

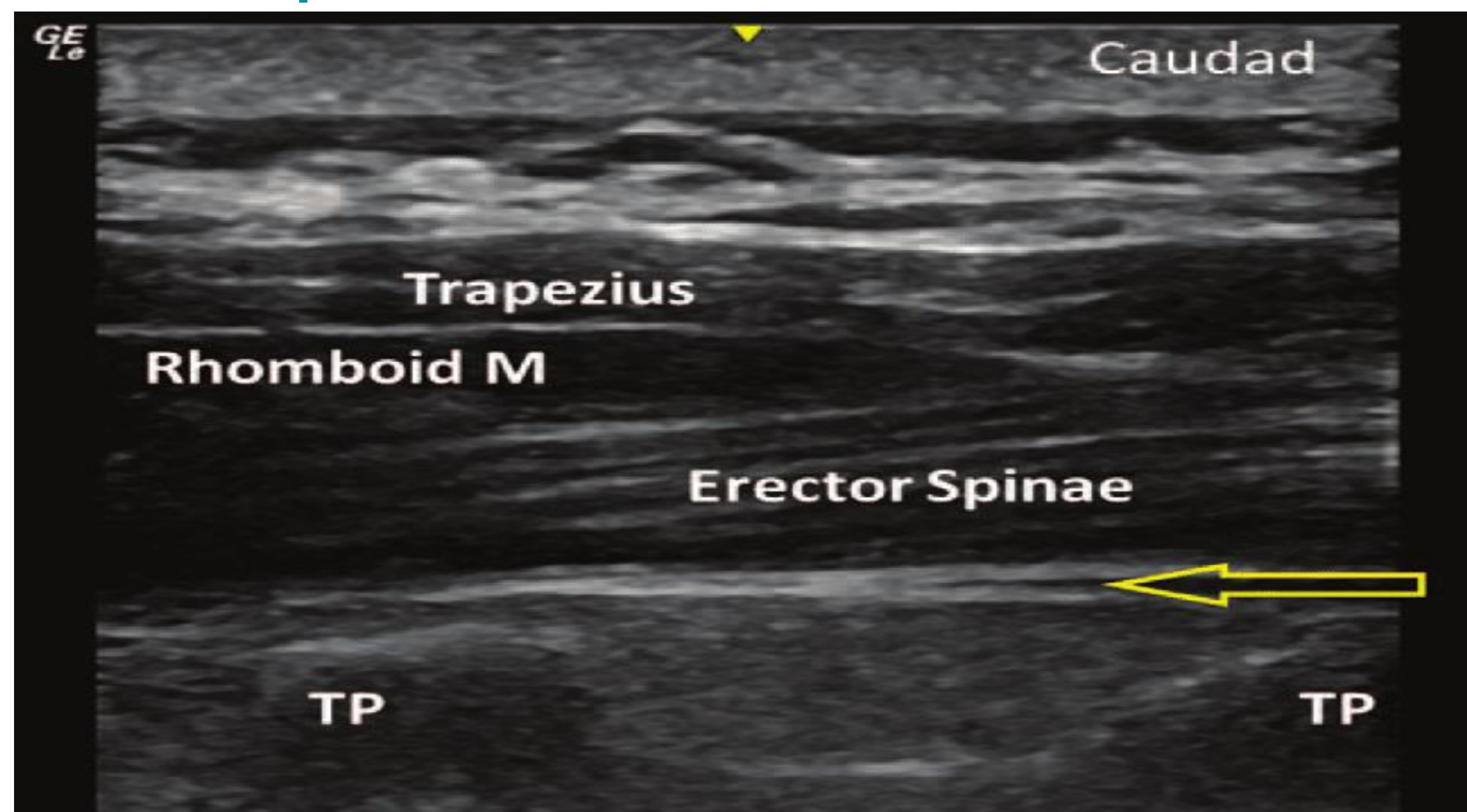
Placement of erector spinae plane catheter for rib fractures in the setting of reversal of anticoagulation

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Introduction

Rib fractures are a common sequela of blunt chest trauma and are associated with significant morbidity and mortality. Studies have found a 10% mortality rate for singular rib fractures with rates increasing with each additional fracture. Pain secondary to rib fractures leads to poor inspiratory effort due to splinting, decreased mobility, and inability to adequately cough and clear airway secretions. This in turn can lead to further complications such as pneumonia, acute respiratory distress syndrome (ARDS), and atelectasis. There are multiple regional and pharmacologic techniques described to manage rib fracture pain. However, the use of anticoagulation can limit regional anesthetic options. In this case report, we describe the use of a continuous erector spinae plane block for the management of rib fracture pain in a patient on chronic anticoagulation after reversal of anticoagulation.

Erector Spinae Plane Ultrasound



Case Presentation

An 84-year-old female patient presented to the trauma center after being a restrained passenger in a high-speed motor vehicle collision. Upon initial evaluation, her GCS was 15, the initial FAST exam was negative, and she was saturating well on room air. Laboratory tests notabled INR 1.34, PT 16.8, and platelet count 176×10^3 . The initial CT scan noted a subarachnoid hemorrhage, bilateral pneumothorax, right 4th-9th rib fractures, and right-sided pulmonary contusions. The patient reported a history of pacemaker placement and endorsed taking Eliquis 2.5mg twice daily. Given the CT scan findings of SAH, the trauma team decided to reverse her anticoagulation with PCC as per institutional protocol. While recovering, the patient became progressively hypoxic from poor inspiratory effort due to pain and required supplemental oxygen therapy. The anesthesia team was consulted for possible interventions. Given the recent anticoagulation use by the patient, she was deemed not to be a candidate for epidural analgesia.

After a discussion with the patient and family, we decided to proceed with a continuous erector spinae plane (ESP) block. Thirty milliliters of 0.2% ropivacaine was injected in the plane with the appropriate spread seen on ultrasound imaging. A continuous infusion catheter was left in place and connected to an infusion pump of ropivacaine 0.2%. The procedure was uncomplicated and the patient noted immediate improvement in her pain. There were no signs of bleeding, infection, or neurologic deficits at the catheter site at the time of removal or subsequent follow-up.

Discussion

- NSAIDs are effective but often insufficient monotherapy for rib fracture pain
- Opioids should be used with caution given the potential for respiratory depression and pulmonary complications
- Neuraxial anesthesia, including thoracic epidurals, are the gold standard in rib fracture pain management but can be limited in patients receiving anticoagulation
- Spinal Epidural hematoma can have devastating neurologic consequences
- Erector Spinae Plane blocks have low rates of complication given the anatomic location and ultrasound guidance
- ESP are safe and effective at managing rib fracture pain in anticoagulated patients and those who have had anticoagulation reversed

References

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