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Pathology

Histoplasmosis of Mesenteric lymph nodes diagnosis by FNAC

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ABSTRACT Histolasmosis is a rare and potentially fatal disease caused by the dimorphic soil fungus Histoplasma capsulatum. Bone marrow, lymph nodes, spleen, and liver are most likely to be involved in disseminated histoplasmosis.There are very few cases of mesenteric lymph node histoplasmosis diagnosed on fine needle aspiration cytology. We describe a case of 46- year man with diabetes who presented with a 6-month history of fever, weight loss, and abdominal pain; Using ultrasonography, we found mesenteric lymph node enlargement, ileal wall thickening and hepato-splenomegaly. Ultrasonography directed fine needle aspiration showed yeast forms consistent with Histoplasma capsulatum.

KEYWORDS : Histoplasmosis, FNAC, Mesenteric

INTRODUCTION

Histoplasmosis is a fungal disease is caused by Histoplasma capsulatum. Histoplasmosis was first described a little over a century ago by an American physician, Samuel Darling, who was working in the Canal Zone in Panama. He described the disseminated form of the disease in a fatal case from Martinique (1). Histoplasmosis occurs throughout the world, but is most common in North and Central America. Isolated cases have been reported from Southeast Asia, Africa, and the Mediterranean Basin [2]. Histoplasmacapsulatum is a thermally dimorphic fungus. Its natural habitat is the soil, contaminated by excreta of chicken, birds, and bats (3). Infection with *H. capsulatum*results from passive exposure that occurs during typical day-to-day activities or from active exposure related to occupational or recreational activities. Most cases are sporadic, related to passive exposure, and not associated with a known

source. Most persons who have been infected have asymptomatic dissemination; only rarely will this lead to symptomatic disseminated histoplasmosis [4]. However, because dissemination is the rule, latent infection probably persists for a lifetime, and reactivation can result if the host becomes immunosuppressed. Presumably, this is the mechanism by which persons who were born in the endemic area and had not returned for years develop histoplasmosis years later [5, 6]. Although dissemination is common during the course of most infections with *H. capsulatum,* symptomatic dissemination occurs primarily in immunosuppressed patients and infants [7-10].

Widely disseminated histoplasmosis may occur in patients with Hodgkin's lymphoma and acute leukemias treated with corticosteroids and cytotoxic drugs (11). In years before AIDS, the prevalence of dissemination was estimated as 1 per 100,000 to 500,000 cases of histoplasmosis.(12) More recent estimates show that disseminated histoplasmosis occurs in approximately 55% of infected immunocompromised patients and 4% of infected immunocompetent patients.(9,13,14) In normal, immune-competent persons, infection with airborne spores of Histoplasma usually results in the formation of a minute (5-mm), subpleural, caseated, calcified nodule in the lower lobe of lung and a calcified area in the regional hilar lymph node; these form a primary complex entirely similar to the one commonly seen in tuberculosis (15,16).

The majority of human infections with *Histoplasma*organisms are asymptomatic pulmonary infections. When symptoms occur, usually 3 to 14 days after a more massive exposure, they are nonspecific, manifesting as fever and chills, headaches, myalgia, and weight loss. Because the fungi are transported by histiocytes, the reticuloendothelial system is primarily affected, and therefore the bone marrow, lymph nodes, spleen, and liver are most likely to be involved (17).

Many case reports are present where FNAC have been used to detect adrenal histoplasmosis, disseminated cutaneous histoplasmosis and axillary lymph node but FNAC has been seldom used for the detection of histoplasmosis of mesenteric lymph node.

CASE REPORT

A 46- year man with diabetes who presented with a 6-month history of fever, loss of appetite, weight loss, and abdominal pain; using ultrasonography, we found hepato-splenomegaly, ileal wall thickening and enlargement of multiple mesenteric lymph nodes ranging in size from 2.5 - 4cm (fig. 1)

His hemoglobin was 10.9 g/dL, total leukocyte count: 5400 cells/cumm with 70% neutrophils, ESR: 43 mm/hr and platelets: 2.3 lakhs/mm3. Peripheral smear showed normocytic normochromic anemia. Random blood sugar was 193 mg%. Liver and renal function tests were normal. The chest X-ray showed a non-homogenous opacity in the left upper lobe. HIV status was repeatedly negative. Blood culture was sterile.

A work-up for tuberculosis, including enzyme-linked immunosorbent assay (ELISA) and Montoux test, was negative.

