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## Case report

# Bilateral supraclavicular abscesses following trigger point injections <sup>☆</sup>

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### ABSTRACT

A 54-year-old-woman presented to the emergency department with worsening bilateral shoulder pain six days after trigger point injections in the bilateral supraclavicular areas for chronic pain. A computed tomography scan of the neck revealed bilateral irregular rim enhancing fluid collections. Image-guided percutaneous drainage resulted in marked improvement and near complete resolution by 17 days post-drainage. This case demonstrates the need for early detection of soft-tissue infection and abscess formation related to interventional pain procedures to avoid potentially life-threatening complications, such as *Staphylococcus aureus* bacteremia.

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## Introduction

Trigger point injections (TPIs) are useful in the primary or adjunctive management of pain related to myofascial trigger points. Infectious complications of TPIs have been documented in the literature, including cases of epidural abscesses and necrotizing fasciitis [1]. In this report, we present a case of a patient who developed bilateral trapezius muscle abscesses after receiving bilateral supraclavicular TPIs.

## Case summary

A 54-year-old-woman with a history of hypertension, migraines, and occipital neuralgia presented to the emergency department with five days of worsening bilateral shoulder pain. Six days prior to symptom onset, the patient received triamcinolone acetonide and lidocaine TPIs in the supraclavicular areas bilaterally for chronic back pain. The patient then developed a dull ache at both injection sites in the area of

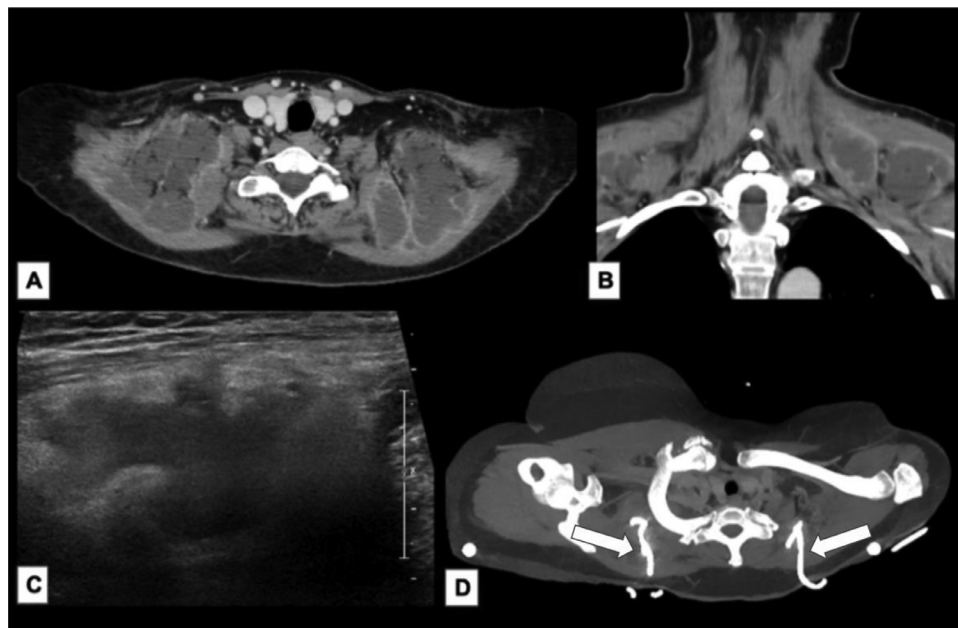
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**Fig. 1 – (A, B) CT scan of neck with contrast showing bilateral supraclavicular irregular rim enhancing soft tissue abscesses. (C) US neck showing irregular hypoechoic abscess. (D) CT scan of neck MIP image showing bilateral pigtail drain tubes (solid arrows).**

her trapezius muscles. Because she experienced similar soreness after prior injections, she did not seek immediate medical evaluation. However, in the following days, the ache became more severe and limited her ability to perform activities of daily living. She reported no other symptoms.

