Aspergillus prosthetic valve endocarditis

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Abstract. A 66-year-old man developed Aspergillus fumigatus endocarditis, complicated by an aortic root abscess 9 months after his aortic valve replacement with a Carpentier Edwards xenograft. The aortic root was replaced with an antibiotic-treated fresh homograft and anti-fungal chemotherapy commenced 24 hours later. One month after this he developed a retrosternal pseudo-aneurysm of the ascending aorta. At re-operation the homograft was heavily infected with fungal growths and the patient was considered inoperable. This case is an example of a rare condition complicating cardiac valve prosthesis which still has a very poor prognosis, despite any surgical and chemotherapeutic efforts. [Eur J Cardio-thorac Surg (1993) 7:50–51]

Key words: Prosthetic valve - Aspergillus fumigatus endocarditis - Replacement of prosthesis with homograft - Homograft aspergillus endocarditis

Case report

A 66-year-old man underwent aortic valve replacement with size 25 mm Carpentier Edwards supra-annular prosthesis for gross aortic regurgitation. Flucloxacillin and gentamycin were administered at the induction of anaesthesia and continued for 48 hours post operatively. He had an uncomplicated post-operative recovery and was discharged on the 9th post-operative day taking Aspirin.

Eight weeks after surgery he developed sudden loss of vision in his left eye. He also complained of malaise, weakness, loss of appetite, intermittent dyspnoea and low-grade fever. Subsequently he was readmitted to hospital where examination revealed mild anaemia and a temperature of 37.8 °C; a soft aortic systolic murmur and some fine crepitations of both lung bases. Both haematological and biochemical investigations were within normal range with a haemoglobin concentration of 11.0 g/dl and a white cell count of 16.6 x 10^9/l. Blood cultures were negative on four occasions. At this stage the ophthalmological diagnosis was left endophthalmitis (probably a metastatic infection; the prosthetic valve being the original source). However, the echocardiogram did not reveal the presence of any vegetation on the prosthetic valve. Left vitrous biopsy failed to isolate an intraocular pathogen. He was started on parenteral antibiotics, benzylpenicillin 1.8 g/day Flucloxacillin 2 g/day and gentamycin 80 mg bd with the probable diagnosis of prosthetic valve endocarditis.

A few days later he had another retinal embolus to the right eye and a splinter of the left little finger nail was noted. In view of a slowly deteriorating condition with the provisional diagnosis of non bacterial prosthetic valve endocarditis, it was decided to re-op-
Endocarditis due to opportunistic fungi is rare, but it is almost always fatal and forms one of the serious complications of open heart surgery [6]. Aspergillus species endocarditis on tissue valves is extremely rare [4]. Several reports have described endocarditis linked to the presence of aspergillus in operating room air-conditioning and hospital building reconstructions [1]. The frequent involvement of intra cardiac prostheses, as observed here is probably due to the avascularity of the prosthesis and lack of local immune defences. Spores implanted here would have a better chance to germinate. Extracorporeal circulation, the essential feature of these operations, can further compromise local and systemic immunity [7].

It is highly unlikely that the organism was present in the xenograft at the time of implantation because of the method of preparation and storage. In addition, the sterility records of this specific valve obtained from the manufacturing company excluded any potential possibility. There was no evidence of ear or nose infection in this patient to suggest an internal source.

The clinical diagnosis of Aspergillus endocarditis is usually difficult. Even in the presence of embolic episodes, blood cultures have been reported to be negative [5]. All too often, however, the diagnosis is made either on operation or on the autopsy table. Treatment is equally frustrating. Prolonged therapy with amphotericin B alone or in combination with 5-flucytosine or rifampicin are recommended but these drugs alone may not eradicate the infection.

Early surgical excision of the vegetations of any infected prosthetic valve together with antifungal chemotherapy may give the patient with fungal endocarditis the best chance of recovery from this otherwise almost uniformly fatal complication [9]. The surgical techniques attempted for better results were: the total replacement of the aorto-mitral curtain with pericardium so that the infected valve would not be anchored in clearly infected tissue [2]. Sub-coronary or supracoronary valve conduit insertion with exclusion of the infective cavities with pericardium or left ventricle-abdominal aortic valve conduit for advanced aortic root infection [3] is an attempt to isolate and exclude the infective focus from the circulation. Aortic valve-root replacement with a homograft prosthesis is a widely accepted method because of the theoretical advantage of the minimised reinfarction rate compared to other non-biological material and the practical advantage of flexibility in using the contiguous aorta and anterior mitral valve leaflet to repair an abscess cavity [10]. Despite these procedures, the overall prognosis is still very poor. The homograft aortic root replacement is not immune from becoming seriously infected [8]. In addition, the antimicrobials available for Aspergillus, as an adjuvant treatment to the homograft insertion, are quite toxic and the full dosage may barely provide fungicidal tissue concentration.

The aetiology of the original complication of our patient has remained, and will remain, obscure as is often the case in similar reports world-wide. The unfortunate progress with our patient is another example of this “malignant” and extremely rare complication, which has remained unchanged both in presentation and outcome for the last decade, giving the gloomy survival rate of not more than 5% [7] and it will remain so as long as early surgical intervention combined with chemotherapy offers the only hope of survival in these patients.

References