Disseminated Cryptococcosis Rapidly Diagnosed By Lymph Node Imprint: A Case Report

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Abstract

A patient with acquired immunodeficiency syndrome and disseminated cryptococcosis presented with prolonged fever and tender cervical lymphadenopathy, the rare clinical presentation of cryptococcosis. Presumptive diagnosis of cryptococcal lymphadenitis was made by microscopic examination of Wright's-stained lymph node imprint smear on the second day of admission and was confirmed later by isolation of Cryptococcus neoformans from lymph node culture. The patient had been treated with parenteral amphotericin B before the culture result was reported. Response to treatment was favourable.

INTRODUCTION

Cryptococcosis is an opportunistic infection caused by Cryptococcus neoformans. This mycosis occurs commonly in the immunocompromised hosts including the population infected with human immunodeficiency virus (HIV).1 Definitive diagnosis of cryptococcosis depends on the fungal isolation from sputum, cerebrospinal fluid, or tissue culture. The other reliable method for diagnosis is microscopic examination of tissue biopsy specimen specially stained with mucicarmine, periodic acid-Schiff (PAS), or Gomori's methenamine silver (GMS).2 However, it usually requires at least two or three days for the results. India ink preparation is the well-known bedside technique for making the presumptive diagnosis of cryptococcosis,3 but it is more appropriate for detection of C. neoformans in the body fluid specimen. In this paper, a case of acquired immunodeficiency syndrome (AIDS) with disseminated cryptococcosis is reported. The presumptive diagnosis of cryptococcal lymphadenitis was rapidly made by microscopic examination of Wright's-stained lymph node imprint smear.

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CASE REPORT

A 26-year-old man was admitted to the Department of Medicine, Maharaj Nakorn Chiang Mai Hospital on December 18, 1990 because of fever and tender cervical lymphadenopathy for two weeks. The patient had been well until six months ago when he developed fever, cough, and chest pain for seven days. He was admitted to this hospital with the final diagnosis of right lower lung pneumonia. The causative organism could not be identified. The patient was treated with cefazolin and amikacin for 16 days. The symptoms subsided slowly and he was discharged on the 20th hospital day. He was well until two weeks before admission when fever and tender cervical masses occurred. Three days before admission, he had productive cough with occasional hemoptysis and he was admitted. The patient refused the history of any underlying illness, intravenous drug abuse, homosexual behavior, and blood transfusion. He had frequent heterosexual contacts with female prostitutes in Chiang Mai for many years without the use of condom.

Physical examination revealed the body temperature of 38°C, minimal oral thrush, and generalized lymphadenopathy. There was marked tenderness at the cervical region. The breath sound was slightly diminished at right lung base. Moderate hepatosplenomegaly was detected. Discrete erythematous papules of 0.5 cm in diameter were seen at the patient's face, chest, back, and extremities. The initial laboratory findings included a hemoglobin of 10.2 g/dl, white cell count of 6,900/mm³ with differential count of 68 per cent neutrophils, 27 per cent lymphocytes, and 5 per cent eosinophils; and platelet count of 120,000/mm³. Urinalysis yielded normal findings. Chest roentgenography showed right lower lung infiltrations and minimal right pleural effusion. The KOH preparation of scraped oral thrush detected many yeast-like cells with pseudohyphae consistent with oral candidiasis. Microscopic examination of Wright-stained lymph node imprint revealed abundant yeast-like cells with surrounding halos (Figure 1). The test for anti-HIV antibody was reported to be repeatedly positive. Skin biopsy specimen was sent for fungal isolation. Cerebrospinal fluid (C.F.S.) from lumbar puncture was completely normal. Parenteral amphotericin B was started on the 8th hospital day while the results of cultures and sections were still pending. Three days later, laboratory results were notified. Cryptococcus neoformans was isolated from C.F.S., skin, and lymph node. Special staining of lymph node section suggested cryptococcal lymphadenitis. Resolution of fever and lymphadenopathy was evident after two weeks of treatment and the patient was planned to receive amphotericin B for a total course of 8 weeks.

DISCUSSION

Besides the respiratory and central nervous systems, which are two major sites of involvement, cryptococcosis may involve several other organs including the skin, heart, testis, prostate, and eye. However, even in disseminated cryptococcosis, lymph nodes are usually spared. In addition, selective involvement of lymph nodes, so called "lymphonodular cryptococcosis", is a rare entity and was reported more frequently in children. In a large series of 68 HIV-infected patients with Cryptococcus neoformans infection, there was no case presented with lymphadenopathy. In this paper, the patient was admitted because of prolonged fever and tender cervical lymphadenopathy, the rare presentation of cryptococcosis. Diagnosis of disseminated cryptococcosis was confirmed by isolation of C. neoformans from lymph node, C.F.S., and skin cultures.

C. neoformans is a yeast-like fungus. In tissue sections or other specimens, it can be detected by the use of many special stains including Hematoxylin & Eosin, PAS, GMS, and mucicarmine. Recently, the first case of cryptococcosis diagnosed on Wright-Giemsa-stained peripheral blood smear was reported by Yao et al. In this paper, it was rapidly demonstrated on lymph node imprint smear by the ordinary Wright's stain which is routinely used in the staining of any tissue biopsy imprint smear. By this technique, C. neoformans appear as basophilic, uninucleate, spherical, oval, and elliptical yeast-like cells that varying in size from 4 to 15 microns in diameter (Figure 1). The thin cell walls stain pink and are surrounded by clear spaces or "halos", represent unstained mucinous capsules. These findings strongly suggest the diagnosis of cryptococcosis. Differential diagnosis includes Histoplasma capsulatum, Candida species, and Blastomyces dermatitidis. Special staining or fungal isolation is required for confirmation.
SUMMARY

In conclusion, Wright’s stain of the tissue imprint smear is one of the bedside techniques useful for diagnosis of cryptococcal infection. It can be easily performed in any laboratory and by any physician as well as medical student. By careful examination and interpretation, it is possible to make the rapid diagnosis and to start the early treatment of cryptococcosis based on this convenient method.

REFERENCES