At the initial presentation, vital signs were within normal limits. Physical exam findings, however, were notable for bilateral supraclavicular erythema. Active range of motion of the upper extremities was severely limited due to pain. No cervical, submandibular, submental, or supraclavicular lymphadenopathy was appreciated. Laboratory testing performed in the emergency department was significant for a leukocytosis of 18,100/mcL with a neutrophil differential of 72.1%.

Computed tomography (CT) of the neck showed several irregular rim enhancing foci measuring just above water attenuation along the shoulder and neck musculature bilaterally, consistent with abscess formation (Fig. 1). The patient was started on empiric vancomycin and ceftriaxone and interventional radiology (IR) was consulted for percutaneous drainage of the abscesses. Drainage was performed under moderate sedation with placement of pigtail drainage catheters bilaterally. A total of 10 mL of thick serosanguineous fluid was removed from the abscess cavities. Subsequent cultures of aspirated contents grew methicillin-sensitive *Staphylococcus aureus* (MSSA) with 2/2 blood cultures equally positive for MSSA. Vancomycin and ceftriaxone were discontinued and the patient was started on intravenous cefazolin. Follow-up transthoracic echocardiogram showed no vegetations or other concerning valvular lesions. The patient was admitted for observation and continued antibiotic treatment.

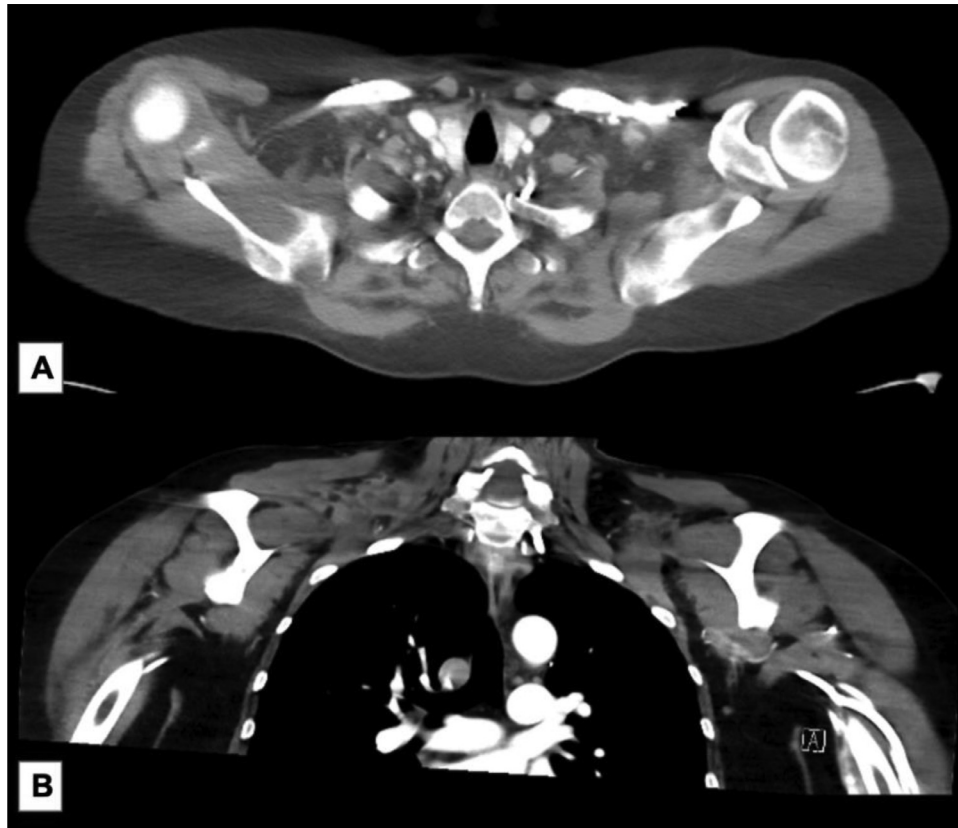
Four days after initial drain placement, it was noted that the right drain could not be flushed. In addition, although

