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Case Report

Clinical case report: discitis osteomyelitis complicated by inferior vena cava venous thrombosis and septic pulmonary emboli

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ABSTRACT

Viridans group streptococcus is an infrequent cause of osteomyelitis that is found in association with infective endocarditis. Only a few studies report viridans osteomyelitis in the absence of endocarditis. Vertebral pyogenic osteomyelitis can sometimes be complicated by psoas or paraspinal abscesses. These intra-abdominal and/or pelvic collections can very rarely result in venous thrombosis. A paraspinal abscess resulting in inferior vena cava (IVC) thrombosis has only been reported once in the literature. We report a case of a young female with a history of polysubstance abuse and chronic back pain, who was found to have extensive vertebral osteomyelitis and discitis with epidural, paraspinal, and psoas abscesses caused by viridans streptococci. These abscesses compressed on the IVC causing IVC thrombophlebitis extending to the iliac veins distally. Imaging also demonstrated multifocal bilateral septic pulmonary emboli and pleural effusions secondary to septic IVC thrombus; a transesophageal echocardiogram showed no evidence of infective endocarditis.

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Introduction

Intravenous (IV) drug use is a risk factor for vertebral osteomyelitis and discitis. Studies have reported an increasing incidence of vertebral osteomyelitis; some of the etiologies for this change in incidence include increased instrumentation and indwelling catheters, aging population, and rising IV drug use [1,2]. Psoas and paravertebral abscesses, as a complication of osteomyelitis, are frequently associated with Pott's disease; however, pyogenic vertebral osteomyelitis can also result in formation of these abscesses [3]. Such

intra-abdominal collections can in rare occasions cause compression of adjacent venous structures and result in deep vein thrombosis [4–8].

Case report

A 39-year-old woman with a history of polysubstance use including IV drug abuse presented to the emergency department and was found to be disoriented and agitated with shortness of breath. She also reported chronic back pain that

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had worsened recently and new right leg pain. In addition, there was a recent history of heroin and amphetamine inhalation.

She was febrile with a pulse of 100/min and respiratory rate of 20/min. Physical examination revealed 5/5 strength in upper extremities and 4/5 strength in bilateral lower extremities. Saddle anesthesia was also noted in a S2-3 distribution.

She had a white blood cell count of $24,000 \times 10^3/\text{mL}$ with an absolute neutrophil count of $22.0 \times 10^3/\text{mL}$, bands 6%, and hemoglobin of 6.7. Head computed tomography (CT) was normal at this time, and urine toxicology screen was positive for amphetamine and benzodiazepines. Chest x-ray showed bibasilar opacities. Her blood culture came back to be positive for gram-positive cocci which was later confirmed to be viridans group streptococcal infection.

With acutely worsening back pain, right leg pain, and signs of cord compression on physical examination, magnetic resonance (MR) imaging of thoracic and lumbar spine was performed which demonstrated active discitis osteomyelitis at the L4-5 level with paraspinal, right psoas and anterior epidural abscesses and resultant severe canal stenosis with compression of the cauda equina nerve roots (Fig. 1). In addition, there were extensive conglomerate necrotic masses in the paraspinal region, highly suggestive of necrotic lymphadenopathy and/or infected fluid collections.

Furthermore, thrombosis within the vena cava extending to bilateral iliac veins was identified (Fig. 1).

Limited visualization of the brain on the MR counting sequence demonstrated T2 hyperintense lesions in a periventricular distribution, which were not present on the initial emergency department CT scan performed a few days before the MR examination. In addition, a long segment of T2 hyperintense cord signal abnormality extending from T8 to T10 was also identified. Unfortunately, dedicated imaging to better characterize these lesions was unable to be performed as the patient became agitated and refused further imaging.

Bilateral pleural effusions were also found on this study, and thus, further imaging with a CT of chest, abdomen, and pelvis was performed (Figs. 2-4). The study demonstrated multiple cavitary rounded collections containing gas in the right lower lung. Additional rounded opacities were also seen distributed throughout bilateral lung fields suggestive of septic pulmonary emboli (Fig. 3). This study also corroborated the findings of prior MR imaging and redemonstrated venous thrombosis involving inferior vena cava (IVC) and iliac veins (Figs. 2 and 3).

