Case Report

Primary Cutaneous Histoplasmosis in an Immunocompetent Patient: A Case Report

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Abstract

Background: Primary cutaneous histoplasmosis (PCH) is a rare manifestation with a very few documented cases in literature of Histoplasmacapsulatum infection caused by direct inoculation of fungal organisms into the skin, especially in immunocompetent individuals. It can often mimic benign or inflammatory skin lesions, leading to diagnostic dilemmas. **Case presentation:** A 76-year-old immunocompetent farmer who presented to the OPD with complaints of multiple mildly itchy nodules on face for 2.5 months, few of them showing discharging sinuses. Histopathology demonstrated numerous intrahistiocytic yeasts highlighted by Periodic acid–Schiff stain, consistent with histoplasmosis. Systemic evaluation was negative for any signs of disseminated disease. The patient was managed with oral itraconazole and incision and drainage with expected favorable outcome. This case highlights the need to consider PCH in elderly patients presenting with new nodular or umbilicated facial lesions. **Conclusion:** Primary cutaneous histoplasmosis should be considered in elderly immunocompetent patients presenting with unexplained nodular, umbilicated, or plaque-like facial lesions. Early biopsy with fungal stains is essential for diagnosis and helps avoid unnecessary antibacterial or antitubercular therapy. Prompt treatment with itraconazole generally leads to favorable outcomes.

Keywords: Primary Cutaneous Histoplasmosis.

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Introduction

Histoplasmosis is a dimorphic fungus which is caused by Histoplasmacapsulatum, commonly acquired through inhalation of spores from soil contaminated with bird or bat droppings. Cutaneous lesions usually occur secondary to disseminated disease, especially in immunocompromised hosts. Primary inoculation of the fungus into the skin without systemic involvement is exceedingly rare and only a few documented cases in literature.[1-4]

The clinical manifestations of histoplasmosis depend on the mode of infection, the amount of fungal organisms inhaled, and the host immune response. The disease has been traditionally divided into primary pulmonary histoplasmosis, disseminated histoplasmosis and in rare cases, primary cutaneous inoculation of histoplasmosis. Pulmonary infection is the most common presentation, and often self-limited or asymptomatic in immunocompetent persons. Disseminated disease is more common in infants, elderly, and immunocompromised individuals such as patients with HIV infection, malignancy, or those undergoing immunosuppressive therapy, in contrast.[3]

The difference between PCH and disseminating histoplasmosis is that there is no systemic disease present. It is thought to occur when the fungus gets planted in the skin by some form of trauma, often as a result of an unnoticed minor injury. Clinically lesions may be either papules, nodules, plaques, ulcers, verrucous lesions, or umbilicated papules resembling molluscumcontagiosum. This wide spectrum of clinical manifestations often leads to a delayed diagnosis and mistaken diagnosis of infectious or inflammatory or neoplastic dermatoses.[3]

Case Presentation

A 76-year-old immunocompetent farmer who presented to the OPD with complaints of multiple mildly itchy nodules on face for 2.5 months, few of them showing discharging sinuses. Histopathology demonstrated numerous intrahistiocytic yeasts highlighted by Periodic acidSchiff stain, consistent with histoplasmosis. Systemic evaluation was negative for any signs of disseminated disease.He had refused to be given any diagnosis about diabetes, cancer, steroid treatment, organ transplantation or anything else that might make him

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susceptible to immunosuppression.

There were multiple well defined nodules over the cheeks and an infiltrated plaque over the nose on dermatological examination. A few lesions had a central umbilication. Mucosae, scalp and nails were normal. Lymph node enlargement and/or spleen enlargement were not present. A clinical diagnosis was made of Giant molluscumcontagiosum and deep fungal infections.

Blood haemoglobin, serum calcium and electrolyte levels were normal. HIV serology was negative. A work-up with radiological and laboratory evaluation revealed no pulmonary or systemic involvement, making the diagnosis of localized cutaneous disease more likely.

