Adrenal Histoplasmosis : A Case Report

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ABSTRACT

Introduction: Histplasmosis is caused by *Histoplasma capsulatum*, a dimorphic saprophytic fungus. It primarily causes pulmonary infection, it may cause disseminated disease in immunocompromised patients. In rare instances immunocompetant individuals may also be affected. The adrenal gland is commonly affected in disseminated histoplasmosis. In our report too, the patient presented with an adrenal SOL which was later diagnosed as histoplasmosis.

Case report: A 39 year normotensive, nondiabetic patient presented with loss of weight and pain in the flanks. Radio imaging showed a heterogenous mass with solid and cystic portions. A complete work up was done to exclude pheocromocytoma or any other hormone secreting tumour and the patient agreed to be operated upon. However during retroperitoneoscopy, needle aspiration of the mass showed pus. The pus was sent for aerobic culture. Biopsy was taken from the margins of the lesion. Histopathological study confirmed adrenal histoplasmosis.The patient was treated with itraconazole and responded well.

Discussion: In addition to primary tumors, metastasis, tuberculosis, fungal infections like disseminated histoplasmosis may affect the adrenal glands.

Conclusion: Hence whenever a patient with bilateral adrenal masses is encountered, physicians should always be alert and think of adrenal histoplasmosis too, to avoid fatal complications and unnecessary procedures.

Keywords: Adrenal Gland, Histoplasmosis, Itraconazole, GMS stain, Adrenal Tumor

INTRODUCTION

Histoplasmosis was first described a little over a century ago by an American physician, Samuel Darling. It is caused by *Histoplasma capsulatum* which is a dimorphic, saprophytic fungus.[1] Infection with *H. capsulatum* occurs during day-to-day activities in areas where *H. capsulatum* is highly endemic that is, activities which disrupt the soil or in caves where bats have roosted.[2]

It is primarily a pulmonary infection often asymptomatic or presenting as a self-limiting flu like illness.[3] But in immunocompromised patients, the organism may continue to reproduce intracellularly and spread throughout the body via lymphatic and haematogenous routes.[4] This leads to disseminated histoplasmosis. Disseminated histoplasmosis may mimic metastasis. Though it generally occurs in immunocompromised patients , there has been instances that it has reported in immunocompetant patients.

Adrenal gland is one of the most commonly involved sites in disseminated histoplasmosis. So a complete work up is required to come to the correct diagnosis.[5]

In our case too, the patient presented with bilateral adrenal SOL but biopsy and histopathology examination confirmed Histoplasmosis.

CASE REPORT

A 39 year old non diabetic normotensive male patient presented to the urology outdoor with bilateral flank pain and weight loss of 24 kg in the past 9 months.

He had already undergone radio imaging.

USG finding revealed bilateral suprarenal heterogenous solid and necrotic mass (left side 120*65 mm and right side 40*27 mm)- likely adrenal in origin. This was confirmed by CT scan which showed a SOL containing both solid and cystic components. The solid component showed enhanced homogeneity. No fatty component or calcification was there.

He was referred to the endocrinologist. A complete work up was done.

Free plasma metanephrine, normetanephrine, 3 methoxytyraminewere within normal limits.

24 hour urinary cortisol was 295 mcg/dl (4.3 -179)

DHEAS was 2.05mcg/dl and cortisol 14.9 mcg/dl.

So there was no clinical or biochemical evidence of pheochromocytoma or any other hormone secreting tumour.

2D ECHO of the heart showed hypokinetic basal and lateral wall. LVEF was 63%.

Examination by cardiologist confirmed global normal left ventricular systolic function with regional wall motion abnormality, and the patient was cleared for surgery.

The patient was explained the risk of surgery and lifelong need of steroids. After taking due consent, the patient was admitted. RT PCR test for Covid was negative and routine preanaesthetic check up was done.

Retroperitoneoscopy showed a large indurated mass pushing the left kidney down and laterally with dense adhesions to the transverse mesocolon and pancreas.

