



HISTOPLASMA CAPSULATUM OF THE AORTIC VALVE – REPORT OF A CASE WITH REVIEW OF LITERATURE

Dr. C. Arshad Akeel*	MD (Gen Med), FRCP, Senior Consultant, Department of General Medicine, Apollo Main Hospital, Greams Road, Chennai *Corresponding Author
Dr. Meeranghani Mohammad Yusuf	FRCS(CTh), Senior Consultant, Department of Cardiothoracic Surgery, Apollo Main Hospital, Greams Road, Chennai
Dr. Padmanabhan	MD (Gen Med), Registrar in General Medicine, Apollo Main Hospital, Greams Road, Chennai

ABSTRACT Histoplasma capsulatum is a thermally dimorphic fungus that is notably endemic in Mississippi and Ohio River Valley in the United States and Rio de Janeiro in Brazil and occurs in microfoci elsewhere. In symptomatic patients histoplasmosis most commonly causes a self-limiting subacute pulmonary illness. Histoplasma capsulatum infective endocarditis is a rare manifestation of infection. We report the clinical presentation as well as diagnostic and histopathological findings of confirmed Histoplasma capsulatum infection of the aortic valve in a 59yr old immunocompetent male in whom the Histoplasma antigen assay and fungal blood cultures were negative. The diagnosis was made by microscopic examination and culture of the excised valve.

KEYWORDS : Aortic valve, fungal endocarditis, Histoplasma capsulatum hyphae, immunocompetant.

Introduction:

Infection with Histoplasma capsulatum is a rare cause of fungal endocarditis. It is an infrequent cause of native and prosthetic valve endocarditis^[1], endarteritis, infected aortic aneurysms and endovascular graft infections. The diagnosis of Histoplasma endocarditis is challenging because the automated blood culture systems, that are commonly used do not favor the growth of microorganism. Many cases have been identified only at autopsy^[2]. Infection is also seen in persons travelling to areas where H.capsulatum is endemic^[3]. Infections have been reported on both native and prosthetic valves. Diagnosis is often delayed since >80% of cases have negative blood cultures and lack of timely diagnosis and appropriate antifungal therapy leads to high mortality.

Case Report:

A 59 yr old male, a nonalcoholic and recently diagnosed diabetic presented with complaints of high grade intermittent fever of 3 months duration associated with significant weight loss of 10kg. A week prior to his admission he gave history of Transient Ischemic attack with loss of speech and recovered within a day. No history of travel to endemic area. Examination revealed an early diastolic murmur in the aortic area. No other localizing signs or symptoms nor were there any peripheral stigmata of infective endocarditis or signs of heart failure identified. All other hematological and biochemical parameters were within normal limits. Patient was tested negative for HIV. Chest X ray was within normal limits.

A 2D Echo and color Doppler revealed vegetations on left coronary and non coronary cusps of the aortic valve measuring 1.7x0.5cms and 1.8x0.3cms respectively with aortic root abscess which was confirmed per-operatively [Figure 1]. MRI of the brain did not reveal any evidence of fungal foci. Blood cultures for bacterial growth and fungus were negative. The presumptive diagnosis was culture negative endocarditis. He was commenced on empirical antibiotics Vancomycin and Ceftriazone. In view of the persistent high grade fever with history of recent Cerebrovascular event and development of aortic root abscess the patient underwent an urgent aortic valve replacement by bioprosthetic aortic valve. The diseased aortic valve was removed and sent for histopathological examination which showed valve tissue with infiltration by inflammatory cells composed of neutrophils, lymphocytes, many multinucleated giant cells and spore forms of fungus consistent with morphology of Histoplasma [Figure 2 & 3]. Culture of the portion of aortic valve revealed many budding yeast like cells consistent with Histoplasma with sensitivity to Amphotericin B and Itraconazole.

The patient was commenced on antifungal therapy consisting of Amphotericin and Itraconazole, following which his fever subsided. He developed azotemia secondary to Amphotericin B which subsequently improved following titration of the dose. Patient made a steady recovery and was discharged with the advice to continue the above drugs for a period of 2 weeks. At follow up he was afebrile and

stable.

Discussion:

Histoplasma capsulatum most commonly causes disease of the respiratory tract. Other common manifestations of histoplasmosis include disseminated disease, mediastinal fibrosis and granulomatous mediastinitis. Endovascular and cardiac infections are rare but well established. A review of literature of the cases of fungal endocarditis reported from 1965 to 1995 identified H.capsulatum as the etiologic agent in 6% (15 out of 270 cases^[4]). In a 5 year study conducted by Pierrotti et al on fungal endocarditis only 2 of 152 cases (1%) were due to Histoplasma capsulatum^[5]. Focussing specifically on fungal prosthetic valve endocarditis histoplasmosis assumes a greater role. Boland et al reported that 3 out of 21 cases (14%) seen at Mayo Clinic from 1970 to 2008 were caused by H.capsulatum^[6]. A total of only 43 cases of Histoplasma endocarditis most reported as single cases have been reported in the recent years.

Diagnostic methods for Histoplasma capsulatum infection include serology, culture, and histopathology and antigen detection. An early diagnosis of H.capsulatum can be considered using antigen assays since material for culture is usually not available and when available the growth of H.capsulatum can take up to 4 weeks. Urine Histoplasma antigen has been reported to be positive for only one patient with endocarditis^[2]. In other published case reports of Histoplasma endocarditis, the antigen assay was not performed or reported. Antigen detection may be negative in immunocompetent patients with Histoplasma^[7].

Conclusion:

To conclude, Histoplasma endocarditis is a rare form of infection occurring on both native and prosthetic valves. Our case highlights the issues associated with the diagnosis which was potentially delayed because of the negative fungal blood culture and antigen test results especially in an immunocompetent patient. The consideration of H.capsulatum infection should be included as a part of management of patients with culture negative endocarditis

Figures with Legends :

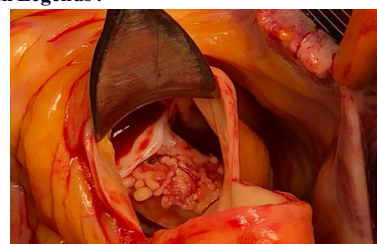


Figure 1: Gross appearance of the diseased valve per-operatively showing the bulky vegetations.

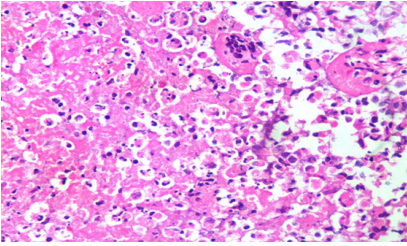


Figure 2: Microphotograph showing spores forms of fungus morphologically consistent with *Histoplasma capsulatum* and surrounded by inflammatory cells and multinucleated giant cells. [H&E 10X]

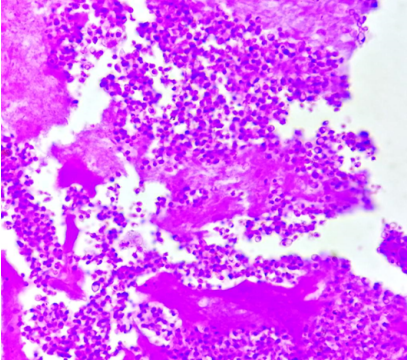


Figure 3: Special stain showing fungal spores which are PAS positive.

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