FNAC was performed under ultrasound guidance from enlarged mesenteric lymph node, which revealed uniform round to oval budding yeasts intracellularly (within histiocytes) as well as extracellularly(fig.1 and 2). Hyphae and pseudohyphae were not seen. Inflammatory response in the form of epitheliod cell granulomas along with multinucleated giant cells was also seen(fig.3).

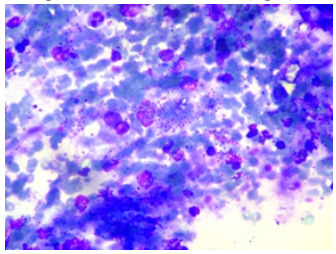

Figure 1 Photomicrograph of Mesenteric Histoplasmosis (Low power MGG 10X40)

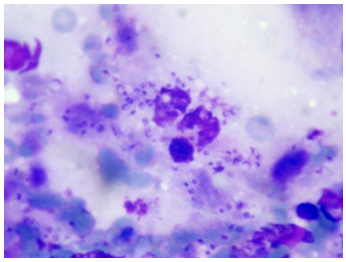

Figure 2 Photomicrograph of Mesenteric Histoplasmosis (High power MGG 10X100)

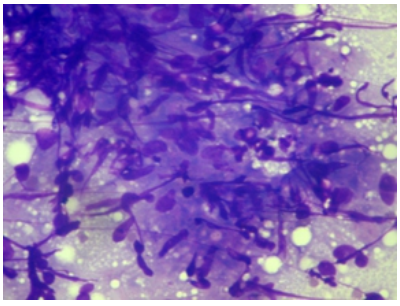

Figure 3 Photomicrograph of Epithelioid granuloma (MGG 10X100)

Overall cytopathological features were consistent with Histoplasma Capsulatum.

Then patient was subjected to Itraconazole (200 mg BD) for 6 month and he responded well.

Discussion

Histoplasmosis may present clinically in different forms asymptomatic infection, an acute or chronic pulmonary infection, mediastinal fibrosis or granulomas and as DH. The development of progressive DH indicates impaired cell-mediated immune responses [18] Patients who are immunosuppressed and unable to develop effective cell-mediated immunity against the organism are likely to manifest symptomatic disease during the period of acute dissemination. [19]

Chronic progressive DH is a slowly progressive infection due to Histoplasmacapsulatum that occurs mostly in older adults who are not overtly immunosuppressed.[20-22]. These patients have no obvious immunosuppression, but their macrophages cannot effectively kill H. capsulatum.[20]

The symptoms of DH include fever, malaise, anorexia and weight loss. Physical examination often shows hepatosplenomegaly, lymphadenopathy, pallor and petechiae if pancytopenia is present and in some patients, mucous membrane ulcerations, skin ulcers, nodules, or molluscum-like papules.[20-22]

In India, histoplasmosis seems to be prevalent in the Gangetic delta.[23]Panja and Sen reported the first case of DH from Calcutta in 1954.[24] Among the forms of histoplasmosis reported from India, DH is the rarest. Numerous case series have reported histoplasmosis from all over India, the largest series being from Delhi, a compilation of 37 patients from all over India.[25] Since clinical and laboratory features have considerable overlap, it is important to consider fungal infections while dealing with disseminated granulomatous infections although patient is immunocompetent.

The differential diagnosis of histoplasmosis on FNAC

- **Cryptococcus** are similar in size and present as budding forms but Cryptococcus organisms have the capsule stained by mucicarmine and periodic acid–Schiff (PAS), Histoplasma organisms remain unstained.
- **Leishmania** organisms resemble those of Histoplasmahave a characteristic kinetoplast& do not stain with silver stain.
- **Toxoplasma** organisms are much smaller and not intracellular.
- **Blastomyces** organisms are larger and have broad-based buds.
- **Pneumocystis** organisms are distinguished by the absence of budding, extracellular location and the presence of pink proteinaceous material.

Our findings emphasize the necessity for having a high index of suspicion of histoplasmosis in the appropriate clinical context.

CONCLUSION

This case confirms the importance of considering disseminated histoplasmosis as a possibility while considering possible etiology of mesenteric lymphadenopathy in adults.

FNAC is a simple safe and inexpensive procedure that can be utilized for rapid diagnosis of histoplasma infection involving mesenteric lymph nodes.

Conflict of interest- NONE

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