

Disseminated Histoplasmosis

A Case Report

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History

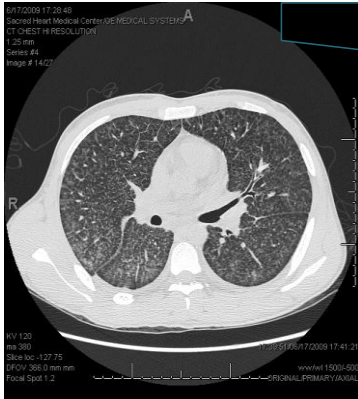
- A 21-year-old male immigrant from rural Mexico presents with 2-3 weeks of intermittent high fevers, sore throat, productive cough, malaise and weight loss. He has no past medical history. He works as a farm hand in rural Washington. He immigrated to the United States 5 years ago.

Physical Examination

- Thin Hispanic male
- Vital signs: fevers up to 104.5, HR of 120, with normal BP and respiratory parameters
- Cardiovascular, neurological and pulmonary exams are normal.

Database

- Labs: pancytopenia with an ANC of 1000, elevated liver enzymes and hyponatremia
- CT chest: Diffuse perihilar infiltrates
- An HIV test is positive
- CD 4 count of 9
- Viral load: 2 million copies/ml

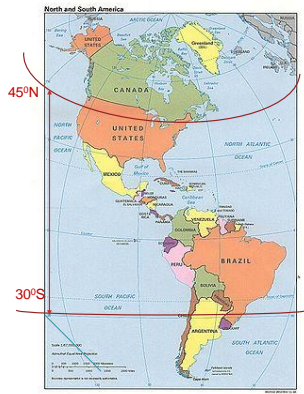


Hospital Course

- Over the next few days liver enzyme elevation as well as the pancytopenia worsen.
- Lowest ANC below 300, requiring G-CSF.
- BCx and BAL show fungal elements.
- Broad spectrum antibiotics and Amphotericin B were chosen early on as part of the antimicrobial management of neutropenic fevers.
- HAART was initiated on day 4 of hospitalization.
- The patient improved dramatically with the initiation of these treatments.

10 days into the hospital course the final cultures come back positive for **Histoplasmosis.**

Histoplasma capsulatum is a dimorphic fungus that is endemic to many river valleys between latitudes 45° north and 30° south on both American continents.

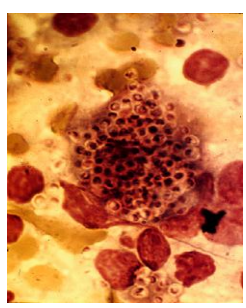


- Patients with acute, disseminated infection often present with
 - *pancytopenia,*
 - *hepatosplenomegaly,*
 - *hepatic enzyme elevation,*
 - *oropharyngeal and gastrointestinal lesions,*
 - *as well as fever and weight loss.*
- The diagnosis of disseminated histoplasmosis requires a high index of suspicion, knowledge of endemic distributions and recognition of common modes of presentation.

Prevalence

- Histoplasmosis is the most prevalent endemic mycosis in the United States.
- Dimorphic fungus that grows as a mold in the environment and as yeast at 37°C.
- Most infections are asymptomatic or self-limited.
- Progressive disseminated histoplasmosis occurs in about 1:2000 patients with acute infection.

- Histoplasma microconidia are inhaled into the lungs, where they germinate into yeast.
- The pathogen initially grows intracellularly within macrophages that are engorged with yeasts.



- T cell immunity plays the dominant role in recovery.
- Once cellular immunity to Histoplasma develops, macrophages become activated to kill the organism.
- Cytokines including interleukin (IL)-12 and interferon-gamma (IFN-gamma) arm macrophages to kill the fungus and halt progression of the disease.

- Individuals with underlying impairment of these defenses are at risk for developing severe and even fatal forms of the infection.
- Most patients with disseminated histoplasmosis have underlying conditions that impair their ability to defend against intracellular pathogens.
 - HIV
 - Primary immunodeficiency or other immunosuppressive disorders
 - Immunosuppressive medications
 - Extremes of age

Modes of Infection

- **Primary infection** in an immunocompromised patient with recent travel to or immigration from endemic areas.
- **Reinfection** in patients who previously had documented histoplasmosis, if host defenses are now compromised.
- **Reactivation** of latent histoplasmosis in immunocompromised patients.