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Case Report

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Endocarditis, maintain suspicion

Abstract

A 77-year-old woman presented to the emergency department with a two-month history of refractory lumbar pain, despite multiple analgesic treatments. She was referred from internal medicine due to constitutional symptoms of weight loss, anorexia, and asthenia. Initial lab tests and plain X-rays were unremarkable, but due to her clinical condition, the patient was admitted. A differential diagnosis of lumbar pain and systemic illness was pursued. During hospitalization, elevated inflammatory markers, hypercalcemia, positive blood cultures for Staphylococcus epidermidis, and a transthoracic echocardiogram showing mitral valve prolapse were noted. Although the initial workup for infective endocarditis (IE) did not fulfill the modified Duke criteria, a subsequent PET-CT revealed intense uptake in the lumbar spine, leading to an MRI-confirmed diagnosis of spondylodiscitis. A transesophageal echocardiogram later demonstrated vegetations on the mitral valve. With repeated positive blood cultures for S. epidermidis and echocardiographic findings, a final diagnosis of infective endocarditis was established. The patient was treated with intravenous vancomycin for three weeks, followed by outpatient dalbavancin therapy for six weeks. This case highlights the complex interplay between spondylodiscitis and infective endocarditis, emphasizing the utility of the Duke criteria and the novel use of dalbavancin in non-surgical patients.

Keywords: infective endocarditis, spondylodiscitis, staphylococcus epidermidis, duke criteria, vancomycin, dalbavancin, mitral valve vegetations

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Abbreviations: IE, infective endocarditis; MRI, magnetic resonance imaging; PET-CT, positron emission tomography-computed tomography; CRP, C-reactive protein

Introduction

Infective endocarditis (IE) is a potentially life-threatening condition caused by microbial infection of the endocardium, often involving heart valves. Diagnosing IE can be challenging, especially in patients with concomitant conditions such as spondylodiscitis, which shares similar clinical features. Here, we present the case of a 77-year-old woman with lumbar pain and constitutional symptoms, ultimately diagnosed with both spondylodiscitis and infective endocarditis. This case illustrates the diagnostic complexity and therapeutic management of these conditions, as well as the emerging role of dalbavancin in treating IE in patients who are not candidates for cardiac surgery.[1]

Material and methods

A comprehensive clinical evaluation, including laboratory tests, imaging studies, and blood cultures, was conducted to establish a differential diagnosis for the patient's lumbar pain and systemic symptoms. Laboratory work revealed elevated C-reactive protein (CRP) levels (100 mg/L), hypercalcemia (15.3 mg/dL), and positive blood cultures for *S. epidermidis*. Imaging studies included a transthoracic echocardiogram (TTE) showing a previously documented mitral valve prolapse and a PET-CT scan that revealed high uptake in the lumbar vertebrae (L3, L4, L5). Subsequent lumbar MRI with contrast confirmed the presence of phlegmonous inflammatory changes suggestive of spondylodiscitis (Figure 1 & 2).

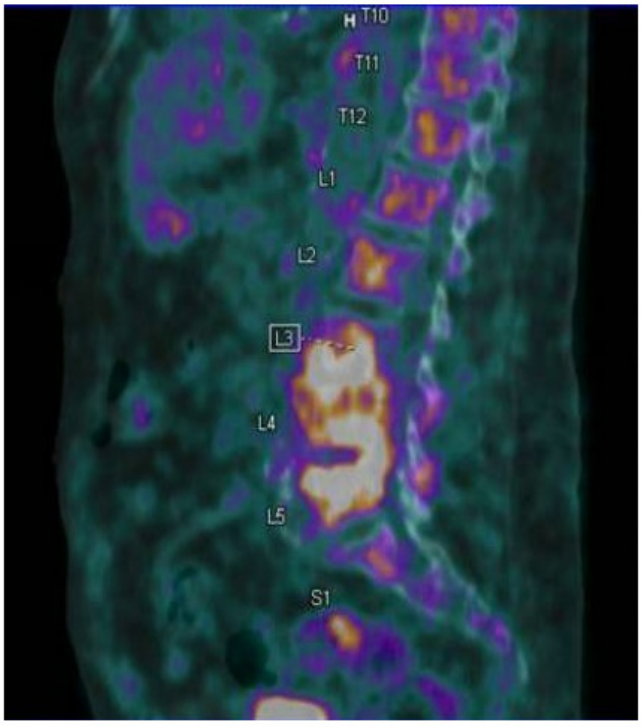

Figure 1 PET-CT image: Intense focal uptake in the vertebral bodies of L3, L4, and L5, suggesting possible infiltrative pathology.

