

## Case Report

# Candida Parapsilosis Spondylodiscitis after Lumbar Discectomy

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Candida is a relatively rare cause of spinal infections that commonly affects immunocompromised patients. A 70-year-old woman, who underwent a lumbar discectomy on L5-S1 two months earlier, was admitted to our department complaining of persistent back and leg pain. Magnetic resonance imaging showed irregular enhancing mass lesion in L5-S1 intervertebral space, suggest of pyogenic discitis with epidural abscess. The surgery was performed via retroperitoneal approach and the infected material at L5-S1 intervertebral space was removed. The histological examination of the specimen revealed chronic inflammation involving the bone and soft tissue, and a culture of the excised material was positive for *Candida parapsilosis*. The patient received intravenous fluconazole for 4 weeks after surgery and oral fluconazole 400 mg/day for 3 months after surgery. The patient made a full recovery with no symptoms 6 months after surgery. We present a rare case of spondylodiscitis after a lumbar discectomy due to *Candida parapsilosis* and discuss treatment option with a review of the literatures.

**KEY WORDS :** Spondylodiscitis · Candida · Fungal infection · Vertebra · Osteomyelitis.

## INTRODUCTION

The ubiquitous yeast, *Candida*, is now the fourth leading cause of nosocomial bloodstream infections that can cause invasive disease in immunocompromised patients<sup>7</sup>. However, *Candida* is still a relatively rare cause of spinal infections, with fewer than 60 cases reported over the past 30 years<sup>3,4,6,10,12,14,15,17</sup>. In particular, postoperative spondylodiscitis caused by *Candida* species is rarely observed and the clinical and radiological findings are not specific for the infection<sup>15</sup>. For these reasons, a lack of awareness or a misdiagnosis can delay the required management<sup>2,5,11,12</sup>.

We report a case of spondylodiscitis after a lumbar discectomy due to *Candida parapsilosis* in an immune competent patient, which was successfully treated with surgery followed by fluconazole treatment.

## CASE REPORT

A 70-year-old woman, who underwent a lumbar discectomy on L5-S1 two months earlier, was admitted to our department complaining of persistent back and leg pain. Immediate after surgery, she could have been walk without pain and weakness. Two weeks after surgery, she was not able to walk because of the weakness of her lower extremities as well as pain were progressively worsening. She had suffered a cerebral infarction of middle cerebral artery 5 years earlier, and had been taking medications including clopidogrel and amlodipine. The patient was not being treated with any immunosuppressive agents and had no history of chronic alcohol abuse.

Upon admission, she showed no signs of fever or chills. A neurological examination disclosed left lower extremity weakness and sensory disturbance. The initial laboratory findings revealed an elevated erythrocyte sedimentation rate (ESR) (34 mm/hr), C-reactive protein (CRP) (0.34 mg/dL) and anemia (9.2 g/dL). However, other laboratory tests were within the normal limits including the white blood cell count (7,330 cells/mm<sup>3</sup>) and serum albumin level. A lumbar spine radiograph revealed bone destruction of L5 and sacrum with anterior wedging of the L5-S1 interver-

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tebral space.

Magnetic resonance imaging (MRI) showed an irregular enhancing mass lesion in the L5-S1 intervertebral space with adjacent bony changes, epidural abscess and fluid collection of the subcutaneous space, suggesting postoperative spondylodiscitis (Fig. 1). Antibiotic management after surgical drainage and debridement of the infectious lesion was planned. Through a retroperitoneal anterolateral approach, the infected material at the L5-S1 intervertebral space was excised. An iliac autograft was applied without spinal instrumentation. The histological examination of the specimen revealed chronic inflammation involving the bone and soft tissue, and a culture of the excised material showed positive for *Candida parapsilosis*. The patient received intravenous fluconazole for 4 weeks after surgery. After surgery, her weakness and sensory disturbance were gradually subsided. The patient was maintained on oral fluconazole 400 mg/day for 3 months after discharge. At the 4 month follow-up, MRI revealed a significant improvement in spondylodiscitis and epidural abscess (Fig. 2), and patient showed full recovery without residual symptoms.

## DISCUSSION

Despite the increasing incidence of disseminated and deep-seated candida infections in immunocompromised hosts, Candidal vertebral osteomyelitis is quite rare<sup>7,12,13</sup>. A high clinical index of suspicion is required for patients presenting with subacute or chronic low back pain, even in the absence of fever, if they have the risk factors for disseminated candidiasis, such as a history of central venous access, antibiotic use, immunosuppression, previous history of parenteral nutrition, hemodialysis, surgery, burns, and neutropenia. A typical patient with candida spondylitis presents with back pain in the lower thoracic to lumbosacral spine, normally showing symptoms for at least 1 month before diagnosis. Only one-third of patients had fever at presentation. Approximately 20% of patients have neurological deficits. The result of laboratory tests other than microbiological tests is generally nonspecific. When *Candida* involves the spine, it is usually centered on the intervertebral disc space with a narrowing of the disc cartilage, causing destruction and lysis of the vertebral endplates and underlying vertebral bone<sup>2</sup>. Of the 59 cases described by Miller and Mejicano<sup>12</sup>, 33 involved the lumbar spine only, 17 the thoracic spine, 3 the cervical spine, and 6 both the thoracic and lumbar spine. They also reported that the pathogenic species were *Candida albicans* (62%), *Candida tropicalis* (19%), *Candida glabrata* (14%), *Candida parapsilosis* (4%), and others<sup>12</sup>. In the present case, the pathogen of spondylo-

