

Case Report

A rare case of spontaneous *Aspergillus* spondylodiscitis with epidural abscess in a 45-year-old immunocompetent female

K. Ambedkar Raj, Banushree C. Srinivasamurthy, Krishnan Nagarajan¹, M. G. Ilavarasi Sinduja¹

Departments of Pathology, and ¹Radiology, Sri Manakula Vinayagar Medical College, Puducherry, India

Corresponding author: Dr. Banushree C. Srinivasamurthy, Department of Pathology, Sri Manakula Vinayagar Medical College, Kaliatheerthal Kuppam, Puducherry - 605 107, India. E-mail: drbanushree15@hotmail.com

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Abstract

Vertebral osteomyelitis and discitis are mainly due to bacterial infections though fungal infections are one of the important causes of morbidity and mortality in immunocompromised patients. *Aspergillus* involving intervertebral disc space is extremely rare. We report a case of aspergillosis of intervertebral L5-S1 disc space with spinal epidural abscess in an immunocompetent 45-year-old female which can add on to a few case reports described in literature as well as an insight for clinicians regarding this rare spontaneous infection in an immunocompetent patient.

Key words: Aspergillosis, intervertebral disc space, immunocompetent, epidural abscess

INTRODUCTION

Infectious spondylitis is commonly caused by pyogenic infection, particularly *Staphylococcus aureus*, which accounts for 60% of all spinal infection.^[1] Non-pyogenic origins of vertebral osteomyelitis and discitis include *Mycobacterium tuberculosis* and fungi. The rate of occurrence of fungal infections has increased over the last decade as the population of immunocompromised patients has increased.^[2] *Candida* and *Aspergillus* species are the most common causes of mycotic infections in these persons.^[3] These infections mainly present as discitis or osteomyelitis in the spine. Most reviews of fungal spinal infections have included a limited number of patients. Fungal organisms are slow growing and difficult to identify by culture. Therefore, histopathological examination is important to obtain the correct diagnosis. The

diagnosis and treatment of fungal infection of the spine is often delayed, as clinical suspicion is often low, particularly in immunocompetent individuals. Musculoskeletal involvement, especially vertebrae and intervertebral disc space, is uncommon. Still rarer is *Aspergillus* vertebral osteomyelitis and only few case reports of this disease have been described in literature occurring in immunocompetent person.^[4]

CASE REPORT

The present case report is about a 45-year-old female patient who presented with low backache for the past 1 month and bilateral lower limb weakness. There was no history of fever, cough or weight loss. She was a known diabetic on treatment since 18 months. Clinical examination revealed tenderness over S1 region with dorsiflexors weakness on both sides. Routine laboratory investigations were within the normal limits. Human immunodeficiency virus antibodies and hepatitis B surface antigen was negative. Magnetic resonance imaging of spine performed showed L5-S1 endplate and intervertebral disc destruction, altered signal intensity changes and anterior epidural granulation tissue/abscess measuring 7.4 mm in thickness, causing spinal encroachment at the same level. Para-discal marrow edema, end plate erosions, with small

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prevertebral, paravertebral and ventral epidural abscess lesions causing compression of cauda equina. Diagnosis of paradiscal infective spondylodiscitis at L5-S1 disco-vertebral unit was made [Figure 1]. Surgical posterior decompression laminectomy of L5-S1 was done and part of L5-S1 disc and epidural granulation/abscess removed after laminectomy was sent for histopathological examination and for culture.

Gross examination revealed fragmented pieces of gray white soft-tissue of about 2 cc volume. Sections studied from received material showed hyalinized fibro-collagenous tissue, fragments of skeletal muscle, mature adipose tissue, foci of degenerated bony trabeculae and inflammatory cells. The admixed foci showed large areas of hemorrhage, granulation tissue infiltrated by mixed inflammatory infiltrate, necrosis with multiple fragmented viable and degenerated fungal hyphae invading the tissue. Hyphae were uniform, narrow with regular septation and acute angle branching [Figure 2]. Periodic acid Schiff stain confirmed the fungal hyphae. The culture confirmed growth of *Aspergillus fumigatus* [Figure 3]. The patient was started on oral itraconazole 200 mg twice daily for 3 months. Patient is clinically improving since 9 months after surgery.