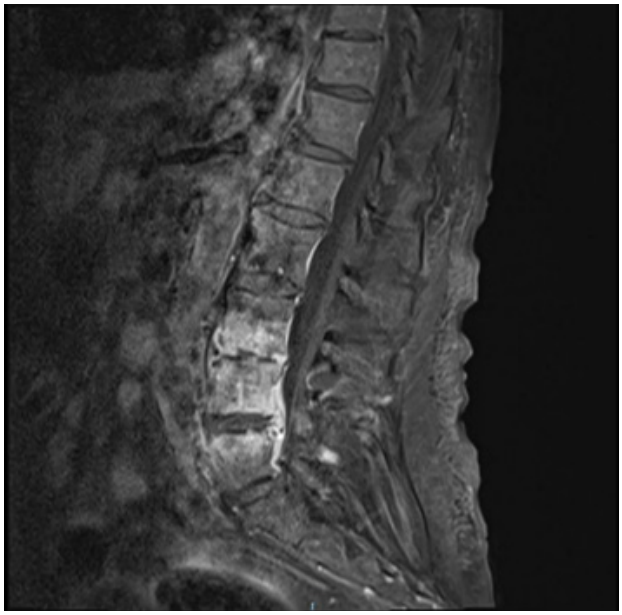

Figure 2 MRI with contrast: Phlegmonous inflammatory changes in L3-L4 and L4-L5 suggestive of spondylodiscitis.

Results

Upon admission, the patient had no clear signs of infective endocarditis, as blood cultures were not positive in two separate draws, and the valvular lesions were previously documented, thus not meeting the major Duke criteria. However, following the MRI findings and a subsequent transesophageal echocardiogram (TEE), mobile filamentous vegetations were detected on the mitral valve. Repeat blood cultures were again positive for S. epidermidis, fulfilling the major Duke criteria for IE. The final diagnosis was confirmed as infective endocarditis complicated by spondylodiscitis.

Discussion

The association between spondylodiscitis and infective endocarditis is well-documented, particularly in cases caused by gram-positive organisms like Staphylococcus aureus. Hematogenous spread of bacteria often results in vertebral infections, complicating the clinical picture. The modified Duke criteria remain essential for diagnosing IE, and positive blood cultures are pivotal in guiding the diagnosis and treatment of both conditions. In this case, the absence of classic IE symptoms initially delayed the diagnosis, but the use of advanced imaging techniques, including PET-CT and MRI, helped uncover the spinal infection, leading to further investigations and a final diagnosis of IE.

Of particular interest is the use of dalbavancin, a long-acting lipoglycopeptide antibiotic. In patients not undergoing cardiac surgery, dalbavancin offers a significant advantage by reducing the length of hospital stay and allowing for outpatient treatment, which is beneficial in terms of patient comfort and healthcare resource utilization. In our patient, after three weeks of vancomycin therapy, dalbavancin was administered on a biweekly basis as an outpatient, successfully completing the six-week treatment course for infective endocarditis.[2,3]

Conclusion

This case demonstrates the importance of maintaining a high suspicion for infective endocarditis in patients presenting with spondylodiscitis, especially when blood cultures are positive for gram-positive organisms. The diagnostic utility of the modified Duke criteria, coupled with advanced imaging techniques, played a crucial role in the timely diagnosis of both conditions. Furthermore, dalbavancin represents a promising therapeutic option for patients with IE who are not candidates for surgery, providing effective treatment with a reduced hospital stay.

Acknowledgments

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Conflicts of Interest

The authors declare no conflicts of interest related to this case.

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