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Histoplasma Capsulatum Induced Esophagitis in an Immunocompetent Patient: A Case Report

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Abstract
Present study relates to detection of Histoplasma Capsulatum in a patient with esophagitis. The subject was a 64 year old immunocompetent male. He complained of epigastric pain and dysphagia for 2 months. Endoscopic examination revealed superficial mucosal ulcers in esophagus. Esophageal biopsy was done. Histopathological examination showed inflammatory cell infiltration of the esophageal wall along with presence of scattered giant cells. Histochemical stains like Periodic Acid Schiff (PAS), Gomori Methanamine silver (GMS) highlighted the presence of the organism.
Keywords: *Histoplasma Capsulatum Esophageal biopsy Periodic Acid Schiff Gomori Methanamine silver.*

Introduction

Histoplasmosis is an invasive fungal infection and presents with symptoms mainly in the lungs.[1] It is generally acquired by the inhalation of the microconidia of the filamentous phase of the fungus *Histoplasma Capsulatum*.[2] Histoplasmosis is a disease of the reticuloendothelial system. Phagocytes play a central role in the pathogenesis and act as vehicles in the dissemination of *Histoplasma Capsulatum*. Further, the organism must bypass mucosal barriers, evade the immune mediated host defense systems and find its niche in the host macrophages.[3] In immunocompetent persons, histoplasmosis may be a localized disease. Rarely, esophagus alone may be involved as in the present case.

Case Report

A 65 year old male complained of epigastric pain for last few months. Endoscopic examination revealed diffuse mucosal ulceration. Esophageal biopsy was done. The esophageal wall showed marked neutrophilic and lymphocytic infiltration along with macrophages and few scattered giant cells. The overlying squamous epithelium showed acanthosis with mucosal ulceration. In few areas, large foamy macrophages containing oval uninucleate yeast- like cells measuring 2 to 4 um in diameter with a surrounding halo were seen. These were highlighted with complementary special histochemical stains like PAS and GMS and reported as fungal organisms morphologically consistent with *Histoplasma capsulatum*.

