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A Rare Case in Turkey: Pulmonary Histoplasmosis

Ufuk Turhan[1], Mehmet Aydoğan[2], Tuncer Özkısa[3], Yıldırım Karslıoğlu[4], Seyfettin Gümüş[3]

[1]Clinic of Pulmonology, Balıkesir Military Hospital, Balıkesir, Turkey
[2]Clinic of Pulmonology, Isparta Military Hospital, Isparta, Turkey
[3]Department of Pulmonology, Gülhane Military Medical Academy, Ankara, Turkey
[4]Department of Pathology, Gülhane Military Medical Academy, Ankara, Turkey

Abstract

Histoplasma capsulatum, which is the causative agent of histoplasmosis, appears in the soil globally. There are a limited number of histoplasmosis cases reported from Turkey. In this article, we present a patient with Histoplasma pneumonia developed during corticosteroid treatment. A 70-year-old female with invasive ductal carcinoma was admitted to our department with shortness of breath, cough, and weakness. Her clinical and radiological findings were compatible with radiation pneumonitis. Computed tomography of thorax (Thoracic CT) revealed scattered and patchy areas of consolidation, ground-glass opacities, and ground-glass density nodules in all lobes of the lungs. Transthoracic tru-cut biopsy was performed under CT guidance. Histopathological examination showed microorganisms morphologically consistent with Histoplasma became apparent with silver stain in the alveolar lumen. Patient was treated with itraconazole for 6 months. She responded well to the treatment with a complete clinical and radiological regression. Histoplasmosis is a worldwide disease. It should be noted that pulmonary histoplasmosis could be seen in our country. Because of this, pulmonary histoplasmosis should be kept in mind in immunocompromised patients as an opportunistic pulmonary infection in our country.

Keywords: Histoplasmosis, invasive ductal carcinoma, itraconazole

INTRODUCTION

Histoplasma capsulatum, the causative agent of histoplasmosis, appears in soil all over the world. Though it is endemic in Middle America, South America, Africa, Australia, East Asia, India, Malesia, and particularly in North America (1); few cases are reported in Turkey (2). In this article, we present a case of Histoplasma pneumonia that occurred following breast cancer.

CASE PRESENTATION

A 70-year-old female patient, diagnosed with invasive ductal carcinoma 1 year ago, developed clinical and radiological findings consistent with radiation pneumonitis after radiotherapy. Prednisolone (20 mg/day) was started. Despite clinical and radiological improvement on the second week of the treatment, fatigue and nausea symptoms began on the fourth week. The thoracic CT scans revealed patchy areas of consolidation in different sizes accompanying ground-glass opacities and multiple nodules in all pulmonary lobes (Figure 1).

On admission, laboratory findings were as follows: WBC: 4800/µL, HGB: 11.4 g/dL, CRP: 48/65 mg/L, ESR: 84 mm/h. The combined treatment of piperacillin-tazobactam and levofloxacin was not responsive. The rheumatological markers, galactomannan antigen, Cytomegalovirus, and Pneumocystis jirovecii polymerase chain reaction (PCR) analysis were negative. Bronchoalveolar lavage (BAL) and transbronchial parenchyma biopsy did not reveal any diagnostic results. Protected-brush specimen's nonspecific culture and BAL specimen's fungal and tuberculosis cultures were also negative. Because of the clinical and radiological progression, a CT-guided transthoracic tru-cut biopsy was performed.

The pathological samples showed microorganisms morphologically consistent with *H. capsulatum* becoming more observable with silver staining in the fibrinoid debris within the alveolar lumen (Figure 2).

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Correponding Author
Ufuk Turhan
E-mail: ufukturhan@hotmail.com

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Considering all the findings, the patient was diagnosed with pulmonary histoplasmosis. Itraconazole treatment (first 3 days 3×200 mg/day, 3 months 2×200 mg/day, and 3 months 1×200 mg/day) was started. With the treatment, clinical and radiological improvement was observed (Figures 3, 4). Written informed consent was obtained from the patient who participated in this study.

