

A case of Histoplasmosis Mimicking Tuberculosis

Asim Qureshi

Department of Pathology & Microbiology, Aga Khan University, Hospital, Karachi.

Abstract

Drug resistance to Tuberculosis is an emerging problem but proper exhaustive workup needs to be done before confirming the diagnosis. The case of a 5 year old male child who presented with low grade fever and lymphadenopathy and was being treated with anti TB drugs with no satisfactory response is presented. A detail workup including a biopsy gave the diagnosis of histoplasmosis.

Introduction

Histoplasmosis is not commonly seen in our region. It is frequently encountered in people who come in contact with domestic birds and fowl. In Pakistan, the cases usually belong to the rural areas. The presentation is upper respiratory symptoms of cough and fever. There may be associated lymphadenopathy. The patients are commonly diagnosed as tuberculosis as even if a biopsy is done it would give the findings of chronic granulomatous inflammation. Appropriate cultures and fungal stains should be done to establish the diagnosis.¹

Case Report

A five year old male was referred to Aga Khan Medical University with history of fever and weight loss for

the past five months. The patient was being treated for tuberculosis since 3 months and was not responding to therapy. Physical examination revealed a pale anxious child. No lymph nodes were palpable. Ultra-sonography and computed tomography of the abdomen was done which showed enlarged mediastinal and abdominal lymph nodes. Multiple Para-aortic and mesenteric lymph nodes were reported on CT scans. CT guided biopsy of abdominal lymph node was performed and cultures and PCR for mycobacterium was requested.

Histological examination revealed tissue showing loose aggregates of epithelioid histiocytes forming granulomas. Some of the histiocytes contained intra cytoplasmic vacuoles. There were large areas of necrosis. No abnormal lymphoid infiltrate was seen. Fungal stains with / PAS and diastase showed numerous fungal yeast forms which were both intra and extra cellular. The spores were variable sized ranging from 3 to 5 microns. A pseudo capsule was also identified. There was thin based budding and the morphology was also evaluated by microbiologist who concurred with the diagnosis of histoplasmosis.

Discussion

Histoplasma capsulatum infection is acquired by inhalation of dust particles from soil contaminated by bird

or bat droppings that contain small spores (microconidia) the infectious form of the fungus. Like *Mycobacterium H. capsulatum* is an intracellular parasite of macrophages.² The clinical presentation also strikingly resembles that of tuberculosis, including, a self limiting and often latent primary pulmonary involvement which may result in coin lesions on chest radiography; chronic progressive secondary lung disease which is localized to the lung apices and causes cough fever and night sweats, and finally a widely disseminated involvement.^{1,2}

The pathogenesis of Histoplasmosis is incompletely understood. It is known that macrophages are main target of infection. *H. capsulatum* may be internalized into macrophages after opsonization or by a discrete mechanism that appears specific to this fungus. The fungus expresses heat shock protein (HSP60) on the cell surface that binds to beta 2 integrins on the surface of macrophages.¹ *Histoplasma* yeasts so phagocytosed multiply within the phagolysosome and lyses the cell. The released triggers the helper T cells. These secrete interferon gamma which in turn acts on histiocytes to produce epithelioid granulomas; these undergo coagulative necrosis. Differentiation from tuberculosis, sarcoidosis and coccidioidomycosis requires identification of 3-5 cm thin walled yeast forms.³

The diagnosis is established by culture,

Identification of the fungus in tissue can also be useful. In addition serologic tests for antigen and antibodies are also available. Antigen detection in body fluids is most useful in the early stages, because antibodies are formed two to six weeks after infection.⁴

Conclusion

Histoplasmosis is a cause of lymphadenopathy and should be kept in mind when investigating lymphadenopathy with fever. A tissue biopsy and culture is highly recommended.

References

1. Woods JP. Knocking on the right door and making a comfortable home: *Histoplasma capsulatum* intracellular pathogenesis. *Curr Opin Microbiol* 2003; 6: 327-31.
2. Wheat Joseph L. Current diagnosis of histoplasmosis. *Trends Microbiol* 2003; 11: 488-94.
3. Kaufman L, Standard P. Improved version of the exo-antigen test for identification of *Coccidioides immitis* and *Histoplasma capsulatum* cultures. *J Clin Microbiol* 1978; 8: 42-5.
4. Kerstin DW. The pathology of deep fungal infections. In: Robinson HM, Bonner JR, Alexander WJ, Dismukes WE, eds. *The diagnosis and treatment of fungal infections*. Springfield III, Charles Thomas 1974; pp 277.
5. Disseminated Histoplasmosis in patients with Acquired Immune Deficiency Syndrome. *Arch Intern Med* 1984; 144: 2178-81.
6. Goodwin RA Jr, Shapiro JL, Thurman GH, Thurman SS, Des Prez RM. Disseminated Histoplasmosis; Clinical and pathologic correlations. *Medicine (Baltimore)* 1980; 59; 1-33.