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Concurrent Discitis and a Spinal Epidural Abscess Following Transforaminal Epidural Steroid Injection Arising From An Unlikely Bacterial Species

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Concurrent Discitis and A Spinal Epidural Abscess Following Transforaminal Epidural Steroid Injection Arising From An Unlikely Bacterial Species

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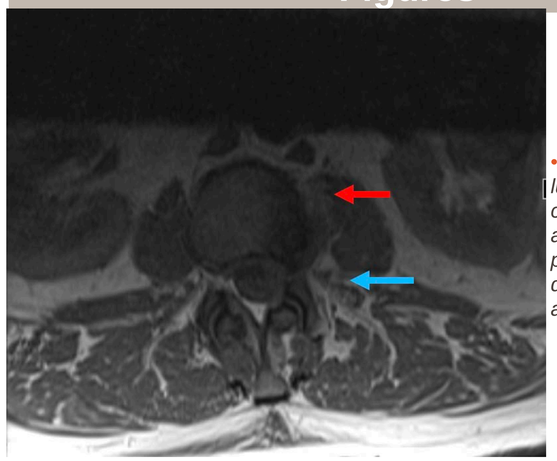
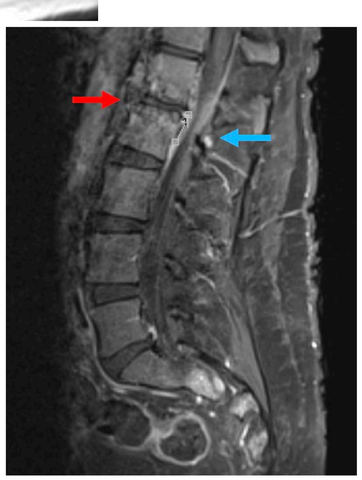
Introduction

•Transforaminal epidural steroid injection (TFESI) can be a great option for pain relief when a patient's radicular pain is refractory to medication and physical therapy. However, it is important that clinicians understand the potential complications. A case series revealed long-term sequelae include back pain, restricted spine flexibility, and narrowing of the intervertebral disc space which can significantly affect patients' quality of life (Visuri, Pihlajamaki, and Eskelin 2005). No previous case studies have documented a patient with discitis and an epidural abscess concurrently following a lumbar transforaminal epidural steroid injection (TFESI) and this retrospective case study aims to present both the clinical and radiographical features associated with discitis and epidural abscesses while educating clinicians on patients at a higher risk for these complications and how best to treat them.

Figures



•*Figure 1: Figure 1 Initial lumber spine MRI with contrast during hospital admission in the transverse plane depicting both discitis (red) and epidural abscess (blue).*



•*Figure 2: Initial lumbar spine MRI with contrast during hospital admission in the sagittal plane depicting both discitis (red) and epidural abscess (blue)*

Case

•A 60-year-old male with a past medical history of grade 3c metastatic melanoma to the right lower extremity (RLE) presented with worsening stabbing right groin, hip, lower extremity, and foot pain. The pain was worse while standing, walking, and bending forward and was relieved by lying prone or laterally. Review of systems was negative for fever, chills, and dysuria. Upon examination, his RLE had multiple melanoma lesions painful to palpation encompassing the L2 to S1 dermatomes. Lymphedema and mild erythema were present but without any signs of infection. Strength remained 5/5 in lower extremities. A PET-CT showed progression of the disease since his last PET-CT scan, and the patient's pain was refractory to his current medication regimen of Gabapentin 600mg TID. Additionally, he was reluctant to start opioids. After discussing the risks and benefits, a right L2-L5 lumbar transforaminal epidural steroid injection (TFESI) using 5 mg dexamethasone with 1.5ml 0.25% bupivacaine at each level was performed. His post procedure pain was 0/10. Subsequently, our plan was to consider spinal cord stimulator if received benefit from the epidural.

•At nine days post-op, the patient reported 80% pain relief for three days before the pain returned to baseline. Additionally, on exam, crusting and weeping of the melanoma lesions across the lower extremity were noted without signs of active infection. The patient denied and fever or chills. He was also seen by his oncologist who noticed worsening lymphedema and new neck and axillary lesions prompting a change in medication regimen from pembrolizumab to ipilimumab. He received this immunotherapy infusion on the tenth day. The following day, he presented to the ED reporting feeling tired, with no relief in back pain upon lying down. He reported when he awoke up, could not move his legs for four hours, and had extreme right midback pain that radiated to his right upper quadrant of his abdomen. Upon exam, he was found to have bilateral paraspinal muscle tenderness. Neurologic and motor strength exam remained intact.

•The patient was admitted and a CBC and CMP showed a leukocytosis from 8.2, prior to his immunotherapy infusion, to 17.6. Blood cultures were sent and revealed gram positive cocci determined to be Group G streptococcus. CT abdomen and pelvis was unrevealing, however, a MRI of lumbar spine with and without contrast showed epidural enhancement surrounding the L1-L2 disc space and a small fluid signal collection on the left ventral surface of the thecal sac (Figure 1). These findings were concerning for discitis and a spinal abscess. Neurosurgery did not recommend intervention given the small size of abscess. The infectious disease team was consulted and recommended an 8-week course of ceftriaxone, and he was discharged with the appropriate pain management for his symptoms. Subsequently, he underwent another MRI that showed resolution of the epidural enhancement and the small fluid collection.

Discussion

•Group G streptococci is normally found in skin flora and supports this patient's infectious etiology being epidermis breakdown secondary to melanoma disease in the setting of TFESI. An underlying systemic infection is the most common etiology of these type of infections (Pradilla et al. 2009). Nevertheless, it is important to understand the anatomy and comorbidities that can lead to these rare but potentially dangerous after TFESI's. Discitis and spinal abscesses most often occur because of hematogenous spread via the Batson vertebral plexus as well as arterial spread via the anterior and posterior spinal arteries. The most common comorbidity for both diagnoses is diabetes. Both also have many of the same predisposing factors such as immunocompromised status, IV drug abuse, kidney failure, spinal surgery, and foreign bodies. As in our case, the classic presentation of many of these patients is localized tenderness and restricted mobility. Some will also experience motor, sensory, reflex neurologic deficits and these are typically emergent cases that cannot be missed (Bond and Manian 2016).

•It is important to note that only 50% of patients with spinal abscesses will have fever, only 45% will have an elevated WBC count, and biopsies only yield positive cultures in 50% of cases. Additionally, the most common cause of discitis is staphylococcus aureus, however, our is case unique in that Group G streptococci is the bacterial etiology of this infection rather than staphylococcus is rare compared to other reports of discitis in the literature (Hooten et al. 2006). If infection is suspected and the patient has an abnormal neurologic exam, appropriate work-up should be ordered but physicians should also order a stat MRI with contrast and start broad spectrum antibiotic coverage. This coverage can be narrowed once sensitivities are obtained. However, if the patient is stable, blood cultures and biopsies should be drawn before beginning antibiotic therapy. Cervical and thoracic pathology should receive more aggressive treatment and any patient with a worsening neurologic exam should have neurosurgery consulted (Al-Hourani, Al-Aref, and Mesfin 2016).

Conclusion

•This is the first case to show concurrent discitis and epidural abscess after TFESI secondary to cellulitis in the setting of stage IV melanoma. Additionally, this is case unique in that Group G streptococci is the bacterial etiology of this infection rather than staphylococcus is rare compared to other reports of discitis in the literature (Hooten et al. 2006).

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