Aspergillus niger endocarditis in an immunocompetent patient: an unusual course

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Summary

***Aspergillus* is an opportunistic nosocomial fungus generally associated with a high mortality rate. *A niger* has been rarely associated with infection, and most cases have occurred in patients who have recently undergone heart surgery or in immunocompromised patients. We present a case of an immunocompetent patient with *A niger* endocarditis which illustrates the difficulties in diagnosis and the possible insidious course of fungal endocarditis.**

Keywords: endocarditis; *Aspergillus niger;* transoesophageal echocardiography

Aspergillus is an opportunistic nosocomial fungus generally associated with a high mortality rate.[1] While *A fumigatus* has been reported to be the most frequent cause of aspergillosis, *A niger* has been rarely associated with infection, and most cases have occurred in patients who have recently undergone heart surgery for valvular replacement and pacemaker implantation, as well as in patients with neoplastic diseases, intravenous treatment or drug addiction, long-term parental feeding and immunosuppression.[2]

The optimal therapy for *Aspergillus* endocarditis has not been established, but it usually requires combined aggressive medical and surgical treatment,[3] as high-dose amphotericin alone is ineffective because of the resistance of many *Aspergillus* species and poor penetration into tissues, while surgical treatment alone may be insufficient, as most patients have disseminated disease at the time of diagnosis.[3] The length of therapy, the efficacy of alternative modalities, such as liposomal amphotericin or new imidazole derivatives, are of unproved value as yet.[4]

We present a case of an immunocompetent patient with *A niger* endocarditis which illustrates the difficulties in diagnosis and the important role of repeated transoesophageal echocardiography (TOE) in proper management of infective endocarditis.

Case report

A 57-year-old man was admitted for malaise and fever of 5 days duration, 2 months after mitral valve repair for severe mitral valve prolapse and regurgitation. Apart from fever (38.5°C) and an apical systolic murmur, his physical examination was unremarkable. His blood pressure was 110/70 mmHg, the pulse rate 96 beats/min, and there were no signs of petechiae, splenomegaly, clubbing, or other signs of endocarditis. The chest X-ray and electrocardiogram were within normal limits. Laboratory results showed accelerated erythrocyte sedimentation rate (ESR 120 mm/h, Westergren) and mild normocytic, normochromic anaemia (haematocrit ratio 0.33). The urinalysis was normal, without haematuria, as were the results of serum biochemical profile. Seven blood culture sets were negative, as were serology for rickettsia and Q fever. At that time we performed TOE, which revealed a 4 mm mobile lesion on the mitral valve, suggestive of vegetation, but without evidence for valvular damage. With the diagnosis of culture-negative prosthetic valve endocarditis, vancomycin and gentamycin were administered and the fever subsided. After 2 weeks, low-grade fever reappeared, and the treatment was changed to vancomycin, ciprofloxacin and rifampin. After 6 weeks of parenteral antibiotic treatment the patient's general condition improved markedly, the fever and anaemia resolved and the elevated ESR decreased, and the patient, who was apparently cured, was ready to be discharged. However, to our surprise, a routine predischarge TOE demonstrated a marked increase in the vegetation to 11 mm, with a highly mobile appearance (figure 1). The patient was then referred for surgery, and a large friable vegetation on the mitral valve was found and excised.

Direct microscopy of the vegetation stained with 10% KOH-Quink revealed septate hyphae and culture grew *A niger* (figure 2). The patient had been treated with amphotericin for two

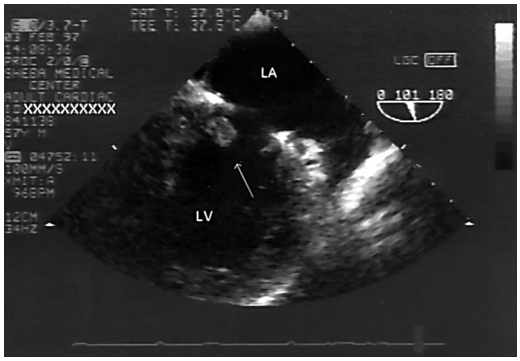

Figure 1 TOE after 6 weeks of antibiotic treatment showing the 11 mm vegetation (arrow). At that time the patient was afebrile, ready to be discharged

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Submitted 20 July 1999
Accepted 13 August 1999

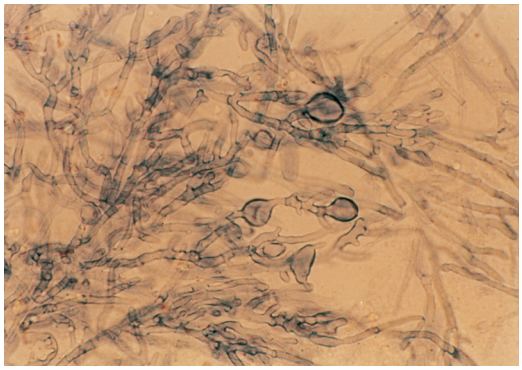

Figure 2 KOH-Quink stain of the vegetation showing septate hyphae typical of *Aspergillus* sp later defined as *A niger*. Orig × 40

months and subsequently with itraconazole for a year. A repeat TOE 6 months after surgery revealed only mild mitral regurgitation. At present, 16 months after surgery, the patient is doing well, without evidence of recurrence.

Discussion

The present case illustrates the difficulties in diagnosis and the possible insidious course of fungal endocarditis. The only predisposing factor for *A niger* infection in this patient was the open heart surgery. Only one previous report of a surviving case of *A niger* endocarditis has recently been reported.[5] As in the present case, the patient was immunocompetent. However, the present case is distinct for the 'benign' course and the apparent 'clinical cure' after 6 weeks of antibacterial treatment. The TOE findings were fundamental both in diagnosis and in our decision to refer the patient to immediate surgery. Indeed, TOE, as demonstrated in the present case, is a powerful diagnostic method, with an established accuracy for vegetations of over 90%.[6] Although stratification of patients into groups that are at high risk for systemic emboli and death according to vegetation size is still controversial, data from echocardiographic studies suggest that patients with vegetations > 10 mm in diameter are at increased risk of embolic complications, particularly when it involves the mitral valve or when it has a high grade of mobility.[6] Moreover, serial TOE examinations should increase the specificity and diagnostic accuracy of the findings and provide stronger instrument for decision making. In our patient, the vegetation size, its mobility and the involvement of the mitral valve, were all criteria which led us to refer the patient for surgery despite his excellent clinical condition.

In conclusion, we presented a case of *A niger* endocarditis who had had an insidious course and a favourable outcome of surgery combined with prolonged antifungal treatment. The case emphasizes the role of serial TOE in the diagnosis and management of patients with infective endocarditis, particularly in patients with culture-negative endocarditis.

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