



Case report

Severe Group C Streptococcus infection in a veterinarian

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ABSTRACT

Group C Streptococcus (GCS) is part of the normal commensal flora of the upper airway, as well as frequently colonizes the skin, gastrointestinal tract, and female genital tract. It can also be implicated in mono- and polymicrobial infections of the skin and soft tissue, pharyngitis, bacteremia, endocarditis, septic arthritis, osteomyelitis, and meningitis. Our case study features a previously healthy 65-year-old male, who retired as a veterinarian one month prior, with Group C Streptococcus bacteremia complicated by septic polyarthritis, native mitral valve endocarditis, and lumbar discitis/osteomyelitis.

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Group C Streptococcus (GCS) is part of the normal commensal flora of the upper airway, as well as frequently asymptotically colonizes the skin, gastrointestinal tract, and female genital tract. It can also be implicated in mono- and polymicrobial infections of the skin and soft tissue, pharyngitis, bacteremia and endocarditis, septic arthritis and osteomyelitis, and meningitis. Given their representation of normal human flora, infections are not restricted by geographic locale or particular social or occupational activities. Although, several clinical case series have found GCS infections to be more common among older adults and those with underlying chronic illness [1]. Moreover, the incidence of invasive disease may be increasing. A retrospective review of bacteremia from two centers in Canada between 2007 and 2014 noted an increase in the proportion of bacteremias due to GCS (4–6 percent) [2], while another study reported the incidence of invasive infection due to GCS in western Norway increased between 1999 and 2013 from 1.4 per 100,000–6.3 per 100,000 [3]. Zoonotic infections have been reported occasionally in individuals with exposure to farm animals, especially horses [4,5]. There have also been several well-documented outbreaks attributed to ingestion of inadequately pasteurized dairy products, in some cases complicated by poststreptococcal glomerulonephritis [6–9]. Ultimately, GCS has

been implicated in a variety of human infections [10–13]. Our case study, which features a previously healthy 65-year-old male who retired as a veterinarian one month prior, highlights how GCS can masquerade as a variety of other infections, as well as the characteristic zoonotic transmission and sequelae.

Symptoms started 7 days prior to admission and included fever, chills, and diffuse swelling with inability to bear weight or ambulate. He initially presented to an outside facility and was evaluated for reactive arthritis and rhabdomyolysis secondary to a week-long bike race during the previous week. Labs were significant for leukocytosis, specifically neutrophils, and elevated transaminases. He received 3 days of empiric prednisone with no improvement in arthralgias. Clindamycin and Penicillin G were started with surgical irrigation of bilateral knees and ankles. Subsequently, blood and surgical cultures were positive for Group C Streptococcus. The patient was transferred to our facility for further management.

Due to isolation of Group C strep, he was transitioned to penicillin G monotherapy. Repeat blood cultures remained negative. The transthoracic echocardiogram performed at the outside facility was reviewed and concerning for vegetation of the mitral valve with duration of antibiotics extended for endocarditis. His hospital course was subsequently complicated by upper GI bleed due to gastric and duodenal ulcers, likely secondary to initial steroid therapy and NSAID use for symptomatic relief of arthralgias. On hospital day 10, rheumatology was consulted for continued right knee effusion and erythema. Synovial fluid

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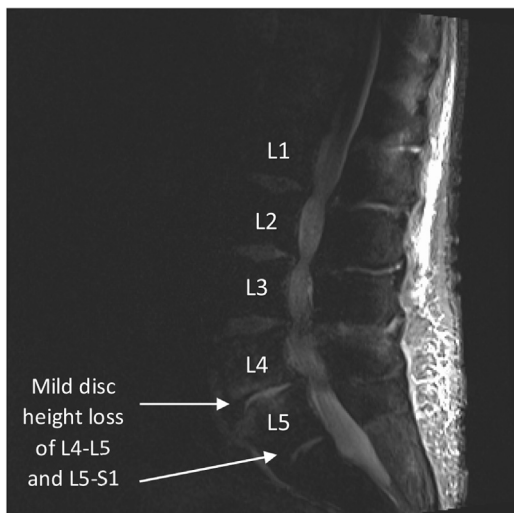


Image 1. Sagittal MR of the lumbar spine without contrast (series 6 image 10) showing mild disc height loss of L4-L5 and L5-S1, representing early discitis/osteomyelitis.