On needle aspiration, frank pus (about 200 ml) was drained and sent for culture sensitivity and fungal stain.

Biopsy was taken from the margins of the lesion.

Pus sent for aerobic culture revealed no growth after 48

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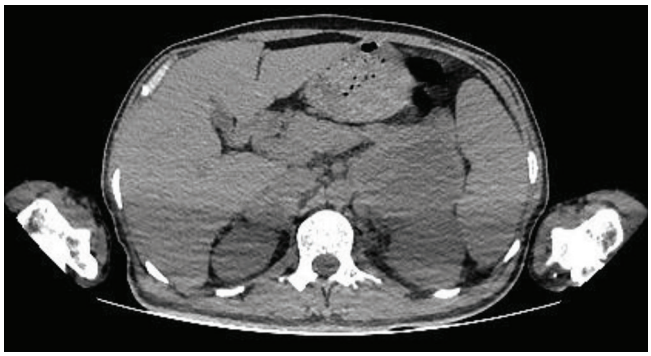

Figure-1: CT scan of abdomen showing enlarged bilateral adrenal glands with peripheral rim enhancement.

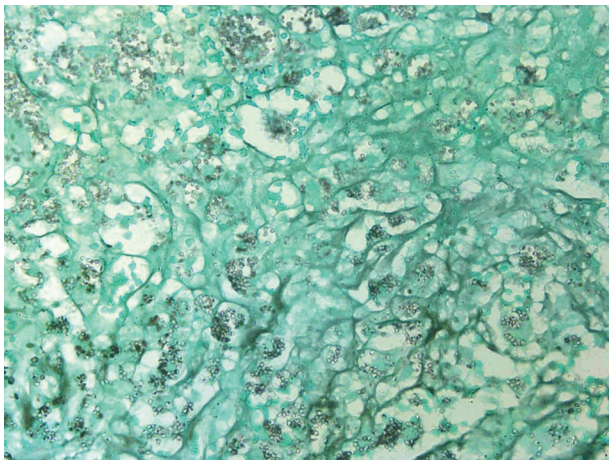

Figure-2: Histopathology smear showing both intracellular and extracellular yeast cells in a necrotic background (GMS stain, x100)

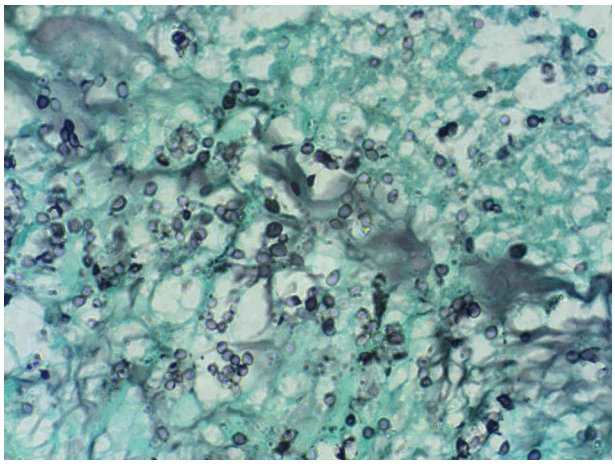

Figure-3: Histopathology smear showing yeast cells with occasional budding (GMS stain, x1000)

hours. Fungal stain did not reveal any positive findings. Biopsy had the following findings

Gross appearance: Marginal tissue taken as biopsy. Multiple fragmented tissue pieces measured 2.5x2x1 cm.

Microscopic features: Section showed multiple fragments of fibro collagenous tissue with several palisading granulomas containing giant cells & extensive central necrosis. Numerous spherical intracellular and extracellular organisms consistent with Histoplasmosis was detected which were positively stained with GMS(Grocott –Gomori methenamine silver) stain. ZN stain was non contributory

Impression: Adrenal Histoplasmosis.

