VERTEBRAL OSTEOMYELITIS AND EPIDURAL INFECTION BY RHODOTORULA RUBRA

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ABSTRACT

We presented a case with mixed fungal infection of the thoracic spine, involving spinal bodies and posterior epidural space in the pregnant woman. Diagnosis was reached only by needle aspiration biopsy. Articles concerning Rhodoturula Rubra were reviewed.

INTRODUCTION

Rhodotorula is a yeast in the family Cryptococcaceae. Its synonyms are Saccharomyces ruber (Demme 1889), Rhodotorula mucilaginosa (Joergensen Harrison 1028), Torulopsis menu (Dodge 1935), Torulopsis sanguines (Ciferri et Redaelli, 1925), Rhodotorula sanniei (Lodder 1934) and 43 names more (Kreger-Van Rjj, 1984). (1). Fungal infections of the spine are uncommon. They frequently occur in immunosuppressed hosts with multiple medical problems. Rhodotorula is an infrequent cause of infection in humans (2).

CASE REPORT

A 28-year-old female patient had paraparesis for 3 months. There was also interscapular pain. The paraparetic symptom was progressively worse and she could not walk without support. She was 28-weeks-pregnant. The lower extremities showed spastic tone on both sides. The vital signs were all normal. Complete blood count, bone marrow aspiration, VDRL, antiHIV, serum histoplasma Ab, Cryptococcal Ag. Pseudomallei AB were all negative.

Plain film of the chest showed left pleural effusion (Fig. 1A). Cytology from the pleural fluid revealed marked lymphocytic infiltration with negative for bacterial culture and AFB stain.

Plain films of the thoracic spine in AP and lateral views showed a right paravertebral mass lesion at the mid thoracic level with slight narrowing intervertebral disc space (Fig. 1B). T1WI and T2WI coronal view MRI scan showed bilateral paravertebral soft tissue lesion at the mid thoracic level. The signal in the marrow of the vertebral body was bright on T2WI; two vertebral bodies were involved (Fig. 2 A). The soft tissue in the posterior central canal, elevating the spinal cord to the anterior aspect was well shown in the axial images (Fig. 2B). Needle aspiration biopsy specimen which was stained with GMS (Gromette's Methamamine Silver) revealed yeast from organisms and the culture of the fungus showed Rhodotorula rubra, Cladosporium Sp and Candida parapsilosis.

The patient refused surgery and was discharged with antifungal agents as a home medication.

DISCUSSION

Rhodotorula is a common airborne fungus found in skin, lungs, urine, and feces. The yeast has been isolated from cheese and mild products, air soil and water. It characteristically produces a coral red pigment (2). The genus Rhodotorula has eight species (3) of which R. rubra is the only species in

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human infection. Infection with Rhodotorula species is rare; thus far, reports include fungemia (4), endocarditis (5), peritonitis (6), meningitis (7) and ventriculitis (8). A pseudoepidemic of Rhodotorula can occur in a hospital when equipment, such as brushes used to clean a bronchoscope, is contaminated (9). Fungemia has been the most common form of Rhodotorula infection. It has occurred typically in patients with cancer (10), bacterial endocarditis (11), or other debilitating diseases (12), who were receiving either chemotherapy for cancer or antibiotics through an indwelling intravenous catheter for other underlying illness. The most common sources of Rhodotorula infection in these cases were contaminated catheters or intravenous solutions (10,12). Once the source of contamination is removed, the symptoms typically disappear and blood cultures become negative for Rhodotorula.