Histopathological Findings

Biopsy of the skin revealed reduced epidermis, slight hyperkeratosis, focal spongiosis and vacuolar interface dermatitis. The dermis contained dense inflammatory infiltrate comprising predominantly of histiocytes, lymphocytes, and occasional plasma cells.[4,5]

Many oval, minute yeast forms (2–4 µm) were found within and outside histiocytes. Cutaneous histoplasmosis confirmed with periodic acid–Schiff stain of the fungal organisms. In conjunction with lack of systemic disease these observations yielded the diagnosis of primary cutaneous histoplasmosis.[4]

Management and Outcome

The patient was initiated on oral itraconazole 200 mg twice a day, and was advised to have liver function tests and followup. Itraconazole is the drug of choice for localized, non-severe, cutaneous histoplasmosis; the latter is treated with amphotericin B. Azole therapy has been reported to have good clinical response when started early.[2]

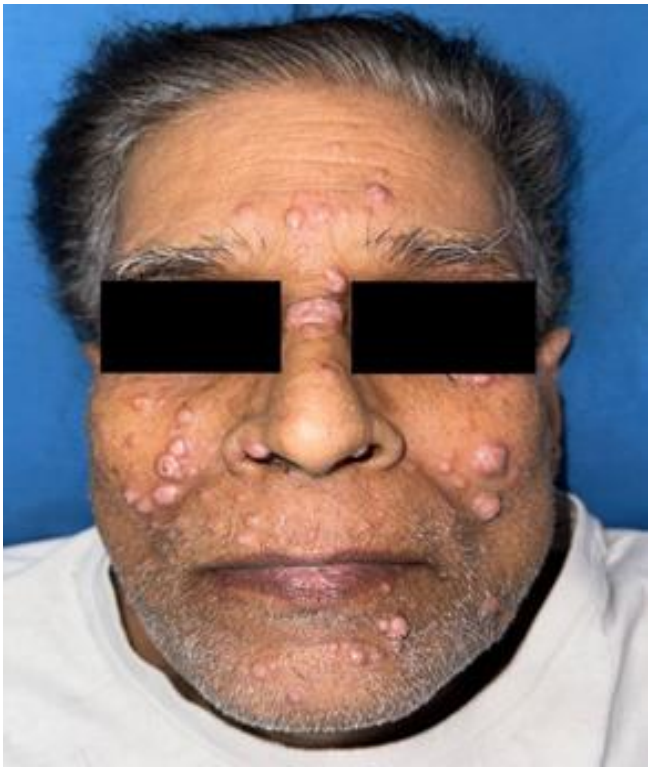

Figure 1: Clinical photo of the lesion.

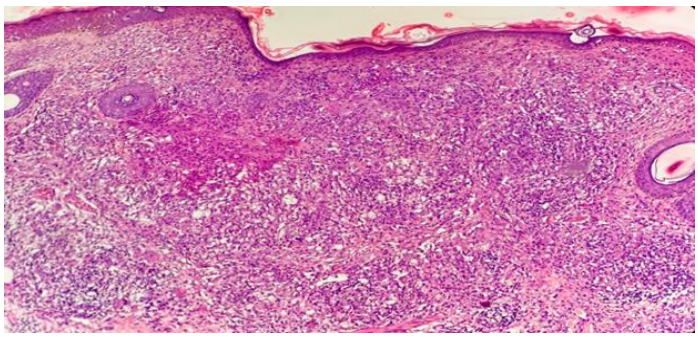

Figure 2: H&E stain (4X) Shows skin showing thinned out epidermis with dermis showing dense chronic inflammation.

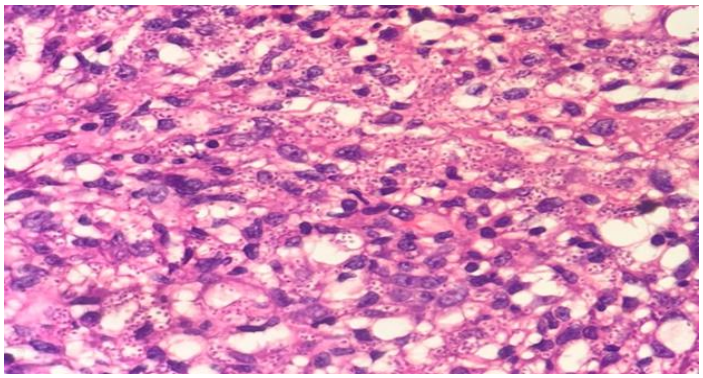

Figure 3: H & E stain (1000X) shows multiple yeast forms of Histoplasmacapsulatum, extracellularly and within histiocytes.

