ISSN 0008-3194 (p)/ISSN 1715-6181 (e)/2025/132–136/$2.00/©JCCA 2026

Thoracic spondylodiscitis following acupuncture in an immunocompetent middle-aged male: a case report

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We present the case of a 43-year-old male with progressive thoracic spine pain and bilateral intercostal referral who was ultimately diagnosed with spondylodiscitis. Despite red flag features such as night pain, functional decline, and significant unintentional weight loss, the patient lacked traditional risk factors for spinal infection. He had previously received acupuncture for lumbar radiculopathy, which had since resolved. Magnetic resonance imaging revealed vertebral body involvement and disc space destruction at the T8–T9 level, consistent with spondylodiscitis. The patient underwent surgical decompression, washout, and fusion, followed by a course of intravenous and oral antibiotics. He achieved full symptomatic resolution at follow-up. This case underscores the importance of early imaging and diagnostic suspicion in patients with spinal pain and red flags, even in the absence of conventional risk

Spondylodiscite thoracique consécutive à une séance d'acupuncture chez un homme d'âge moyen immunocompétent: présentation de cas

Nous présentons le cas d'un homme de 43 ans souffrant de douleurs thoraciques progressives et de douleurs intercostales bilatérales, chez qui une spondylodiscite a finalement été diagnostiquée. Malgré des signes d'alerte tels que des douleurs nocturnes, une diminution de l'autonomie fonctionnelle et une perte de poids involontaire importante, le patient ne présentait aucun facteur de risque classique d'infection rachidienne. Il avait bénéficié de séances d'acupuncture pour une radiculopathie lombaire, maintenant guérie. L'imagerie par résonance magnétique a révélé une atteinte du corps vertébral et une destruction de l'espace discal au niveau T8-T9, compatibles avec une spondylodiscite. Le patient a subi une décompression chirurgicale, un lavage et une arthrodèse, suivis d'une antibiothérapie intraveineuse et orale. Il a présenté une disparition complète des symptômes lors du suivi.

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Conflicts of Interest:
The authors have no disclaimers, competing interests, or sources of support or funding to report in the preparation of this manuscript.
The involved patient provided consent for case publication.

factors, and highlights the potential infectious risks of acupuncture performed outside clinical settings.

(JCCA. 2026;70(1):132-136)

KEY WORDS: acupuncture, acupuncture-related infection, discitis, chiropractic, red flag symptoms, spinal infection, spondylodiscitis, thoracic spine pain

Ce cas souligne l'importance d'un examen d'imagerie précoce et d'une suspicion diagnostique chez les patients souffrant de douleurs rachidiennes et présentant des signes d'alerte, même en l'absence de facteurs de risque conventionnels, et met en évidence les risques infectieux potentiels liés à la pratique de l'acupuncture en dehors d'un cadre médical.

(JCCA. 2026;70(1):132-136)

MOTS-CLÉS: acupuncture, infection liée à l'acupuncture, discite, chiropratique, signes d'alerte, infection de la colonne vertébrale, spondylodiscite, douleur de la colonne thoracique

Introduction

Acupuncture is a widely used complementary therapy employed to manage various conditions, particularly musculoskeletal disorders such as low back pain, neck pain, and osteoarthritis. In Canada, acupuncture is commonly integrated into chiropractic practice, often for neuromusculoskeletal complaints including radiculopathy and myofascial pain syndromes.[1] Although generally regarded as safe when performed by trained professionals under sterile conditions, acupuncture is not without risks. Minor adverse events include local bleeding, bruising, or mild discomfort. However, serious complications—though rare—have been reported, including pneumothorax, spinal epidural hematoma, and deep infections such as spondylodiscitis and spinal epidural abscesses.[2] Infectious complications are most often attributed to poor disinfection practices or the use of non-sterile equipment and may be exacerbated when acupuncture is performed in non-clinical environments or by unregulated individuals.[2] Spondylodiscitis is an uncommon but potentially life-threatening infection involving the intervertebral disc and adjacent vertebral bodies, with an estimated incidence ranging from four to 24 cases per million annually.[3] It most commonly results from hematogenous dissemination of pathogens—*Staphylococcus aureus* being the predominant organism—and frequently presents with non-specific symptoms such as localized back pain, which may worsen at night, radicular pain, and generalized malaise. Fever is observed in only about 50% of patients, which may further obscure the diagnosis.[3] Without timely diagnosis and appropriate management, spondylodiscitis can lead to permanent neurological deficits, vertebral instability, and systemic sepsis.