DISCUSSION

H. capsulatum is a soil-based fungal pathogen that can cause diseases in healthy people when taken at infecting doses. It is endemic in Middle America, South America, Africa, Australia, East Asia, India, Malaysia, and particularly in North America (1). There are limited numbers of cases in Turkey. The first case of histoplasmosis in Turkey was obtained from a histologic preparation of an autopsy material by Tevfik Sağlam in 1945. The second case from Yozgat was published by Prof. Kamile Mutlu in 1948. Reşat S. Akün defined the microorganism from a cat bacterial culture. This proved the existence of histoplasmosis in our country. After this, some studies were done with the histoplasmin test.

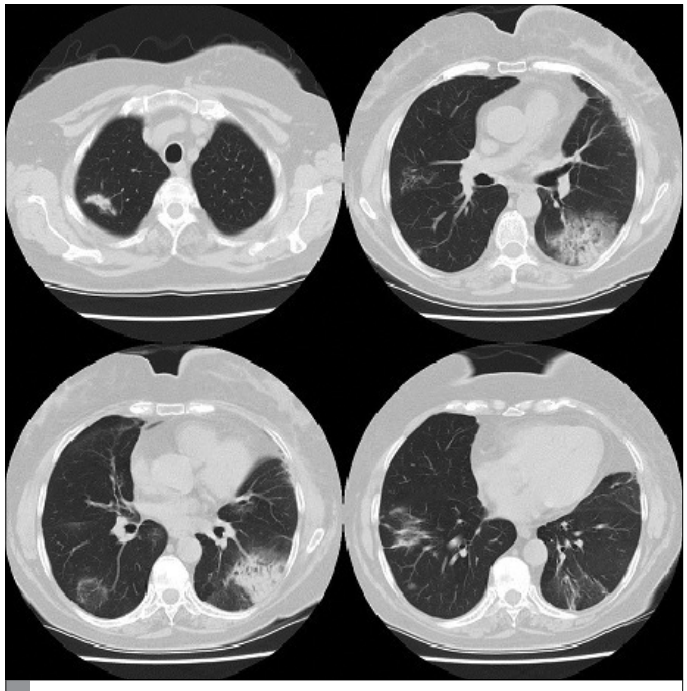

Figure 1. Thorax CT scans before the treatment

Figure 3. Chest radiograph before the treatment

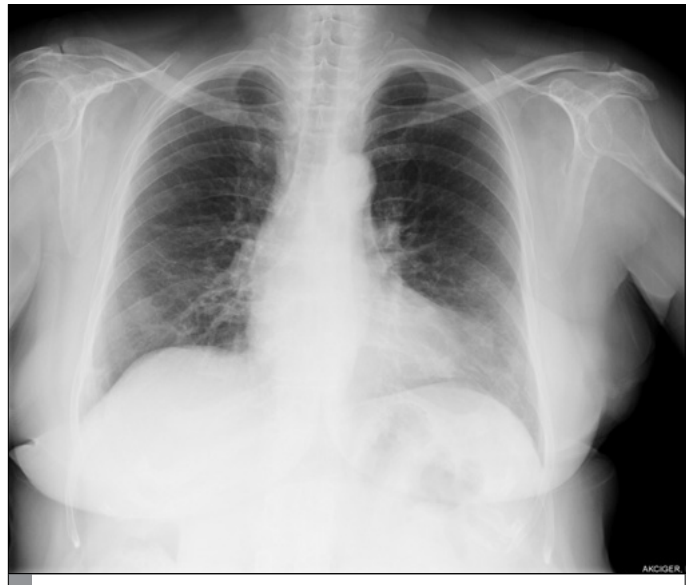

Figure 4. Chest radiograph after the treatment

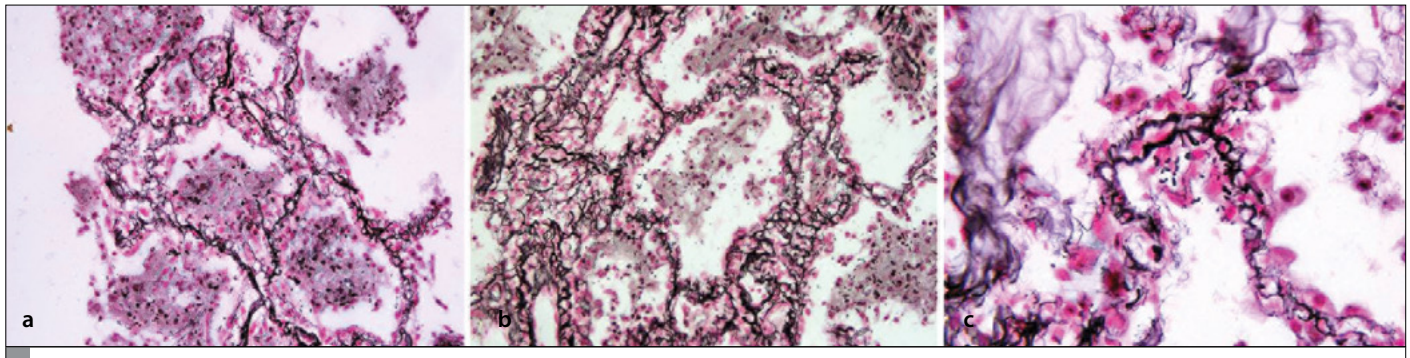

Figure 2. a-c. Histochemical examination (Gomori methenamine silver) of the biopsies obtained from the lung parenchyma: Fungal microorganisms compatible with morphological Histoplasma are seen individually and in groups in the alveolar spaces (a-c: ×400, ×400, ×1000; GMS)

There were very few positive results in the studies that were performed in Ankara. Dr. Cavit Sökmen found a positive result by histoplasmin in Ankara. The 21-year-old soldier had calcified pulmonary lesions. The presence of *H. capsulatum* had been identified by Yücel and Kantarcıoğlu (3) in a tumulus near Manisa (the necropolis of the ancient city of Sardis (IV BC. AD) Bintepeler 89 Mound in wood findings) for the first time in our country. The possibility of exposure to pathogenic fungi such as *H. capsulatum* in such environments had been reported. Its increasing frequency as an opportunistic infection has been reported in immunocompromised people due to HIV infection or other various reasons (4). Our case was HIV negative but was diagnosed with invasive ductal carcinoma about 1 year ago. She received radiotherapy without chemotherapy after mastectomy. Only prednisolone was used because of radiation pneumonia.