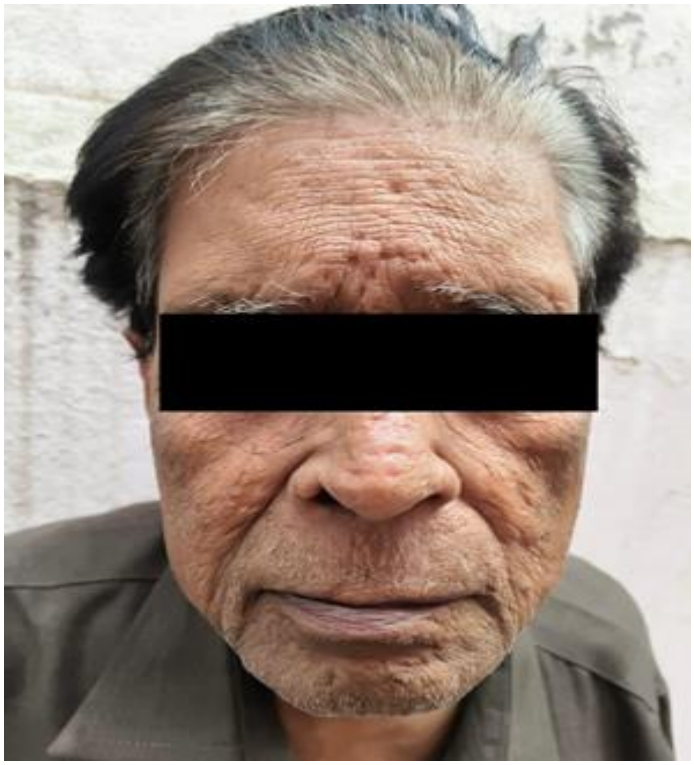

Figure 4: Clinical photo after treatment completion.

Discussion

Primary (cutaneous) histoplasmosis is definitely uncommon in a normal immune host. Direct fungal inoculation may be possible

in cases of minor, unnoticed trauma, especially in an endemic environment. Lesions reported are nodules, plaques, ulcers, verrucous growths and molluscum-like papules. The diagnosis was a challenge in our patient due to the presence of facial nodules with central umbilic. Systemic involvement and/or symptoms were lacking, unlike disseminated histoplasmosis.

This is also stressed in recent literature, as in apparently healthy hosts very small patients may Recent literature also emphasizes that elderly patients may demonstrate subtle immune senescence despite the absence of overt immunodeficiency, making fungal infections possible even in apparently healthy hosts. Therefore, age alone should not exclude suspicion of opportunistic mycoses.[2]

Primary cutaneous histoplasmosis' differential diagnosis is wide, as the clinical features are not pathognomonic and may mimic a multitude of infectious and non-infectious causes. Hence a diagnosis can be established in a decisive manner with the aid of histopathological examination and staining tests for fungi.

Histoplasmosis can look very similar to Molluscumcontagiosum since both diseases have umbilicated papules or nodules. The Henderson–Patterson bodies present in keratinocytes of molluscumcontagiosum, however, and the dermal infiltrate is absent of fungi.

Another point is of importance, which is the presence of Cutaneous Leishmaniasis, especially in endemic areas. Both diseases can have similar lesions characterized by infiltration of the dermis with macrophages and small intracellular organisms. Leishman – Donovan bodies and a valid clinico-geographic correlation help to differentiate leishmaniasis from histoplasmosis.

Chronic plaques or nodules may occur with cutaneous tuberculosis, specifically lupus vulgaris. Histologically, these lesions tend to have epithelioid cell granulomas and Langhans giant cells with granulomatous inflammation, while in histoplasmosis there are many yeasts in the intracellular space that stain with PAS and GMS stains.

Cryptococcosis is an important histological differential diagnosis since both diseases may be seen in the tissues with yeast forms. Cryptococcus neoformans, however, is characterized by large yeast forms and typical staining characteristics such as mucicarmine positivity, which are caused by its thick mucopolysaccharide capsule. Although it may appear that Histoplasmacapsulatum has a capsule, it is actually not a true capsule.

Sporotrichosis may present with nodular lesions and lymphatic spread. Histopathological sections usually reveal suppurative granulomatous inflammation, while fungal organisms are generally sparse and morphologically distinct from Histoplasma.[3]

Sarcoidosis may clinically manifest as papules, nodules, or plaques involving the face. Histology typically reveals non-caseating granulomas without demonstrable microorganisms, allowing exclusion through special fungal stains and clinicopathological correlation.[3]

These conditions were ruled out by the histopathology and fungal stain.

Conclusion

In an immunocompetent older patient with unexplained nodular, umbilicated or plaque-like lesions over the face primary cutaneous histoplasmosis should be considered. Fungal staining should be done as early as possible as diagnosis is vital and will prevent unnecessary antibiotic or anti-tubercular treatment. When itraconazole is used promptly, it is likely to have a favorable outcome.

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Conflicts of interest

There are no conflicts of interest.

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