DISCUSSION

Aspergillus species are ubiquitous saprophytic organisms. More than 300 species are known, but only a few of them are of importance regarding opportunistic infection. Invasive aspergillosis usually involves the sinopulmonary tract, with the lung being the most common site of infection, while osteomyelitis due to *Aspergillus* species is rare. It affects bone tissues by contiguity, hematogenous spread and direct implantation, e.g., traumatic or iatrogenic. The incidence of *Aspergillus* affecting the bone among all cases of invasive aspergillosis is estimated to be 3%.^[5]

Aspergillus species commonly invade the respiratory tract, where they reside as harmless inhabitants. Aspergillosis can develop in immunocompromised or chronically ill patients, such as patients with malignancy, uncontrolled diabetes, organ transplants, or acquired immunodeficiency syndrome.^[6] Early definitive diagnosis of *Aspergillus* spondylitis remains a challenge and requires a high degree of suspicion. The radiologic features of *Aspergillus* spondylitis have been known to be non-specific and may involve single or multiple vertebral bodies presenting as primary discitis or epidural abscess.^[7] *Aspergillus* spondylitis may be confused with tuberculous spondylitis. First case of *Aspergillus* epidural abscess in an immunocompetent person was described in 1981.^[8] In the present case, patient was a known diabetic with radiological features suggestive of infective spondylodiscitis with epidural abscess at L5-S1. Surgical biopsy performed was definitive of diagnosis. Recently discovered serum biomarkers like *Aspergillus* galactomannan, serum beta-D-glucan can be used to confirm the diagnosis. D'Agostino *et al.* did a 7 year prospective study on spondylodiscitis of 81 patients of which only six patients had spondylodiscitis caused by fungi

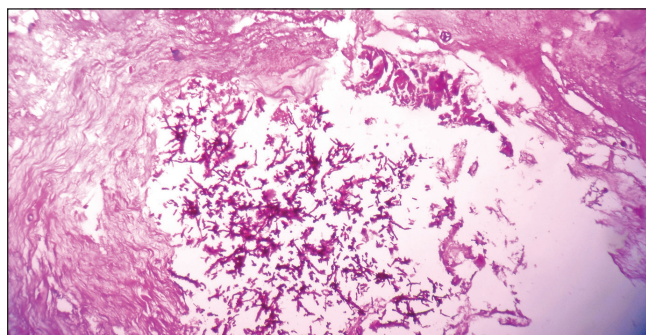


Figure 1: Photomicrograph (×10): H and E stain showing viable and degenerated hyphae which are uniform, narrow, tubular with acute angle branching

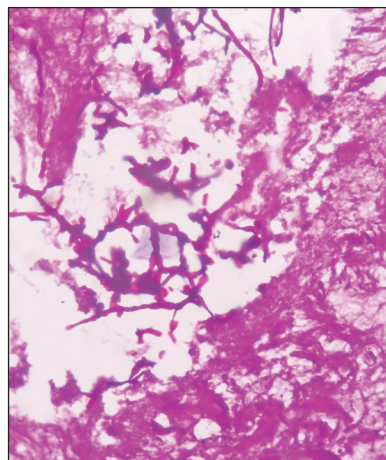


Figure 2: Photomicrograph (×10): Periodic acid Schiff stain showing hyphae staining positive



Figure 3: Sagittal T2-weighted magnetic resonance image shows L5-S1 endplate and intervertebral disc destruction, altered signal intensity changes and anterior epidural granulation tissue/abscess, causing spinal encroachment at the same level

and yeasts.^[9] Sethi *et al.* have quoted the largest series of fifteen cases of *Aspergillus* osteomyelitis affecting the spine in immunocompetent young adults in March 2012.^[10] Only six cases of vertebral osteomyelitis with spinal epidural abscess in immunocompetent individuals are reported until 2010.^[11]

CONCLUSION

Aspergillus spondylitis is a rare condition, only a few cases in immunocompetent patients have been reported. It can be a serious threat to the patient due to diagnostic delay. Early definitive diagnosis remains a challenge as radiological features have been known to be non-specific. Surgical biopsy can be helpful in clinching the diagnosis and for proper management.

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