

Pneumothorax After Trigger Point Injection: A Case Report of Treatment Challenges in Patients with Recurrent Botulinum Toxin Injections

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Background

- Trigger point injections (TPIs) are commonly performed to treat myofascial pain syndrome.
- Serious complications due to TPIs are rare, making up only approximately six percent of claims for chronic pain management according to the American Society of Anesthesiologists Closed Claims Project.

Case Report

- Patient: 41-year-old female with a past medical history of migraines, cervical dystonia, and myofascial pain treated with TPIs every 1-3 months with excellent pain relief. Cervical spine imaging was unremarkable. She was also treated with 200-400 units incobotulinumtoxin injections for cervical dystonia by her neurologist every three months, including 10-15 units at the trapezius muscles.
- After two years of this treatment regimen, immediately after one of her TPI procedures with a thirty-gauge, one-inch (2.54 cm) needle into bilateral trapezius, levator scapulae, rhomboids, cervical and thoracic paraspinal muscles, the patient reported significant pain in her right midback and with deep inspiration. Vitals at that time revealed tachycardia to 110 beats per minute with stable oxygen saturation and blood pressure. She was immediately taken to the emergency department where a chest x-ray revealed the presence of a medium-large right sided pneumothorax (Image 1). She was hospitalized for four days for chest tube weaning and regained full respiratory function.

Serial botulinum toxin injections in the trapezius muscle can cause trapezius muscle atrophy.

Trapezius muscle atrophy may pose increased risk of pneumothorax in patients receiving trigger point injections in the neck and shoulder areas.

Discussion

Although trigger point injections are typically considered low risk, minimally invasive procedures, our case report illustrates the gravity with which to approach any procedure where morbidity is possible. Our patient elected to continue to receive trigger point injections given her significant pain relief despite the adverse event. She had thereafter received more than six repeat trigger point injections using ultrasound guidance without further complications and is satisfied with her myofascial pain control. Subsequent ultrasound imaging during repeat trigger point injection revealed presence of pleura at a depth of approximately 2 cm at the trapezius injection sites (Image 2). Presumably, the years of serial botulinum toxin injections in our patient caused trapezius muscle atrophy, a well described phenomenon in which the degree of muscle atrophy correlates with increasing doses and duration of botulinum toxin treatment. Although our patient was receiving botulinum toxin for dystonia, chronic migraine is another common pain condition in which botulinum injections are used in the trapezius region in similar doses. Although ultrasound guidance is being used more frequently for ambulatory procedures, its use in cervicothoracic trigger point injections is still not widespread. We advocate for ultrasound guided cervicothoracic trigger point injections in patients with myofascial pain who are also being treated with botulinum toxin for cervical dystonia or migraine.

