

**ASPERGILLUS FUMIGATUS CAUSING LEAD ENDOCARDITIS****Dr Mohammed Rafiyuddin**

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ABSTRACT

Invasive aspergillosis is an opportunistic infection with a high mortality rate that usually occurs in the immunocompromised host. Several cases of fungal infections have been reported after cardiac surgery. We present here a case of *Aspergillus fumigatus* tricuspid valve endocarditis associated with permanent pacemaker leads. Tricuspid valve vegetectomy was done and the pacing leads were also removed. Culture from the excised vegetation grew *Aspergillus fumigatus*. The patient was started on IV Amphotericin B for eight weeks. The patient was subsequently followed up in the out-patient clinic, and remains afebrile after one year, with no evidence of any vegetation.

KEYWORDS : *Aspergillus*, endocarditis,**Introduction**

Invasive aspergillosis is an opportunistic infection with a high mortality rate that usually occurs in the immunocompromised host.[1] Several risk factors have been associated with the acquisition of invasive aspergillosis, including neutropenia, cardiac surgery, organ transplantation and prolonged treatment, with high doses of corticosteroids or antineoplastic and immunosuppressive agents. Several cases of fungal infections have been reported after cardiac surgery.[2,3] The incidence of infective endocarditis in valvular prosthesis ranges from 7 to 25%.[4-6] The higher risk period comprises of the first six months following valvular replacement, with an incidence of prosthetic valve endocarditis ranging from 1.4 to 3.1% in the first year and decreasing to 0.35% after one year. Fungi may account for up to 10% of the cases, with a predominance of *Candida albicans* and *Aspergillus* spp.[4,7] The major predisposing factors for fungal infection are cardiac surgery, the use of intravenous drugs, prolonged intravenous antibiotic therapy, parenteral nutrition and severe immunosuppression. [2- 5] Systemic embolism, predominantly in the brain, is a frequent complication in this type of infection and occurs in 22 to 50% of the cases.[6] We present here a case of *Aspergillus fumigatus* tricuspid valve endocarditis associated with permanent pacemaker leads.

Case Report

A 65-year-old-male presented with complaints of moderate-to-high grade fever for the past four months in the emergency. He was a known case of coronary artery disease, hypertension and type 2 diabetes mellitus, controlled on diet. He had undergone a previous coronary artery bypass graft five years ago, and had also had a permanent pacemaker implantation five years ago at a different hospital. He was admitted to the hospital for evaluation of the pyrexia and further management. On physical examination at presentation, the patient's temperature was 100 F and blood pressure was 106/68 mm Hg. His heart rate and respiratory rate were 100/ min and 20/ min, respectively. Ejection systolic murmur in the mitral area was heard, with no other significant findings. The cardiovascular system was normal. Initial laboratory findings revealed a white blood cell count of 16,7005 mm³, renal function showed mild derangement with a serum creatinine of 1.5 mg/dL and a blood urea of 73 mg/dL, ESR of 50 and a CRP of 15.4 mg/dL. A chest radiograph showed a normal cardiac silhouette and clear bilateral lung fields. Electrocardiography was unremarkable. A transthoracic 2D echocardiogram revealed large vegetations on the tricuspid valve extending into the right ventricle and around the pacing leads. A previous recent blood culture had grown an *Enterococcus faecalis* sensitive to ampicillin plus gentamicin. The patient was started on ampicillin and gentamicin and was taken up for surgery for excision of the vegetations. Tricuspid valve vegetectomy was performed on cardiopulmonary bypass via the right atrium. The pacing leads were also removed and epicardial pacing wires were placed. Multiple blood cultures were taken during the hospital stay, but all were negative. Histopathology of the excised vegetation demonstrated septate branching hyphae suggestive of *Aspergillus*. Cultures of

portions of the vegetation grew *A. fumigatus*. In view of borderline renal function impairment, a decision was taken to start the patient on Amphotericin B 0.8 mg/ kg/ day for eight weeks, with weekly monitoring of renal and hepatic functions. Flucytosine was not used because of concerns about the pre-existing deranged renal function. Postoperative recovery was uneventful. A fresh permanent pacemaker implantation was completed during the same admission. The patient was discharged on the ninth postoperative day. The patient was subsequently followed up in the out-patient clinic, and remains afebrile after one year. The echocardiogram at this time shows a normal tricuspid valve with no evidence of any vegetation.

Discussion

After *Candida*, *Aspergillus* spp. is the major cause of fungal infection in cardiac valve prostheses and in the great vessels. *Aspergillus fumigatus* and *flavus* are the most common species. The incidence of fungal infection following implantation of a cardiac prosthesis is low, less than 0.1% per year.[6] Parenteral nutrition, immunosuppression, wide spectrum antibiotic regimens, intravenous drug addiction and cardiovascular surgery are risk factors in the development of fungal endocarditis.[5] The clinical findings may be similar to those of other types of infection; however, the presence of a valve or prostheses destruction, large vegetations and draw attention to the presence of fungus. Characteristically, *Aspergillus* spp. are usually not recovered from blood cultures; their isolation should be attempted from removed emboli, from the diseased valve or from infected foreign bodies.[4] Treatment is based on the administration of antifungal agents for a long period and on early surgical intervention. The medication of choice is intravenous amphotericin B (conventional or lipid-based) along with flucytosine, to be continued for six to eight weeks after surgical resection. [4- 6] Itraconazole can be used as an alternative for chronic suppression when the valve cannot be replaced. Newer agents like caspofungin and voriconazole have also been used as salvage therapy in invasive aspergillosis and show promise in the medical management of fungal endocarditis. Overall survival in patients with fungal endocarditis is rather poor, and hardly exceeds 50%.[1]

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