The diagnosis of spondylodiscitis is particularly challenging in patients without traditional risk factors, which include diabetes, older age, male sex, immunosuppression, malignancy, obesity, intravenous drug use, chronic renal or hepatic disease, and recent spinal surgery or systemic infection.[3,4] In such cases, diagnostic delays are common. Radiographs are often normal in early stages and are insufficiently sensitive to detect disc space or vertebral changes.[5]

Magnetic resonance imaging (MRI) is the most sensitive modality and can typically detect changes consistent with infection within approximately 3-5 days after the onset of infection with a sensitivity of 96% and a specificity of 93%.[6]

This case report describes an otherwise healthy middle-aged male who developed spondylodiscitis following acupuncture treatment for lumbar radiculopathy. The infection occurred in the thoracic spine and presented with progressive pain, functional decline, and systemic symptoms in the absence of conventional risk factors. The case highlights the importance of maintaining a high index of suspicion for spinal infection, particularly in patients with red flag features and recent exposure to invasive procedures such as acupuncture, even when performed for a resolved complaint.

Case Presentation

A 43-year-old Caucasian male architect was referred to an advanced practice provider in the Rapid Access Clinic for Low Back Pain for further evaluation of persistent thoracic spine pain. He was otherwise healthy, with no history of diabetes, cardiovascular disease, hypertension, obesity, rheumatological conditions, surgical interventions, injections, cancer, sickle cell anemia, renal or liver failure, skin lesions, recent dental procedures, immunosuppression, or recent infections. He denied smoking, alcohol consumption, and intravenous drug use. The patient had not been inoculated against COVID-19, given that vaccines were not publicly accessible during this period. The referring primary care provider initially evaluated him for back-dominant pain that began insidiously and had progressively worsened over two to three months. Initial plain radiographs were unremarkable, and an MRI was ordered with a two-month waiting period.

Due to restrictions related to the COVID-19 pandemic, the patient was assessed virtually. He reported a resolved episode of left lumbar radiculopathy three months earlier, which had been managed with a single session of at-home physical therapy and acupuncture administered by a friend who is a chiropractor. Acupuncture was applied to the left lumbar spine, with the skin surface cleaned using alcohol before sterile acupuncture needles were inserted. Approximately one week later, he developed new, progressively worsening mid-thoracic pain radiating bilaterally around the rib cage. The pain was constant and aggravated by sitting, standing, walking, lifting, and coughing or sneezing. Partial relief was achieved with rest and medications. He denied bowel or bladder dysfunction, fe-

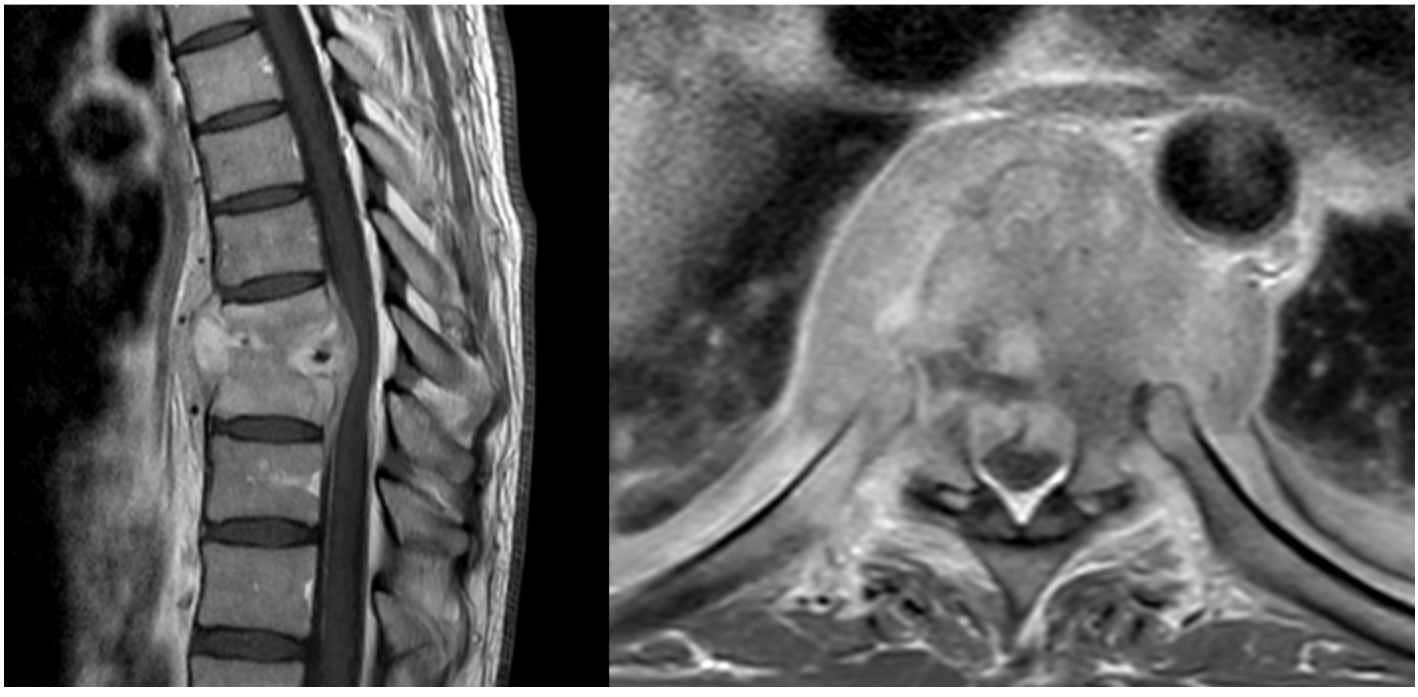

Figure 1.