Images

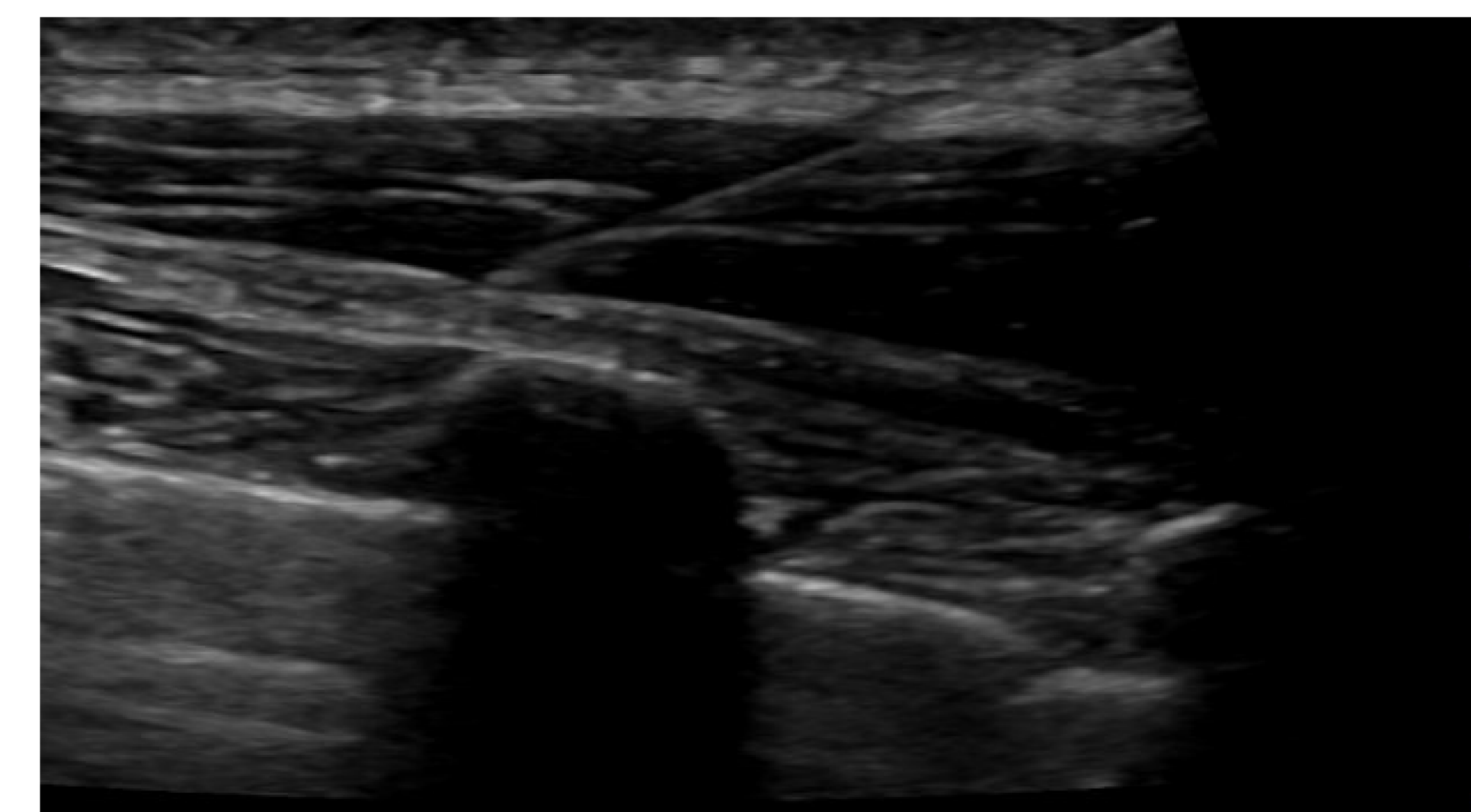
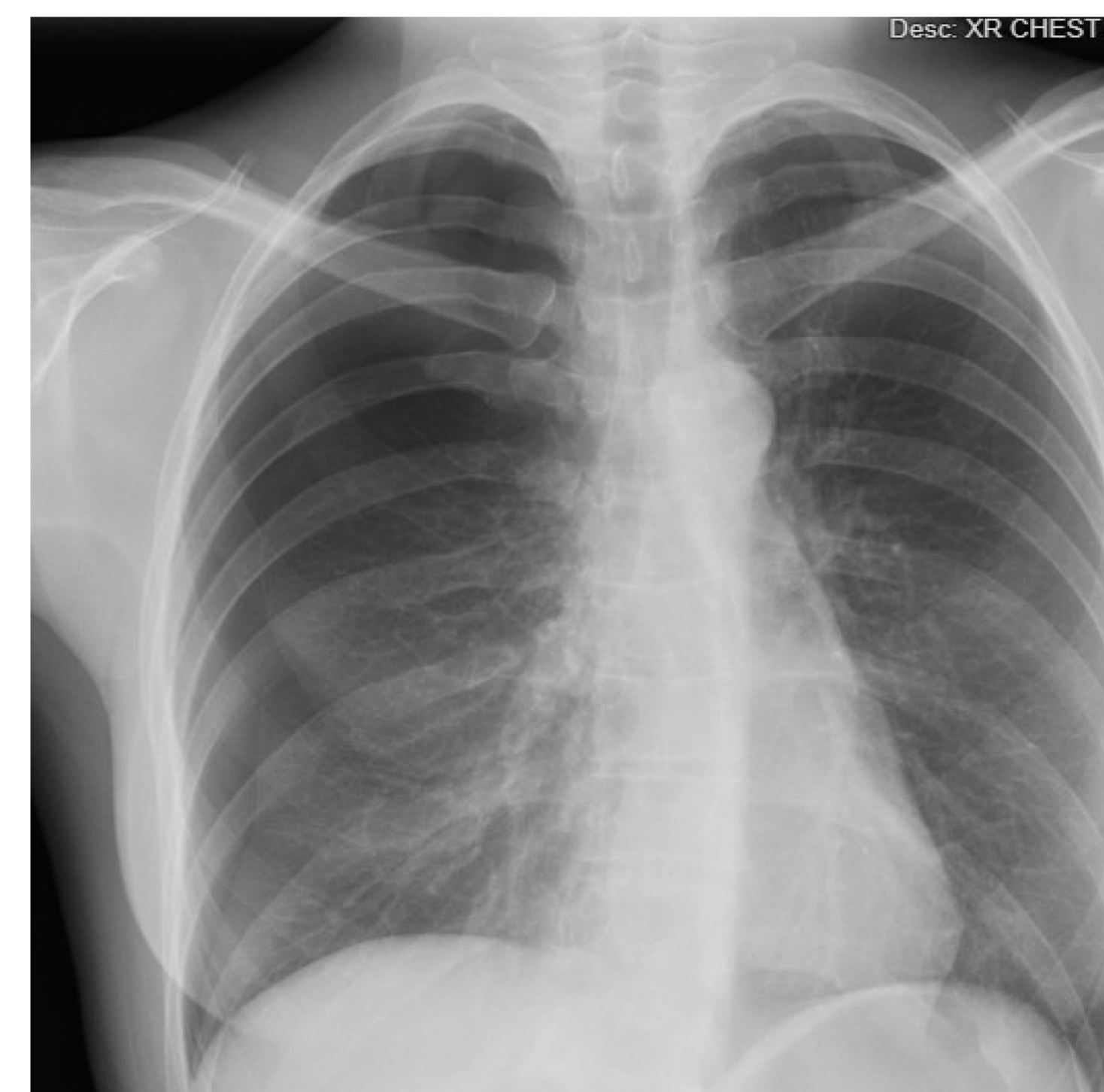


Image 1 (Left): Initial emergency department CXR

Image 2 (Above): Subsequent ultrasound guided trigger point injection in trapezius region