The stay in the hospital was uneventful and patient was discharged in stable condition. He was prescribed cefuroxime(for 5 days) and itraconazole. He was asked to come for follow up to the urology and endocrinology outdoor for follow up after 4 weeks.

On follow-up , it was found the patient was doing well and had gained 1 kg in one month. The wound was healthy and vitals stable. The patient was advised to continue with itraconazole and to be in regular follow up.

DISCUSSION

There are three major clinical presentations of Histoplasmosis - pulmonary, progressive disseminated and primary cutaneous histoplasmosis.

Pheochromocytoma was ruled out based on absence of hypertensive spells and normal urine metanephrines. Instead of image guided biopsy, open surgery was planned, after obtaining due consent from the patient.

Needle aspiration of the lesion showed frank pus. Abdomen was closed after obtaining material from the margins, for biopsy.

Typically, patients with Adrenal histoplasmosis has diverse manifestations which could be grouped into: (I) isolated foci of parasitized macrophages, (II) extensive necrosis with bilateral adrenomegaly, (III) infarction, (IV) granulomatous infection and (V) calcified lesion mimicking tubercular or metastatic lesions.[6]

Finding the distinctive, oval, narrow-based budding yeasts allows a tentative diagnosis of histoplasmosis.[7] Other organisms can mimic the appearance of *H. capsulatum* in tissues, but generally, the clinical picture will separate histoplasmosis from the others. *Leishmania* has kinetoplasts present in the small intracellular protozoa, and leishmaniasis can be differentiated clinically in most cases. *Candida glabrata* does not cause the same clinical syndrome as histoplasmosis. Other yeasts that cause symptoms similar to those of histoplasmosis have different appearances on histopathological examination.

In our case, section showed multiple fragments of fibro collagenous tissue with several palisading granulomas containing giant cells & extensive central necrosis. Numerous spherical intracellular and extracellular organisms consistent with Histoplasmosis was detected (GMS stain was used).

For moderate to severe disseminated infections, the Infectious Disease Society of America recommends liposomal amphotericin B followed by itraconazole, although itraconazole therapy alone is often sufficient for milder cases.[8] It is widely recognized that a prolonged treatment of at least 1 year is necessary as it may persist latently within the human body.[9]

In our case too, itraconazole was prescribed, and the response was favourable.

Adrenal infection is a common site of dissemination. This is

more in immunocompromised patients (Jaiswal et al., 2011) or in extreme of age.Our patient however was 39 years of age and was immunocompetant.[10]

Our patient , too did not show signs of adrenal insufficiency.

CONCLUSION

When we consider the differential diagnoses for unilateral or bilateral adrenal masses found on imaging, we immediately think of primary tumours or metastases, M. tuberculosis, and non-Hodgkin lymphoma. However, histoplasmosis, other fungal infections (blastomycosis, paracoccidioidomycosis, cryptococcosis, and coccidioidomycosis), sarcoidosis, subacute adrenal hemorrhage, and adrenal abscess must also be considered.[10,11]

Furthermore, given that mycobacteria and fungi are the most common microorganisms to

disseminate, cultures should be prepared for these two groups of organisms from the aspirate.[12,13]

Adrenal involvement may occur in dissiminated Histoplasmosis, even in immunocompetent patients.[14] The cause of Histoplasma tropism for the adrenal gland is unclear. It is hypothesized that the glucocorticoid-rich adrenal cells and the relative scarcity of reticuloendothelial cells contribute.[15] Adrenal involvement also presents a unique danger; chronic infection causes the adrenal glands to atrophy and calcify, which can result in adrenal insufficiency. Hence whenever a patient with bilateral adrenal masses is encountered, physicians should always be alert and think of adrenal histoplasmosis too, in addition to other possibilities. It is imperative to obtain a cytological or histopathological examination in conjunction to other tests to confirm the diagnosis so that the appropriate treatment can be instituted at the earliest to avoid unnecessary procedures and fatal complications. Hence, accurate diagnosis with close follow up is mandatory.

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