae muscle group including the iliocostalis, longissimus, and spinalis muscles. They run bilaterally from the skull to the pelvis and sacral region, and from the spinous to the transverse processes, extending to the ribs. The muscles change their size and profile during their craniocaudal course alongside the spine. One of their main functions is to stabilize the spine.
- Injection Procedure Technique as per NYSORA:
 - Insert the needle in-plane from a cranial to caudad direction until the needle tip contacts the transverse process.
 - Inject 1-3 mL of local anesthetic to confirm proper injection plane by visualization of a spread deep to the erector spinae muscles and superficial to the transverse process.
 - Complete the nerve block with 20-30 mL of local anesthetic.
- With the ongoing opioid crisis, additional techniques to better manage chronic pain can help reduce the need for opioids.
- Regional anesthetic techniques can provide pain relief and avoid systemic side effects of opioids and non-opioids such as respiratory depression, sedation, constipation, gastrointestinal upset, and risk of addiction.
- Ultrasound guided techniques in have improved safety and efficacy of block techniques allowing direct visualization of nerves or fascial planes while avoiding important vascular structures.
- Despite regional anesthetic techniques with local alone typically last less than a day, these techniques combined with steroids can be effective in the treatment of chronic pain syndromes.
- This approach can help mitigate pain, interrupting the "pain cycle" and reducing the central sensitization that contributes to chronic pain.
- Limiting factors in the routine utilization of regional anesthesia for chronic pain include
 - Lack of standardization in dose, agents, and techniques
 - Vigilance for potential Local Anesthetic Systemic Toxicity (LAST) in the outpatient setting
- Regional anesthetics techniques can become an effective component of a multimodal regimen in treating chronic pain outside of the more commonly used perioperative pain management setting.
- Cases like this demonstrate that regional anesthetic techniques can provide effective pain relief for several months in certain chronic pain syndromes and can lead to significant improvements in their biopsychosocial health. Further studies are required to validate this approach.

References

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