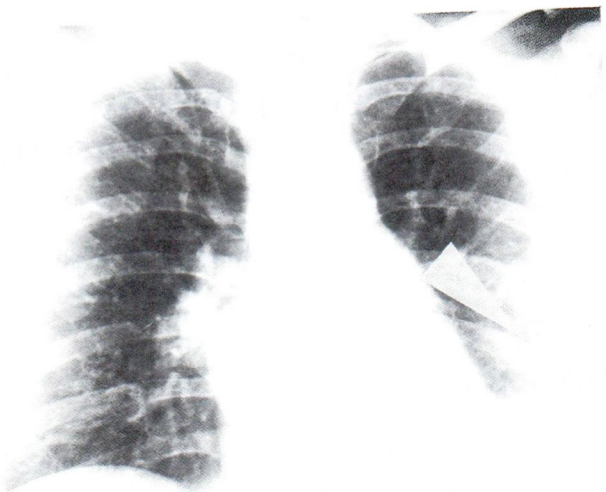

Fig. 1A PA chest film revealed left pleural effusion.

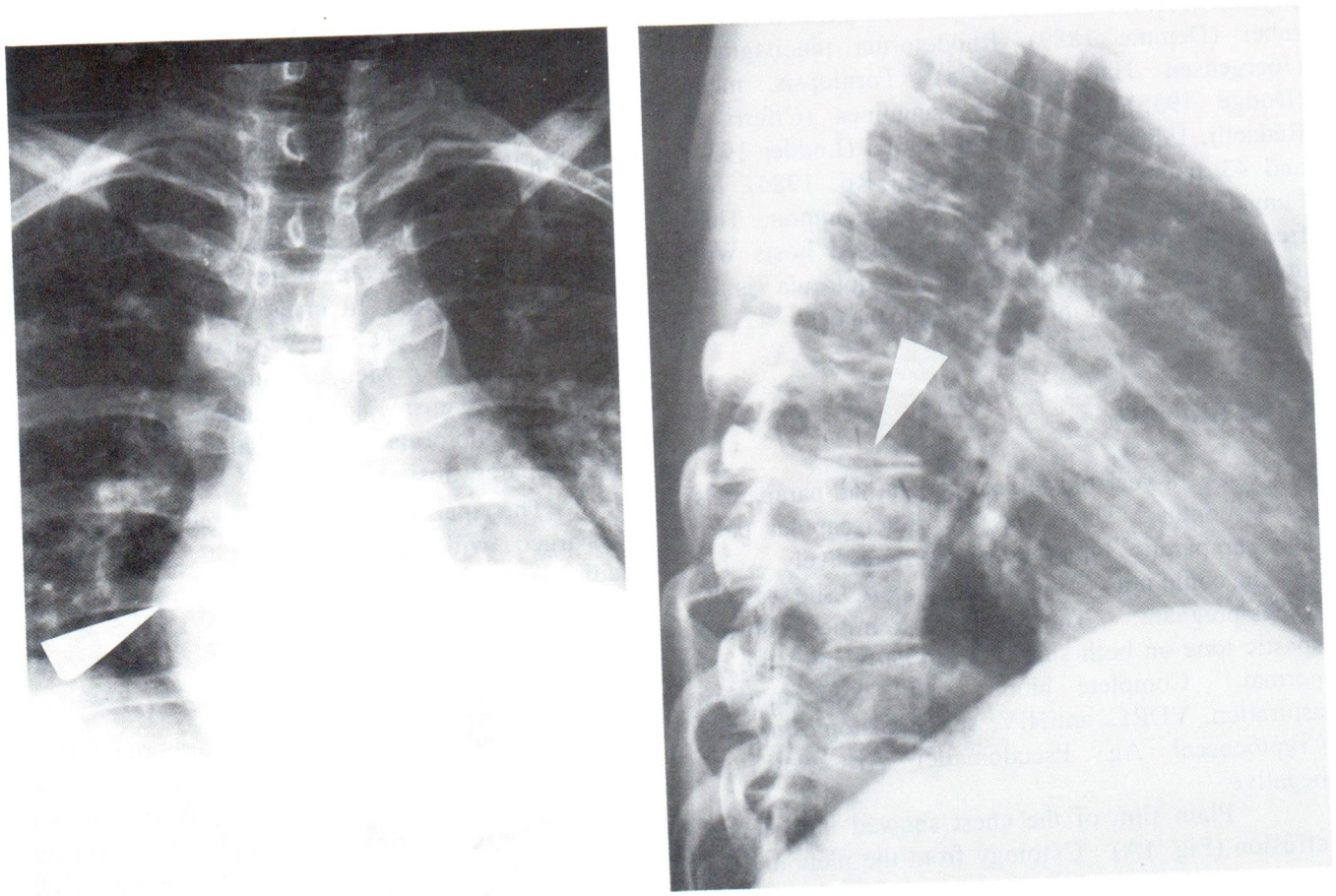

Fig. 1B AP view of the thoracic spine showed right paravertebral soft tissue mass at mid thoracic level. Lateral view of the thoracic spine showed slight narrowing of the involved intervertebral disc with normal end plates.

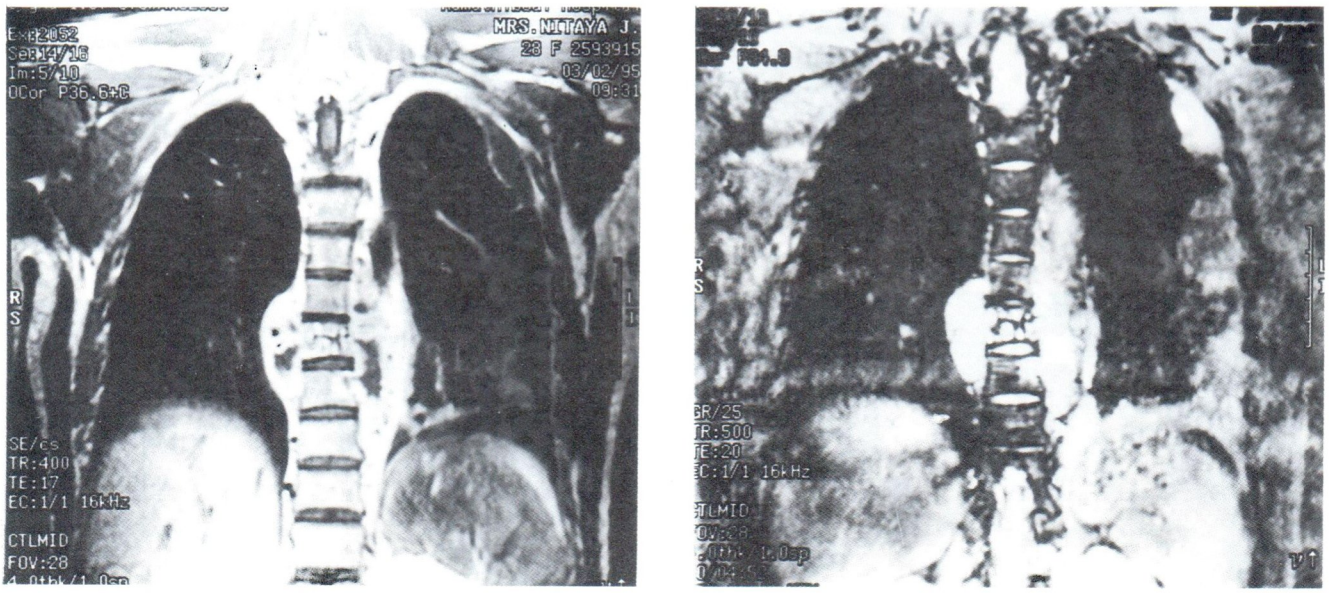

Fig. 2A Gd-DTPA enhanced T1WI coronal view of the thoracic spine showed bilateral paravertebral lesion with enhancement and some low signal areas in the enhanced portion. T2WI-coronal view of the same region showed brightness of the involved spine and the paravertebral soft tissue lesion.

Rhodotorula species do not ferment sugars and can be readily differentiated from the other red yeast, Sporobolomyces, by the lack of billistospore formation and from Cryptococcus species by the lack of inositol assimilation in addition to the presence of bright pigment. In tissue sections or spinal fluid, however, R rubra cells cannot be readily differentiated from those of C neoformans (7).