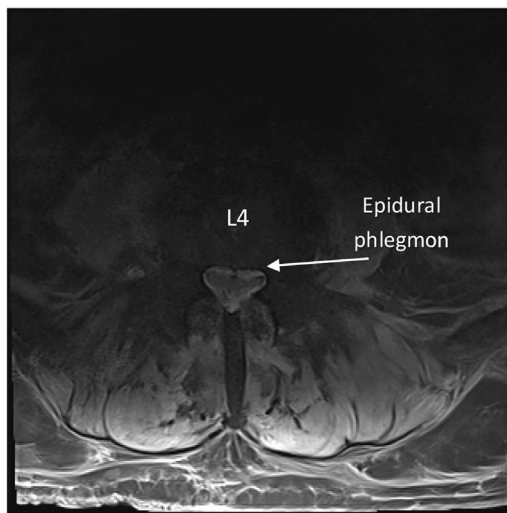


Image 3. Axial MR of the lumbar spine with contrast (series 12 image 30, axial T1 fat sat post contrast) showing focal enhancement of the epidural space at L4-5, suggestive of small epidural phlegmon.

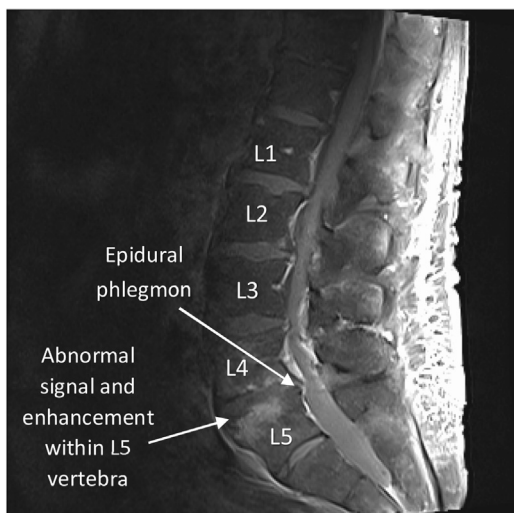


Image 2. Sagittal MR of the lumbar spine with contrast (series 11 image 10, T1 fat sat post contrast) showing abnormal signal and enhancement within the L5-S1 vertebra and mild disc height loss of L4-L5 and L5-S1, representing early discitis/osteomyelitis, as well as focal enhancement of the epidural space at L4-5 and L5-S1, suggestive of small epidural phlegmon.

analysis demonstrated inflammation with CPPD crystals, but due to recent GI bleed he was not a candidate for NSAID or steroid therapy. He also reported worsening back pain and MR spine revealed L5-S1 discitis/osteomyelitis with suggestion of small epidural phlegmon (images below). The patient was transitioned to ceftriaxone prior to placement in sub-acute rehab and ultimately completed eight weeks of antibiotic therapy (Images 1–3).

In short, this case study raises several important points. First, as mentioned, invasive GCS usually affects older and immunocompromised patients, as well as has been known to be zoonotically transmitted. Given the patient’s prior work as a veterinarian, transmission most likely occurred zoonotically. Second, his clinical course highlights several of the unfortunate sequelae of invasive

GCS, including myalgias, arthralgias, including septic arthralgias, bacteremia, endocarditis, and discitis/osteomyelitis. Ultimately, this rare, but increasing prevalent, invasive disease is important to keep in the differential.

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Consent

Consent has been obtained.

Author contribution

Dr. Tuomela: Editing of the manuscript
 Dr. Sanchez: Case report concept, design and structure, editing of manuscript
 Bryan Miles: Chart review, drafting of manuscript

Declaration of Competing Interest

None.

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