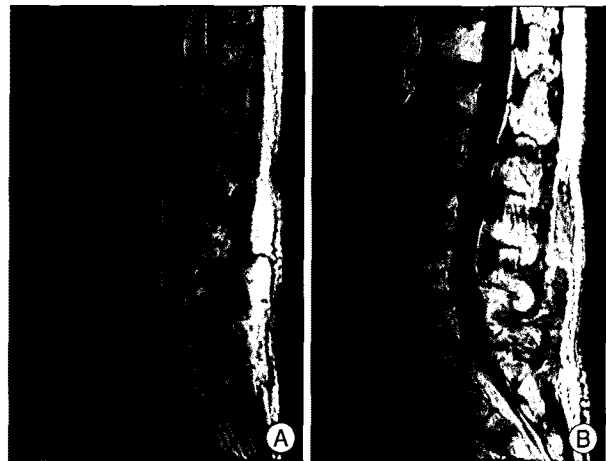


Fig. 1. Magnetic resonance image (MRI) showing candidal spondylodiscitis. A : Preoperative sagittal T2-weighted. B : Gadolinium-enhanced T1-weighted MRI showing an increased signal in the inferior and posterior parts of the L5 vertebral body and superior parts of the sacrum. Posterior abscess formation is seen without significant involvement of the adjacent discs.

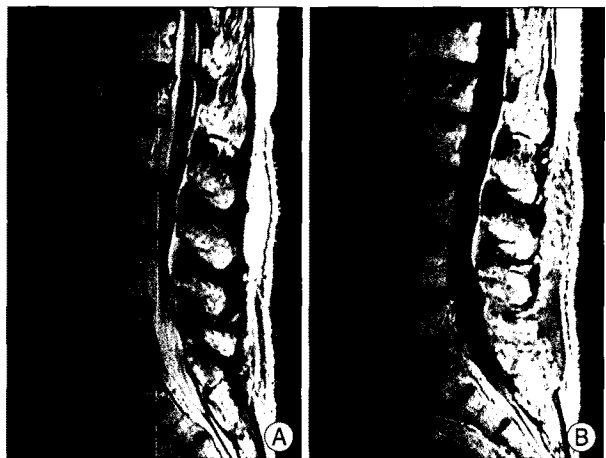


Fig. 2. Follow-up sagittal T2-weighted (A) and gadolinium-enhanced T1-weighted image (B) showing a marked decrease of the enhanced lesion and epidural abscess 4 month after surgery.

discitis was *candida parapsilosis* and it was suspected to derive from a nosocomial infection after previous spinal surgery. Although an invasive *Candida* infection is normally associated with an immunocompromised host, our patient was not immunocompromised, even though she was 70 year old.

Antifungal treatment is the first choice for *Candida* spondylodiscitis. Derkinderen et al.<sup>5</sup> reported successful non-surgical management of a patient with a dorsal epidural abscess due to *Candida albicans*. However, the development of progressive neurological impairment, and worsening symptoms, particularly the presence of corroborative imaging studies, are indications of surgical spinal decompression and stabilization<sup>2,15</sup>. The direction of the approach depends on the dominant side of the infection. The anterior retroperitoneal approach was used in the present case. The retroperitoneal approach is quite effective in easily reaching

the anterior lumbosacral area as well as in preventing the infection spreading to other spaces as a result of surgery. The use of spinal instrumentation carries some risk of exacerbating the infection. The prognosis appears to be favorable, with an overall 85% cure rate of candidal vertebral osteomyelitis<sup>9,12</sup>.

In this case, an oral fluconazole treatment after a period of intravenous fluconazole appeared to be effective in managing candidal spondylodiscitis complicated by epidural abscess formation, after adequate surgical debridement. The primary medical regimen is the administration of either amphotericin B alone for 1-2 months or amphotericin B after a prolonged course of oral azole<sup>4</sup>. However, there are cases of candida vertebral osteomyelitis reported in the literature that were treated successfully with azole therapy alone<sup>11</sup>.

Fluconazole has a better safety and tolerability profile<sup>10</sup>. Also, fluconazole can be administered via oral agent. It is advisable to continue drug therapy until the ESR becomes normal<sup>8</sup>. We recommended 4-6 weeks of intravenous fluconazole therapy at a dosage of 400 mg/day, followed by 2-6 months of treatment with an oral fluconazole. In the present case, ESR was normalized after 1 month of therapy. The treatment period may be shorter when surgical debridement is performed properly.

## CONCLUSION

Candida is a rare cause of non-tuberculosis spondylodiscitis. Clinicians must suspect this entity in patients presenting with the risk factors for candidiasis and low back pain with a long duration. Fluconazole with surgical debridement may be an effective, relatively brief and cost-effective treatment of Candida spondylodiscitis with an epidural abscess.

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