Mediastinitis is a rare complication usually occurring early after heart transplantation. *Aspergillus fumigatus* has not been reported as a pathogen in this infection. We describe here the case of a heart transplant recipient who died from rupture of an aortic pseudoaneurysm caused by subacute *Aspergillus* mediastinitis.

**CASE REPORT**

A 51-year-old man underwent an orthotopic heart transplantation because of end-stage valvular cardiomyopathy. Immunosuppressive therapy was achieved with azathioprine (150 mg/day reduced to 100 mg/day after 15 days), cyclosporine (average dose of 300 mg/day adapted to blood concentrations), and methylprednisolone (500 mg the first day rapidly tapered down to 15 mg/day on day 30). Perioperative antimicrobial prophylaxis consisted of a 48-hour course of cefamandole 2 gm four times a day. On day 15, subcucardiac biopsy displayed moderate signs of graft rejection. The patient received treatment with co-trimoxazole (trimethoprim 160 mg/day, sulfamethoxazole 800 mg/day) for 20 days, until day 44, intravenously then orally with good response. From the third week after heart transplantation, the sternal wound appeared slightly inflamed. Gram-stained smears of the wound exudate performed on day 24 showed few polymorphonuclear cells and numerous fungal hyphae identified as *A. fumigatus* by culture. Because the patient remained well, no further investigation or treatment was undertaken, until fever up to 38.7°C and dorsal pain occurred on day 43. Physical examination remained normal, except for the unchanged moderate signs of inflammation of the sternal wound. Chest and dorsal spine roentgenograms were normal. The patient died suddenly on day 48. Postmortem examination revealed anterior mediastinitis with a ruptured pseudoaneurysm of the ascending aorta. Microscopic examination of the mediastinum and of the ascending aortic wall disclosed abundant hyphae of *Aspergillus* (periodic acid-Schiff coloration and argentie impregnation). No other site of *Aspergillus* infection was found.

**DISCUSSION**

The frequency of mediastinitis after sternotomy for cardiac surgery ranges from 0.4% to 4.5% with an average rate between 1% to 2%. Transplant recipients may be at increased risk insasmuch as this infection has been reported in 1% to 10% of such patients. Common hospital pathogens such as *Staphylococcus aureus*, *E. epidermidis*, *Enterobacteriaceae*, and *Pseudomonas* species are the most frequent pathogens. More rarely, *anaerobes*, *Mycoplasma hominis*, and atypical mycobacteria are detected. Fungal mediastinitis seems very rare. All the reported cases were caused by *Candida* species. In a recent review of postoperative *Candida* mediastinitis, Glover et al. described two cases and found only 37 other cases in the English language literature. Recently, a case of mediastinitis caused by *Aspergillus* was only mentioned (without any other data) in a series of surgical sternal wound infections. From March 1982 until December 1989, 180 orthotopic heart transplantations...
were performed in our institution. During this period, only one other patient developed invasive aspergillosis. He had pneumonia and meningococcal meningitis from *A. fumigatus* 1 month after transplantation and died from cerebral haemorrhage caused by a mycotic aneurysm. Between 1983 and 1990, no other case of Aspergillus infection occurred among the 3816 patients who underwent sternotomy in the same operating rooms. The use of high-efficiency particulate air filters has been found to reduce *Aspergillus* infection in bone marrow transplantation. However, considering the low incidence of Aspergillus complications observed in our transplanted patients, the use of this expensive prevention device does not appear to be justified.

Because invasive aspergillosis is most often initiated by pulmonary inhalation of airborne spores, the lungs are often the primary site of infection and the origin of the disseminated infection, as observed in immunosuppressed patients. A myocarditis caused by *A. fumigatus* secondary to a severe fungal pneumonia has been recently described in a heart transplant recipient. In contrast, in our patient, the mediastinum and the sternal wound were the unique infected sites. Therefore, the intraoperative seeding of the surgical field by *Aspergillus* spores seems the most probable route of infection. Such contamination of the surgical wound by *Aspergillus* has already been reported in both normal and immunocompromised hosts after vascular, abdominal, and neurologic surgery or after prosthesis implantation. In the same way, endocarditis, pericarditis, and sternal wound infection caused by *Aspergillus* have been reported after cardiac surgery. In two series, clustering of the cases suggests a common local source for these infections.

In wound infections after sternotomy, the distinction between superficial wound infection and mediastinitis is a difficult diagnostic problem. Sternal instability with purulent discharge associated with fever and signs of severe sepsis are classically described in mediastinitis. However, the local signs of infection may be initially subtle. In our patient, the insidious course of the infection despite high immunosuppression was particularly remarkable and the discretion of the clinical signs contrasted with the extension of the mediastinitis found at autopsy. The inflammatory signs of the sternal wound were minimal and fever and dorsal pain appeared only 6 weeks after surgery (5 days before death). However, culture of the wound exudate was already positive for *A. fumigatus* on day 24, and the superficial debridement of the sternal wound performed on day 42 showed signs of inflammation and abundant hyphae of *Aspergillus* on direct examination.

In immunosuppressed patients, the clinical manifestations of infection may not be evident. Moreover, infections may run a subacute course. Therefore, the clinicians must be aware of subtle infectious signs and the presence of potential pathogens even in presence of moderate growth in bacteriologic samples. In these situations, diagnostic tests or procedures as well as an aggressive treatment with surgical drainage and antimicrobial therapy must be performed. In our patient, computerized tomography of the mediastinum and reexploration of the deeper operative site could have provided earlier diagnosis and subsequent treatment.

In conclusion, we describe here the first case of fatal mediastinitis caused by *A. fumigatus* in a heart transplant recipient. A subacute evolution and the presence of minimal infectious signs were remarkable features of this case.

### REFERENCES

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