Thoracic Spondylodiscitis Epidural Abscess in an Afebrile Navy Veteran: A Case Report

Zachary A. Cupler, DC, MS,[a] Michael T. Anderson, DC, MS,[a] and Thomas J Stancik, DO[b]

Abstract

Objective: The purpose of this case study was to describe the differential diagnosis of a thoracic epidural abscess in a Navy veteran who presented to a chiropractic clinic for evaluation and management with acupuncture within a Veterans Affairs Medical Center.

Clinical Features: An afebrile 59-year-old man with acute thoracic spine pain and chronic low back pain presented to the chiropractic clinic at a Veterans Affairs Medical Center for consideration for acupuncture treatment.

Intervention and Outcome: The veteran elected to trial acupuncture once per week for 4 weeks. A routine thoracic magnetic resonance imaging scan without gadolinium detected a space-occupying lesion after the patient failed to attain 50% reduction of pain within 2 weeks with conservative care. The patient was diagnosed with a multilevel thoracic spondylodiscitis epidural abscess and was treated same day with emergency debridement and laminectomy of T7-8 with a T6-9 fusion. The patient had complete recovery without neurological compromise and completed an antibiotic regimen for 6 weeks.

Conclusion: A Navy veteran with acute thoracic spine and chronic low back pain appeared to respond initially but failed to achieve clinically meaningful outcomes. Follow-up advanced imaging detected a thoracic spondylodiscitis epidural abscess. Early diagnosis and immediate intervention are important to preserving neurological function and limiting morbidity in cases of spondylodiscitis epidural abscess. (J Chiropr Med 2017;xx:1-6)

Key Indexing Terms: *Acupuncture Therapy; Chiropractic; Epidural Abscess; Infection; Thoracic; Veterans; Military Personnel*

Introduction

Back and neck pain are leading global causes of disability.[1] Back pain caused by serious underlying pathology accounts for less than 3% of all back pain.[2] A spinal epidural abscess (SEA) is a rare, life-threatening infection, with the incidence on the rise in recent decades. The rate of SEA in 1975 was 0.2 to 2.0 cases per 10 000.[3] In a study of tertiary referral centers in 1999, 12.5 cases per 10 000 were reported.[4] Early diagnosis is paramount to mitigate neurological compromise and limit morbidity. A history of diabetes mellitus (21%-38% of cases), intravenous (IV) drug use, end-stage renal disease, human immunodeficiency virus (HIV), or immunosuppressant use and iatrogenic causes, such as epidural spinal procedures, increase the risk of SEA.[5-7]

Cases of SEA have been documented as presenting to chiropractic offices often masquerading as non-specific neck or back pain.[8-10] The classic clinical triad of back pain, fever, and neurological deficits is observed in only ~10% of cases.[11] Clinical progression of SEA has been observed to comprise four phases: (1) spinal ache, (2) root pain, (3) weakness of voluntary muscles and sphincters, followed by (4) paralysis.[12]

Because of the pervasive nature of neck and back pain, misdiagnosis of SEA on initial presentation is noteworthy, with estimates ranging from 11% to 75%.[7,13] A SEA, on average, crosses 3.85 vertebral levels and is reported in the thoracic (15%-39.1%), lumbosacral (30%-54.7%), and cervical (9%-35.9%) regions.[6,7,14,15] Magnetic resonance imaging (MRI) examination with and without gadolinium of the entire spine is the gold standard, as it differentiates SEA from other space-occupying lesions and malignancy. A computed tomography (CT) myelogram should be obtained when MRI is unavailable or is contraindicated because of an implanted electrical device (eg, pacemaker, spinal stimulator).[5,11,15] The infectious agent causing SEA is most commonly of bacterial origin and overwhelmingly either methicillin-sensitive or methicillin-resistant *Staphylococcus aureus*.[7,13] Once patients are diagnosed with SEA, best outcomes are achieved with rapid surgical intervention, abscess drainage, and concomitant antibiotic treatment. When monitored closely for clinical deterioration, there are select cases with limited neurological deficit that may be managed with antibiotic therapy only.[11,13]

[a] Physical Medicine & Rehabilitative Services, VA Butler Healthcare, Butler, Pennsylvania.
[b] Primary Care, VA Butler Healthcare, Butler, Pennsylvania.
Corresponding Author: Zachary A Cupler, DC, MS, VA Butler Healthcare, 353 North Duffy Road, Butler, PA 16001. Tel.: +1 800-362-8262. (e-mail: Zachary.cupler@va.gov).
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Multiple published SEA cases have suggested acupuncture to be the causative route of infection.[16-31] In this report, we describe a case of SEA in a man who presented to a chiropractic office for acupuncture at a Veterans Affairs Medical Center. The purpose of this case study is to describe the differential diagnosis of a thoracic epidural abscess in a Navy veteran who presented to a chiropractic clinic for evaluation and management with acupuncture within a Veterans Affairs Medical Center.