T1 images with gadolinium contrast. Destruction of the inferior endplate of T8 and the superior endplate of T9, with diffuse marrow enhancement following the administration of gadolinium at both of these levels. Altered signal is noted within the bilateral pedicles and lamina, as well as within the bilateral posterior margins of the eighth and ninth ribs. There is peripherally enhancing fluid at the T8-9 disc space, which is extending into the anterior prevertebral soft tissues by approximately 1.3 cm. Posteriorly, there is peripherally enhancing epidural collection displacing the posterior longitudinal ligament by roughly 6mm, as well as abutting and posteriorly displacing the spinal cord. This extends over a vertical distance of approximately 5.2 cm extending to the T7-8 and the T9-10 disc spaces.

ver, or chills, but reported significant night pain and 18 lbs of unintentional weight loss over a three-month period.

At the time of consultation, the patient was taking Tylenol, a prescribed NSAID, Tramadol, and Cyclobenzaprine. He had undergone six sessions of chiropractic treatment, including manipulation and cold laser therapy, as well as six sessions of physiotherapy involving manipulation. Following these treatments, he consulted a rheumatologist. Home-based management included topical creams, a heating pad, and use of an inversion table. On an 11-point NPRS, where 0 is no pain and 10 is the worst pain ever experienced, he rated his pain as fluctuating between 3 and 8 out of 10. His Oswestry Disability Index (ODI) score was 41 out of 50, indicating severe disability, and his STarT Back Tool score was 8 out of 9, suggesting a high risk of chronicity.

During the virtual examination, the patient was bedridden and appeared visibly distressed. He was accompanied by his wife, who reported that his legs appeared to have atrophied over the past few months. Ranges of motion were all painful, worse with flexion and extension in the lower thoracic spine, which recreated intercostal radicular pain bilaterally. The patient was able to heel walk, toe walk, and perform a tandem gait without difficulty. He also completed a full squat independently, demonstrating retained lower limb strength. Self-administered sensory examination of the lower extremity dermatomes was reported as normal. Straight leg raise and femoral nerve stretch tests were negative bilaterally. A hip examination could not be completed due to the virtual format and the severity of his symptoms. Deep tendon reflexes and upper motor neuron signs were not assessed during the virtual exam but were reportedly normal during a consultation with a sports medicine physician two weeks earlier.

Given the concerning red flag features and rapidly declining function, the advanced practice provider contacted the referring physician and an MSK radiologist. The MRI was expedited and completed within five days. Imaging revealed destruction of the T8–T9 intervertebral disc space, altered marrow signal in the T8 and T9 vertebral bodies, and a pre- and paravertebral soft tissue component that caused anterior indentation of the spinal cord. There

