

Coccidioidomycosis Presenting As A Conjunctival Mass: A Case Report

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Abstract: Coccidioidomycosis is dimorphic fungus that is confined primarily to the western hemisphere. The infection is acquired by inhalation of infective anthroconidia of coccidioidomycosis. The diagnosis of coccidioidomycosis may be done by culture, molecular technique, or histopathology of tissue showing characteristic spherule. Disease in non endemic area is reported very rarely. Here we present a case of 10 year old male child with conjunctival mass which histologically shows coccidioidomycosis spherule and positive serum IgG antibodies for it who had no history of travel to endemic zones.

Keywords: Coccidioidomycosis, Coccidioides, Conjunctival mass, Histopathology, incidence, risk factors.

I. Introduction

Coccidioidomycosis, commonly known as valley fever or San Joaquin fever, is caused by dimorphic soil-dwelling fungus coccidioides. The fungus is endemic to arid region of Mexico, Central and South America and South-western United State¹. The anthroconidia are infective stage of fungus and if inhaled by susceptible host, initiate infection. Symptomatic patients typically experience a self limited influenza-like illness, but some develop severe or chronic pulmonary disease, and less than 1% of patients experience disseminated disease. Conditions that blunt the host immune response may lead to a higher incidence of clinically significant ocular involvement. Although relatively rare, ocular coccidioidomycosis has been diagnosed not only in patient with progressive disseminated illness but also in patients with very little or no systemic involvement and we here presenting the same.

II. Case Report

A 10 year old male child came to our institution with complaint of growth in the lower lid of right eye which was progressively enlarging since 2 years. The child had no history of fever, night sweat, weight loss or tuberculosis. On examination, the mass present on right eye, lower palpebral conjunctiva measuring around 1.5x0.5 cm. Patient was advised following investigation and consulting surgeon had planned for surgical excision of the mass.

The test result were TLC 12.74, DLC N-65.9%, L-18.3%, M-6.8%, EO-8.9%, BASO-0.1 %, HGB 12.4gm/dl, PLT-4,22,000. Report of fasting blood sugar, ESR, bleeding and clotting time was also within normal limit. Chest X-ray was normal. Surgical excision was done and we received mass for histopathological examination.

H & E staining can distinguish characteristic coccidioidomycosis spherules from budding yeast forms of Cryptococcus, Blastomyces, and Histoplasma. Intact sporangia elicits granulomatous reaction containing histiocytes, eosinophils, epithelioid cells and giant cells of foreign body or langhans type. In our case on H & E staining, we found coccidioidomycosis spherule with granulomatous reaction. On further investigation of serum for IgG antibodies for coccidioidomycosis, it was found positive, further confirming our diagnosis.

III. Discussion

Coccidioides is dimorphic fungus, which occur as mold in soil and in culture at 25⁰C and as spherule in tissue and culture at 37⁰C². C.immitis and C.posadassi are the two existing species which are indistinguishable with regard to clinical disease and routine laboratory test. Coccidioidomycosis is confined to western hemisphere between latitude of 40⁰N to 40⁰S. In the U.S, it is most notable in San Joaquin Valley of California and Arizona³. Infection follows inhalation of just few anthroconidia and non respiratory routes have also been reported (in utero exposure, animal bite have been reported, these are rare⁴).The incidence of coccidioidomycosis in non endemic zones appears to be increasing, and pose unique clinical and public health challenge.

The risk of infection is increased by direct exposure to soil harbouring coccidioides. Climatic factors that are required for growth of organism is responsible for its endemic nature and also for rare coccidioides

cases reported in india. The group at risk of infection are persons with intense exposure to aerosolized anthroconidia : agricultural or construction workers, diabetics, transplant recipients, pregnant woman, members of certain ethnic group, and individual with immune suppression⁵. Immunosuppression is the major factor associated with poor output including hospitalization and disseminated infection or both⁶.

More than half of the cases are asymptomatic and have self limited respiratory tract infections. Few people develop pulmonary disease and in less than 1% cases, the infection may become disseminated, with extension to visceral organ, meninges, bone, skin, lymph node, subcutaneous tissue.

The true incidence of ocular coccidioidomycosis is unknown. In one series of 10 of patients with disseminated disease, 4 developed evidence of choroidal involvement over a 12 months of period of observation. Ocular involvement occurs secondary to dissemination and is considered rare⁷. Furthermore, eye findings have been reported as the only manifestation of dissemination⁸. The eyelids and conjunctiva are most common site of involvement.

Serology plays important role in establishing the diagnosis of coccidioidomycosis. Enzyme immunoassay (EIA) is most frequent method to detect the serum tube precipitating antibodies that are IgM antibodies which appear within first week of infection. IgG antibodies detected by complement fixation appear later, detected in 85-90% of patients.

For fixed tissue (biopsy specimen), H & E demonstrate spherules filled with endospores with granulomatous reaction of histiocytes, epithelioid cells and giant cells (shown in Fig1 and Fig2). *Coccidioides* grows within 3-7 days at 37°C on variety of artificial media. Therefore , it is always useful to obtain samples of sputum or other respiratory fluids. Also examination of sputum or respiratory fluids after papanicolaou or Gomori methenamine silver staining reveals spherules in significant proportion of pulmonary coccidioidomycosis.

Intrathecal or intraventricular amphotericin B is the drug of choice for coccidioid meningitis⁹. Most cases of disseminated disease require prolonged triazole therapy. The prognosis in patient with severe ocular coccidioidomycosis is often poor. Most eye require enucleation due to pain and blindness despite aggressive treatment¹⁰.

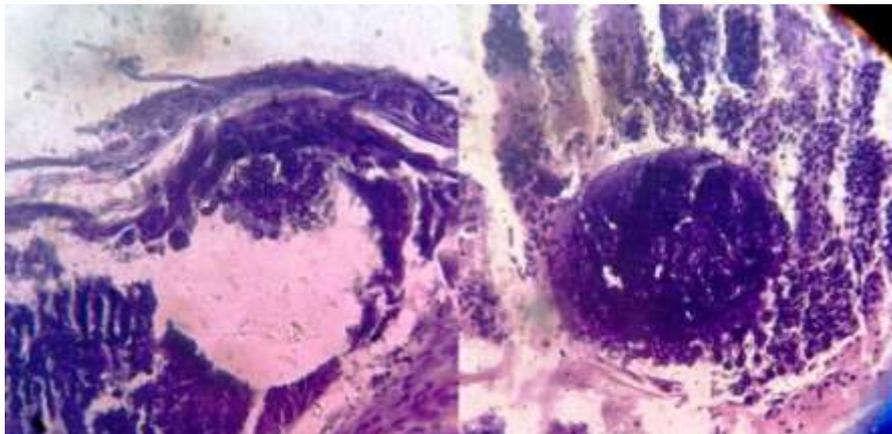


Fig.1 left: (H&EXHP) showing bursting of coccidioidomycosis spherule.

Right: Intact spherule with endospore

Fig.2 (H&EXLP) Showing spherule filled with endospores eliciting granulomatous reaction.



IV. Conclusion

Coccidioidomycosis is extremely rare in non arid soil of India. Also in our case child has no history to travel to endemic zone. The case is being reported for its rarity and diagnosis is established by characteristic spherules in H and E staining and positive serum IgG antibodies.

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