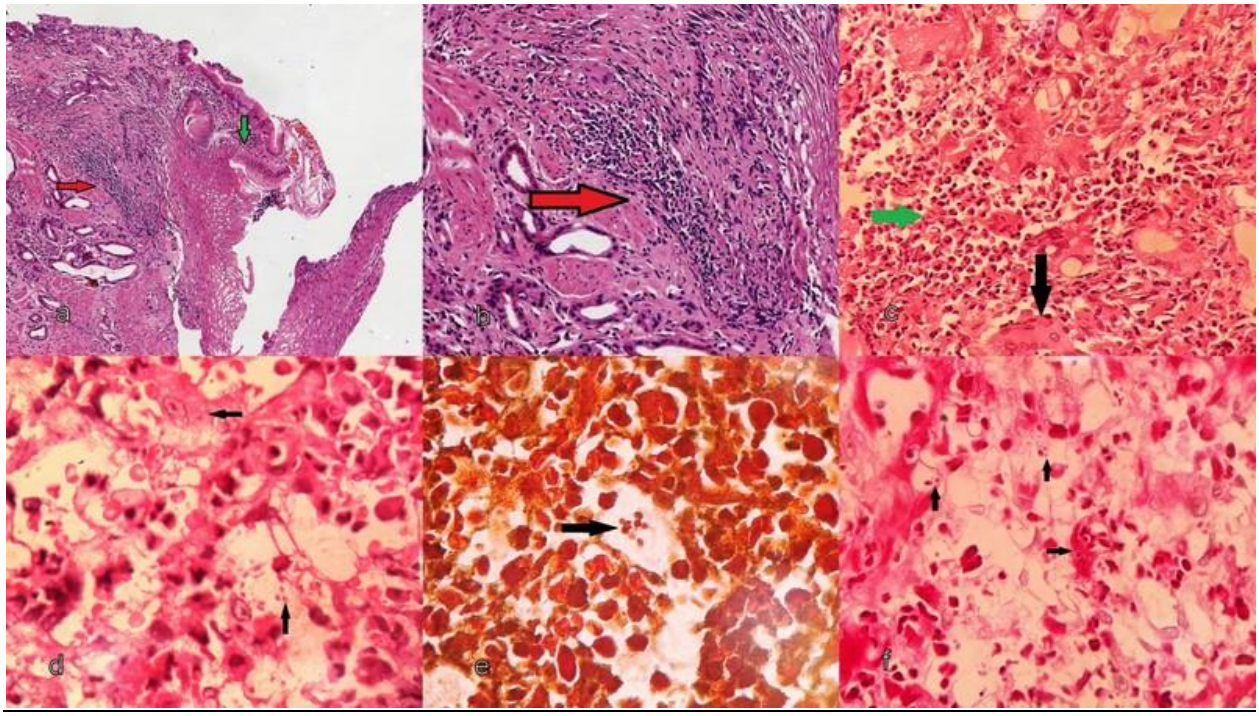

Figure 1 (a,b,c,d,e,f)

a) Photomicrograph from gastroesophageal junction shows acanthosis. Green arrow shows the gastroesophageal junction; red arrow shows inflammatory infiltrate. (Hematoxylin and eosin stain; 40X magnification)
b) Photomicrograph shows dense inflammatory infiltrate comprising of numerous neutrophils, lymphocytes and macrophages; marked by red arrow. (Hematoxylin and eosin stain; 100X magnification.
c) Photomicrograph shows a giant cell marked with black arrow. Green arrow indicates numerous neutrophils.(Hematoxylin and eosin stain; 400X magnification)
d) Photomicrograph shows intracellular pathogenic yeast forms marked with black arrows. (Hematoxylin and eosin stain; 1000X magnification)
e) Photomicrograph highlighting the yeasts marked with black arrow. (Gomori Methanamine Silver stain; 1000 X magnification)
f) Photomicrograph highlighting the yeasts with surrounding halo. (Periodic Acid Schiff stain; 1000 X magnification)

Discussion

First case of histoplasmosis was described by Dr Samuel Darling in the year 1906.[4] The pathogenesis begins immediately upon contact with the host. Upon entry into the host, the mycelial form is inactivated. 'Shunt' pathways mediated by cysteine and sulfhydryl groups are thought to induce morphogenesis into pathogenic yeast forms.[5] First step in interaction between yeast forms and monocyte- macrophages is by ingestion via complement receptors.[6] Later, yeasts must inactivate reactive oxygen and nitrogen released within the phagocytic vacuole.[3] Subsequently, yeasts must repel lysosomes. Histoplasmosis is known to develop in AIDS and other immunodeficiency syndromes. However, it may also occur in immunocompetent patients as a localized disease as observed in the present case. Histoplasmosis has been reported in patients with AIDS associated with tuberculosis.[2] Esophagus may also be involved in disseminated histoplasmosis presenting as esophageal ulcers or nodular lesions.[7]

In another study, one of the patients had mediastinal abscess which eroded into esophagus and produced dysphagia as a prominent symptom. These patients responded well to Amphotericin B. However, one of these two patients developed diverticulum after recovery.[8] Another renal allograft recipient developed esophageal histoplasmosis.[9] Another case of esophageal histoplasmosis has been reported in an immunocomromised patient who developed dysphagia and odynophagia.[10] Another case of esophageal histoplasmosis in a child with neutropenia and hyper IgM has been reported.[11]

The differential histopathologic diagnosis of *H. capsulatum* include *Torulopsis glabrata, Penicillium marneffei, Cryptococcus neoformans, and Blastomyces dermatitidis. Torulopsis glabrata* is slightly larger in size than *Histoplasma*. It is amphophilic and stains entirely, it lacks the halo effect that is seen with *Histoplasma*. The spherical to oval yeast-like cells of *Penicilliosis marneffei* measure 2.5 to 5.0 µm or more, are often sequestered within mononuclear phagocytes but they donot show budding. *Cryptococci* are more pleomorphic, varying in size from 2 to 20 µm. Similarly, *Blastomyces dermatitidis* is apleomorphic fungus with thick double-contour walls and is generally multinucleated.[12,13]

The esophagus is an uncommon site of involvement in histoplasmosis with majority of disease found in colon or small bowel. Most reports of esophageal histoplasmosis ate associated with mediastinal involvement with esophageal pathology resulting from mediastinal granuloma formation or fibrosing mediastinitis.[1] Present case highlights the rarity of isolated esophageal involvement in an immunocompetent patient.

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