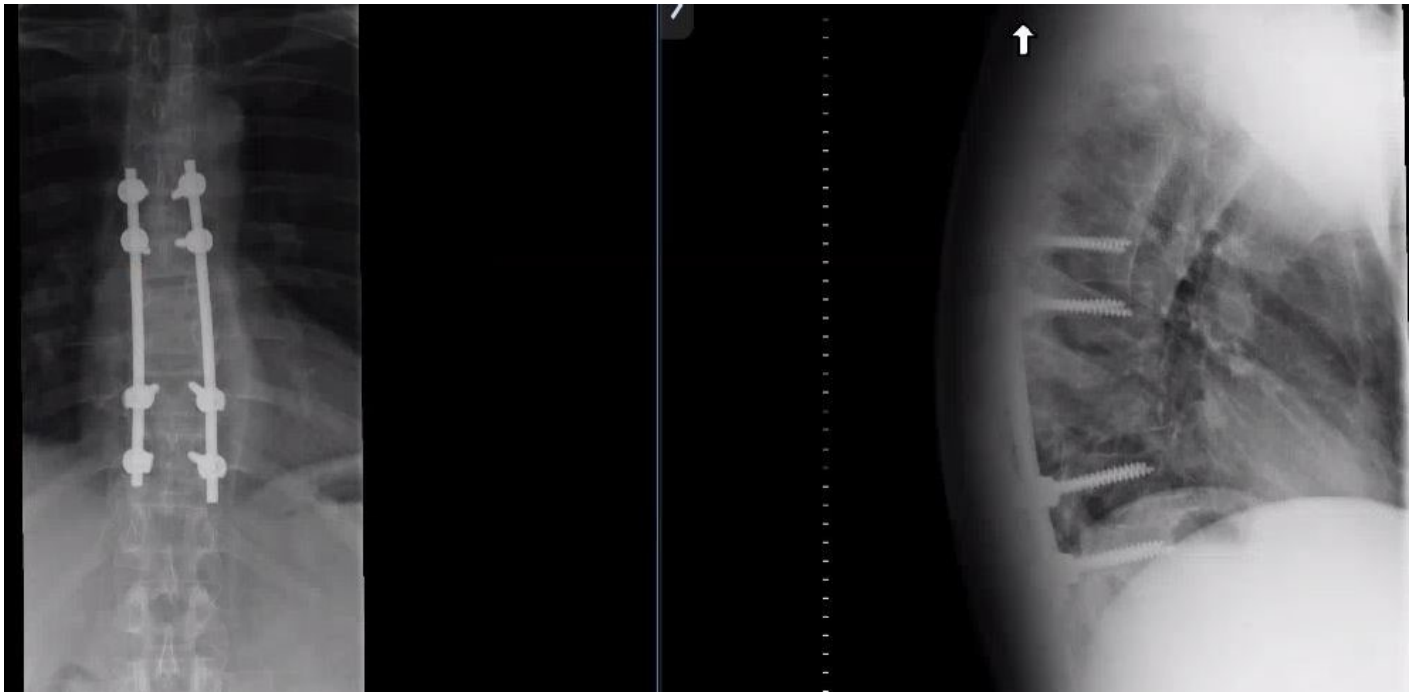

Figure 2.

Posterior spinal instrumentation and fusion extend from T6 to T11, utilizing bilateral rods and transpedicular screw fixation. Laminectomies were performed at T7, T8, and T9. The lateral view additionally demonstrates obliteration of the T8–T9 intervertebral disc space and compression along the inferior endplate of T8.

was moderate spinal canal stenosis and severe bilateral neural foraminal narrowing. The radiologist's impression suggested an inflammatory or infective etiology, such as spondylodiscitis, rather than a neoplastic process. A neurosurgical consult was suggested. Neurosurgical consultation was initiated, and blood cultures subsequently confirmed *Staphylococcus aureus*.

Management

The patient underwent surgical decompression, washout, and instrumented fusion at the T6–T11 level. Postoperatively, he was managed with intravenous and oral antibiotics under the care of an infectious disease specialist. At an eight-week follow-up, the patient reported full resolution of his thoracic pain, with only mild sternal discomfort, likely attributable to the surgical fusion procedure. His surgical site had healed well, antibiotics were discontinued, and follow-up was scheduled for six months. At five-year follow-up the patient reported full functional abilities, complete resolution of pain, and no relapse of infection.

Discussion

This case demonstrates the importance of maintaining a high index of suspicion for spinal infection in patients with persistent back pain and red flag features, even when traditional risk factors are absent. Spondylodiscitis is often misdiagnosed or diagnosed late, as its early symptoms can mimic mechanical back pain. In this case, the patient's age, absence of immunocompromise, and lack of recent systemic infection made the diagnosis particularly unexpected. Plain radiographs were unremarkable, and diagnosis was only established after MRI was expedited due to ongoing deterioration.

While rare, acupuncture-related infections have been documented in the literature. A 2023 systematic review found that serious adverse events from acupuncture, including spondylodiscitis and epidural abscesses, are more likely when procedures are performed without proper sterilization, repeated use of needles, or contact with clothing at the needlepoint.[2] The risks are compounded when acupuncture is delivered outside clinical environments, particularly during pandemics or health system disruptions. Infections may arise from direct inoculation through contaminated needles or skin flora introduced to deeper structures during needling. Although the overall risk of complications is low, infections such as vertebral osteomyelitis must be considered in patients presenting with back pain following recent needling interventions.[7]

This case also illustrates the value of interdisciplinary collaboration and timely imaging. The proactive coordination between the advanced practice provider, primary care physician, and radiology department resulted in early MRI acquisition and specialist referral. Ultimately, the patient benefited from timely diagnosis, surgical intervention, and antimicrobial therapy, resulting in a favorable outcome.

Summary

This case report highlights an uncommon but important cause of thoracic spine pain— spondylodiscitis—in an otherwise healthy middle-aged male. The presumed source of infection was acupuncture administered outside a clinical setting, drawing attention to the need for stringent infection control practices and patient education about the risks associated with therapeutic interventions. Clinicians should consider spinal infection in any patient presenting with unrelenting pain, red flag symptoms, and a history of spinal procedures or needling. Prompt recognition, imaging, and coordinated care are key to optimizing outcomes in such cases.

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