SHORT REPORT

Prosthetic Aortobifemoral Infection due to Histoplasma capsulatum

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Introduction

Infection of a prosthetic vascular graft is a serious complication of vascular surgery that carries high morbidity and mortality rates. Although a wide range of microorganisms has been implicated, graft infection is usually bacterial. Fungal prosthetic vascular infection is rare. Candida and Aspergillus species constitute most of the infecting organisms. In this report, we describe the first case of prosthetic aortobifemoral infection due to Histoplasma capsulatum outside an endemic area that was successfully treated with in situ allograft.

Case Report

A 66-year-old non-immunocompromised French male was admitted to the hospital because of fever, anorexia, and weight loss for one month. His past medical history was significant for an aortobifemoral prosthetic graft inserted four years before because of severe aortoiliac occlusive disease. The interval period since the surgery was eventless and the patient did not travelled outside the Lyon area. On admission, physical examination showed hepatosplenomegaly, lymphadenopathy and anal ulceration. Biopsy of this latter revealed an inflammatory infiltrate. Cultures were negative for bacteria and acid-fast bacilli but surprisingly positive for H. capsulatum, although the patient had never been in a known Histoplasma endemic region and the organism has not been identified elsewhere in the institution. A regional reference laboratory strengthened this result. Disseminated histoplasmosis was confirmed with adrenal involvement necessitating corticosteroids supplementation. Treatment with amphotericin B 1 mg/kg/d was used initially and then amphotericin B lipid complex at a dose of 5 mg/kg/d because of nephrotoxicity. Despite he received more than 2500 mg of amphotericin B, sepsis recurred one month later. In an effort to define an intravascular focus of infection, he underwent thoraco-abdominal computed tomography scan that showed an unusual inflammatory aspect of the aortic graft associated with a 30 mm retroperitoneal collection in proximity (Fig. 1). Percutaneous drainage yielded purulent materiel and methenamin silver staining demonstrated yeast forms compatible with H. capsulatum, despite the fact that the patient continued to receive high doses of antifungal therapy. Therefore, the patient was transferred to the operating room the next day. Surgical treatment consisted of radical debridement and revascularisation was performed by an aortobifemoral cryopreserved arterial homograft. During the operation, the periaortic tissue was notably inflamed. Operative specimens sent for fungal culture were again positive for H. capsulatum. After operation, he received a new therapeutic course of amphotericin B lipid complex. His general status improved gradually and he was discharged from the intensive care unit. Nine months after, he has had no recurrence of infection. Despite a deep investigation, it was impossible to clearly define how the patient becomes infected.
Discussion

Histoplasmosis is an inhalation-acquired mycosis which is asymptomatic in the great majority of individuals infected. Initial infection is through the lungs and is often subclinical. Hematogenous dissemination may occur, resulting in a disease with protean manifestations. The two factors that govern the degree of symptomatology are the quantity of inoculum inhaled and the immune status of the host. Thus, progressive dissemination occurs primarily in those who are immunocompromised or those at the extremes of age. This dimorphic fungus, meaning it can grow as mycelial form at ambient temperatures and as a yeast form at body temperature, is endemic surround the central river valleys of the United States and certain other river valleys of the world between latitude 45° North and 30° South of the equator. Precise reasons for this endemic distribution pattern are unknown. To our knowledge, based upon a MEDLINE review, our case represents the first report of Histoplasma capsulatum infecting an aortobifemoral prosthetic graft outside of an endemic area, and only the third case in the world. The previous two cases were reported from the United States and, as in our case, occurred in the setting of disseminated histoplasmosis. Unlike our patient’s case, replacement with a vascular prosthesis was done in the same anatomic location. In one of the two, despite administration of adequate antifungal therapy, infection persisted and the patient died. It is difficult to make definite conclusion regarding medical and surgical management of Histoplasma capsulatum-infected prosthetic vascular graft because of the few cases reported. However, nowadays standard management of aortic vascular graft infection involves complete excision of infected tissue and revascularisation via extra-anatomic pathways or with in situ allografts. Surgery should be completed by intensive care and aggressive supportive treatment in combination with antifungal therapy to optimised chances for cure. First-line treatment is amphotericin B given intravenously in a dosage of 0.7–1.0 mg/kg/d. When the patient’s situation improves until is able to take oral medications, itraconazole 200 po daily for 6–18 months may be substituted. Ketoconazole 400 mg po daily is also effective, less costly, but less well-tolerated. Fluconazole 400–800 mg daily is an alternative for patients who cannot take itraconazole. However, Histoplasma capsulatum may develop resistance during fluconazole therapy, leading to relapse.

This case highlights the possibility of Histoplasma capsulatum infection of a prosthetic vascular graft, an uncommon but devastating complication, in non-endemic areas.

References