Case Report

A 59-year-old man with chronic low back pain and left leg pain below the knee was referred by his primary care physician (PCP) to a chiropractor for evaluation and consideration for acupuncture. The patient developed acute, non-traumatic left-sided thoracic pain 8 days prior to his initial appointment. He reported his thoracic spine pain was significantly relieved following a bowel movement the day prior, yet remained more prominent than low back and left leg pain.

The patient had Minor's sign and an antalgic gait. On a numeric pain scale from 0 to 10, he reported 7 to 8 for left-sided thoracic pain. He described the pain as sharp and "much better than yesterday" following his first bowel movement in 8 days. Valsalva maneuver exacerbated symptoms in the lumbar and thoracic regions, as did positions sustained longer than 30 minutes. Medical history was remarkable for left L5-S1 hemilaminotomy in 2011 and C2-6 cervical fusion in 1983. He smoked 1 pack per day and consumed alcohol occasionally. His medications included gabapentin, meloxicam, hydrocodone, and cyclobenzaprine. He denied recent fever, chills, nausea, vomiting, motor weakness, night pain, night sweats, and bowel or bladder dysfunction.

Vitals were collected by his PCP 3 days prior to evaluation. His temperature was 36.1°C, pulse rate was 88 beats per minute, and respirations were 20 per minute. Sensory and motor examinations were within normal limits. Straight-leg raise exacerbated chronic left radiculopathy. Dural slump test was positive for lumbar radiculopathy. Segmental palpation revealed tenderness throughout the lower thoracic spine, which was more pronounced on the left.

The veteran agreed to a course of acupuncture one time per week for 4 weeks. Short-term goals included increasing range of motion and reducing pain. Long-term goals included a sustained reduction of pain by at least 50% within 2 weeks and increased sustained positioning without aggravation of back pain from 30 to 60 minutes. On the initial visit, auricular acupuncture was applied bilaterally, and needles were retained for 10 to 15 minutes while the patient rested quietly. The National Acupuncture Detoxification Association (NADA) protocol is used primarily in mental health settings, as well as chronic pain management. It is a standardized 5-point ear acupuncture protocol: shen men, sympathetic, liver, kidney and lung.[32] Acupuncture was not applied to the thoracolumbar paraspinal regions. The patient exited with a verbalized pain score of 2 of 10.

On three subsequent appointments within 3 weeks after the initial encounter, acupuncture needles were inserted at an oblique angle and perpendicular to the thoracic paraspinals while the patient rested in a prone position. On the third visit, the thoracic pain radiated from the spine to the anterior rib cage with Valsalva-type maneuvers. In conjunction with acupuncture on the third visit, high-velocity, low-amplitude spinal manipulation was applied to the midthoracic region. The patient reported relief from thoracic and lumbar pain for the remainder of the day following each treatment. The pain returned to pretreatment intensity the evening after each appointment.

Vitals were collected again 3 weeks after initial consult with chiropractic services. Weight was stable at 67.4 kg. Temperature was 36.1°C, blood pressure was 118/62 mm Hg on the left arm, respirations were 20 breaths per minute, and heart rate was 68.5 beats per minute.

The patient's PCP ordered a thoracic MRI scan without contrast 4 weeks after symptom onset. The PCP chose to forgo plain film imaging because of the acute and non-traumatic nature of the thoracic pain, the long-term relationship with the patient, and the lack of sustainable response to conservative care after 3 sessions. Initial MRI findings without contrast appreciated abnormal T2 hyper-intense and T1 hypointense signal throughout T6 and T7 vertebral bodies with an epidural mass appreciated anterior and posterior to the cord with paraspinal extension and a dorsal mass effect of the cord (Figs 1-3).

Emergency thoracic MRI enhanced with gadolinium concluded there was intense enhancement of the T6 and T7 vertebral bodies and T6-7 disk with enhancing epidural soft tissue. This further confirmed a diagnosis of discitis and osteomyelitis with epidural abscess and phlegmon of the T6 and T7 regions. An abscess exhibits rim enhancement, whereas a phlegmon is granular tissue containing micro-abscesses without purulence, and MRI reveals a homogenous enhancement of inflammatory cells that causes high T2 and low T1 signals.[33] Complete blood count and comprehensive metabolic panel in the emergency room were negative for sepsis and non-specific inflammation. Temperature and neurological condition remained stable with hyporeflexia of the right patella.

He underwent same-day emergency debridement and laminectomy of T7-8 with a T6-9 fusion. Postsurgically, he was treated with an antibiotic regimen of cefeprine, flagyl, and IV vancomyocin. Tissue samples were positive for methicillin-sensitive *Staphylococcus aureus* (MSSA), and IV vancomyocin was changed to oxacllin and rifampin. The patient was discharged in stable condition with a 6-week antibiotic home regimen.