Infectious spondylitis and epidural abscesses have been caused by nearly all known microorganisms. Although certain radiographic features are characteristic of each type of infection, the diagnosis rests on the evaluation of a tissue specimen.Biopsies must be evaluated with fungal stains as well as cultures, because the latter may be negative or take several weeks or months before identification is possible. Closed biopsy was reported to be positive in only 50 per cent of cases, whereas open biopsy was positive in all cases in the series of Campbell (13). The treatment of fungal infection involves correcting host factors that may compromise wound healing or immune defense capabilities. Antifungal agents are the mainstay of treatment, but surgery frequently is necessary. The approach should be based on the pathologic features encountered, but in general, anterior debridement and stabilization is preferred (13). The prognosis for patients with fungal vertebral osteomyelitis depends on the organism as well as on the host. As with bacterial infections, it appears that patients with diabetes mellitus or neurologic deficits have a poorer prognosis (13).

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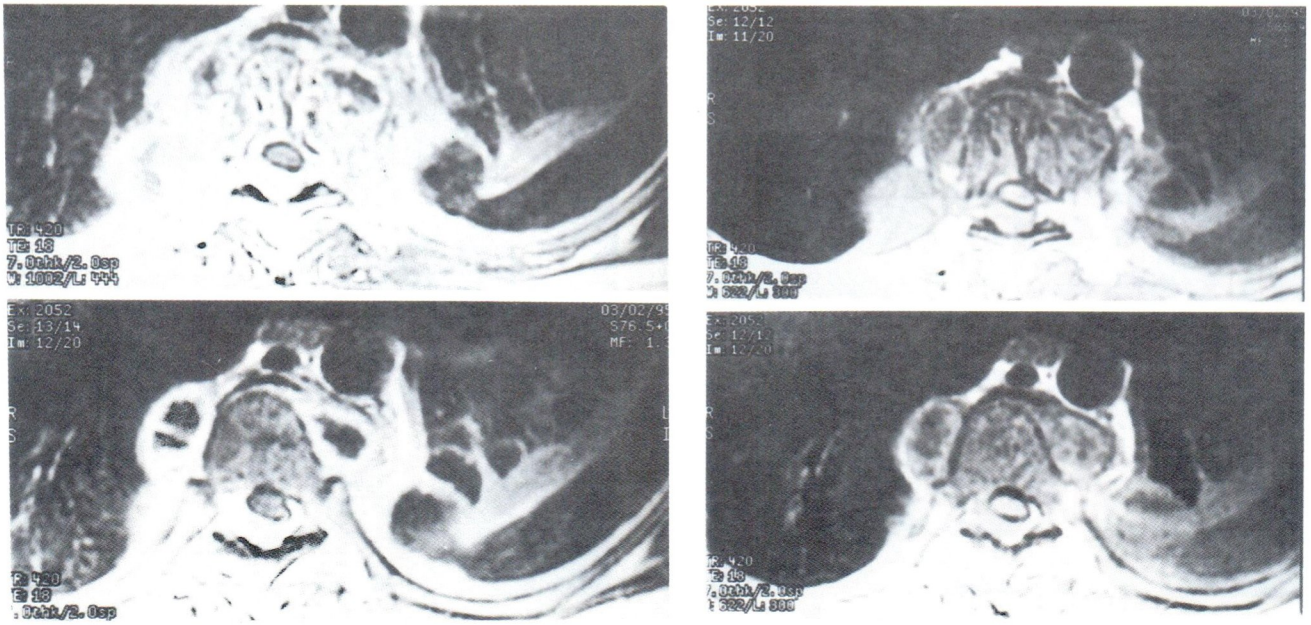

Fig. 2B Enhanced axial T1WI at the lesion revealed clearly the posterior epidural lesion, the anteriorly displaced cord and the bilateral paravertebral soft tissue lesion.

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