In addition to fungal cultures of sputum and BAL samples, histopathological examination and serological tests can be used for the diagnosis of pulmonary histoplasmosis. The sensitivity of these diagnostic methods varies according to the clinical cases. Although more fungi burden is seen in acute diffuse pulmonary histoplasmosis, cultures gives positive results in only 40% of cases (5). However, serological tests (especially BAL material) give higher diagnostic efficiency in these cases (6). Fungal culture shows a higher diagnostic efficiency in chronic pulmonary histoplasmosis. The culture positivity rate of sputum and BAL material in these cases were reported to be 65% and 85%, respectively (7). Furthermore, it also can be diagnosed with serologic tests in these cases. Because the fungal burden is low in acute localized cases, as in our case, the diagnostic efficiency of the fungal culture is low. In such cases, the diagnosis is mostly confirmed by histopathological or serological methods. Serological methods for the diagnosis of histoplasmosis are not very common in our country. That is why we diagnosed the case by histopathology. Riviere and colleagues revealed the cross-reaction of galactomannan with *H. capsulatum* antigens, especially in HIV-associated histoplasmosis, and they suggested that it can be used for the diagnosis of pulmonary histoplasmosis (8). In our case, the galactomannan test was negative. Amphotericin-B treatment is recommended in severe cases, while itraconazole is recommended for mild-to-moderate cases (9). Our case was successfully treated with itraconazole.

CONCLUSION

Although it is thought to be an endemic disease, histoplasmosis is actually worldwide (10). It should be noted that pulmonary histoplasmosis can be seen in our country. Therefore, especially in immunocompromised patients, pulmonary histoplasmosis should be kept in mind for differential diagnosis of opportunistic pulmonary infections in our country.

Informed Consent: Written informed consent was obtained from patient who participated in this case.

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