there was significant symptomatic improvement with respect to her left shoulder, she continued to complain of severe right shoulder discomfort and inability to use her right arm due to pain. A second CT scan performed to evaluate drain placement (Fig. 1) showed a persistent right-sided multiloculated abscess and a malpositioned drain tube. The patient was brought to the IR suite for drain repositioning and disruption of the abscess cavity. 30 mL of purulent fluid was aspirated and it was determined that any remaining material was too scant for removal through a drainage catheter. Therefore, both drainage catheters were removed.

The patient was discharged on cefazolin but returned to the emergency department 48 hours later with a pruritic skin rash and angioedema, which was concerning for an allergic reaction. She was placed on vancomycin and a repeat CT scan 17 days after discharge revealed marked improvement bilaterally with minimal right-sided residual fluid (Fig. 2). The patient has continued to have only minimal residual bilateral shoulder discomfort with activity, but does not report any change in the frequency or severity of her migraine or occipital neuralgia episodes.

## Discussion

TPIs are a common treatment for chronic head and neck pain, pelvic pain, low back pain, and other musculoskeletal aches that are the result of myofascial pain syndromes. Myofascial trigger points are typically located by palpation of a tense, hypersensitive nodule of muscle in a painful area [2]. Injections typically contain lidocaine or bupivacaine and may be mixed with a glucocorticoid (as was the case with this patient). How-



**Fig. 2 – CT scan of neck with contrast post discharge follow-up(A) axial and (B) coronal images showing near complete resolution of bilateral supraclavicular abscesses.**

ever, the addition of a glucocorticoid is typically avoided due to increased risk of muscle necrosis and modest to no benefit compared to anesthetic alone [3].

Serious and rare adverse events related to TPIs have been reported to include pneumothorax, necrotizing mediastinitis, cervical spinal epidural abscess, and pneumocephalus following intrathecal injection [4–7]. Frequently encountered minor complications include direct nerve or muscle injury, anaphylaxis, hemorrhage, or superficial skin infection [1]. Complications arising as a result of TPIs are uncommon overall, but infection has been reported to be the most frequently encountered adverse effect of joint, tendon, and muscle injections [8]. This is the first description of the development and management of trapezius muscle abscesses after bilateral TPIs reported in the literature.

Image-guided percutaneous catheter abscess drainage has been estimated to have a curative and partial success rate of 62%-100%, with a recurrence rate of approximately 5%-10% [9]. Dysfunction of a drainage catheter can occur due to pericatheter leakage, infection, obstruction, dislodgement, migration, or malposition [10]. Catheter migration and malposition requiring correction is common in patients with indwelling drainage catheters. Suspicion for catheter malposition should be raised when drain output decreases precipitously in a clinical context of persistent infection. Additionally, the Society of Interventional Radiology recommends that drainage catheters be flushed with 5-10 mL of normal saline at least

daily [9]. Increased resistance to flushing may indicate malposition, as in the patient reported here, or catheter obstruction due to viscous purulent fluid. A radiograph or CT scan are appropriate for determining drain position, followed by image-guided repositioning if required [11].

The patient reported here did not have any obvious predisposition to soft tissue abscess formation, such as immunosuppressive preexisting conditions or medication, illustrating the need to consider early imaging in any patient with worsening pain at the site of an interventional pain procedure. Patients should be encouraged to report to an emergency department or seek medical attention if they develop swelling or redness around the injection site, fever, or if they have persistent or worsening pain. MSSA abscesses and bacteremia are potentially life-threatening complications that resulted in significant morbidity in the patient described in this report. This case therefore serves as a reminder for strict adherence to standard aseptic technique during the performance of TPIs and other interventional pain management procedures to prevent infection.

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#### **Patient consent**

Informed consent was obtained from the patient.

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## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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