These imaging findings and her viridans bacteremia raised suspicion for infective endocarditis. However, no embolic features were present on physical examination of the extremities. Only a faint early ejection systolic murmur

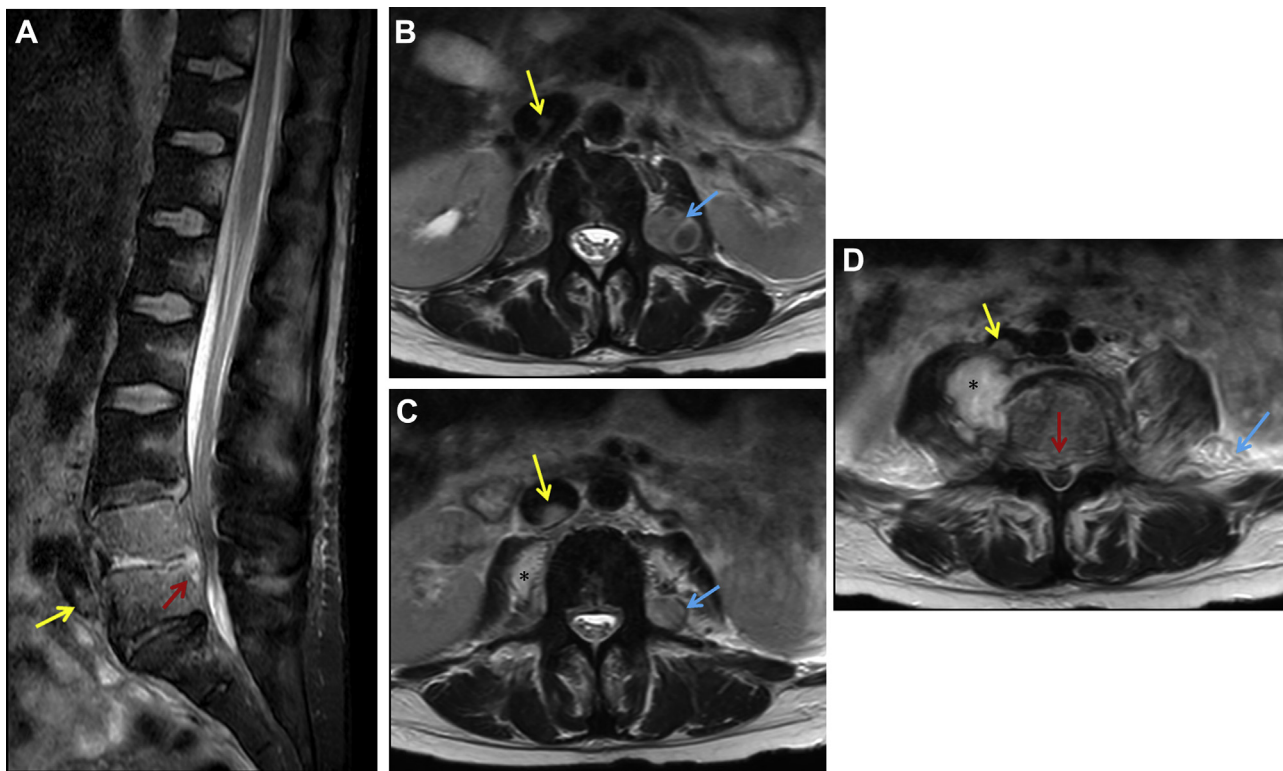


Fig. 1 – Sagittal T2 with fat saturation MR (A) and axial T2 MR (B-D) images from MR imaging of the lumbar spine demonstrate abnormal signal within the L4 and L5 vertebral bodies and L4-5 disc space with extension into the anterior epidural space (red arrows). Extensive paravertebral T2 hyperintense inflammatory change extending into the psoas muscles. T2 hyperintense collection is present within the right psoas muscle consistent with an intramuscular abscess (*) and similar signal collections within the paraspinal region reflecting either additional abscess collections or necrotic lymph nodes (blue arrows). Incidentally noted are T2 hyperintense filling defects within the right IVC and the bilateral iliac veins (yellow arrows).

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