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LETTER TO THE EDITOR

Mycotic pseudoaneurysm as aortic complication after heart transplantation

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Infective pseudoaneurysm is a rare cause of aortic complications in immunosuppressed heart transplant patients. It is associated with a significant and early morbidity and mortality [1]. An unusual site of complication is the anastomotic suture line of the ascending thoracic aorta [2].

A 58-year-old man with previous pacemaker implantation, for complete atrioventricular block, underwent orthotopic heart transplantation for severe idiopathic cardiomiopathy: pacemaker was easily removed but one of the wires was not displaced because it was integrated into the vessel wall. No abnormalities in terms of antibodies between donor and recipient were detected in pretransplant evaluation.

Re-exploration of the pericardial cavity for bleeding was performed on third postoperative day (POD). From 27th POD, bradycardia and fever set in and antibiotic therapy with teicoplanin and meropenem was introduced. Blood culture was positive for methicillin-resistant Staphylococcus aureus (MRSA) and only intravenous teicoplanin was continued.

Refractory bradycardia was treated with intravenous atrially inhibited and rate-modulated pacemaker implantation on 36th POD. Further episodes of fever were encountered; however, the subsequent course was uneventful and the patient was discharged without complications. Two episodes of acute rejection >3A were detected and treated with i.v. steroids; after three other episodes of acute rejection <3A, cyclosporine was switched with tacrolimus along with mycophenolate mofetil and oral steroids.

Five months later, he was readmitted for fever and CT scanning revealed pneumonia with blood cultures proving positive for MRSA but no aortic pathologies were detected. Antibiotic therapy with levofloxacin and linezolid was started with complete recovery in patient condition and abating of fever.

Recurrent episodes of fever and positive blood cultures occurred and the hypothesis of an intravenous site of infection was considered because of fever recurrence in case of antibiotic suspension. Two structures were strongly suspected as possible sites of infection: the wire implanted after transplantation and the wire incarcerated into the vessel wall. On this basis, the patient underwent procedure for removal both of the pacemaker both of the wires. However, it was impossible to remove the wires already incarcerated into the vessel.

There were many other episodes of fever further that were treated with long-term antibiotic therapy. On January 2008, approximately 2 years after transplantation, echocardiography revealed pericardial effusion with evidence of infected vegetations on the pacemaker wires. Chest radiography showed an image indicative of pneumonia in the basal segment of the right lung without mediastinal mass. CT scanning, performed to confirm the suspicion of pneumonia, showed a 4.3×2.8 cm mycotic pseudoaneurysm at the posterior anastomotic site of the aortic anastomosis (Fig. 1). No signs of pneumonia were detected but just pulmonary congestion. Moreover, bacteriological exams did not reveal pulmonary infection.

The patient underwent surgical treatment. Mycotic pseudoaneurysm was identified as a round structure of approximately 4 cm in diameter starting from the posterior section of the aortic suture and extending towards pulmonary artery, which was compressed and weakened by the mass (Fig. 2). The ascending aorta was replaced with Dacron graft and the infected wires were completely removed. The antibiotic treatment with intravenous teicoplanin was continued postoperatively and the patient was discharged in 14th POD without complication. No other episode of fever occurred despite discontinuation of antibiotics and the CT scanning performed 6 months later, did not show any signs of infection.

The term mycotic aneurysm is used to describe any infection of the arterial wall other than syphilis [1]. Osler [2] first documented a mycotic aneurysm in 1885, developed from septic embolization caused by bacterial endocarditis.

Infective pseudoaneurysms are usually caused by haematogenous bacterial seeding to the intima or the vasa vasorum, lymphatic spread, extension of a contiguous extravascular infection, or traumatic inoculation [3].

In patients with mediastinitis, with inflammatory oedema of the tissues, pressure and stress may facilitate

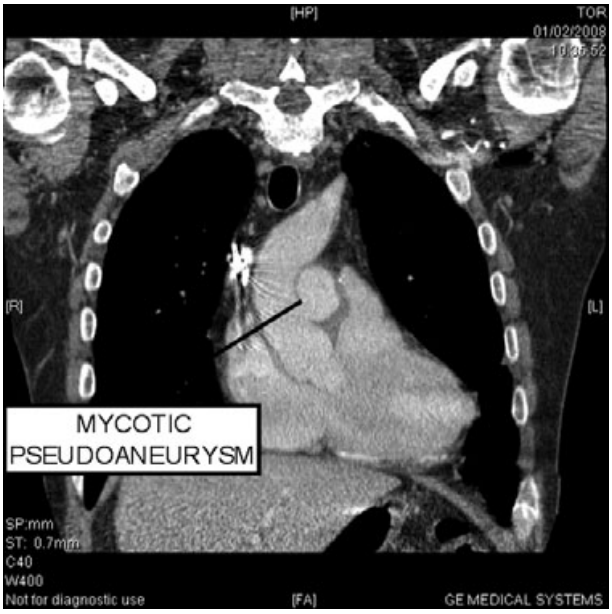

Figure 1 CT scanning shows a 4.3 × 2.8 cm mycotic pseudoaneurysm at the posterior aortic line of suture.

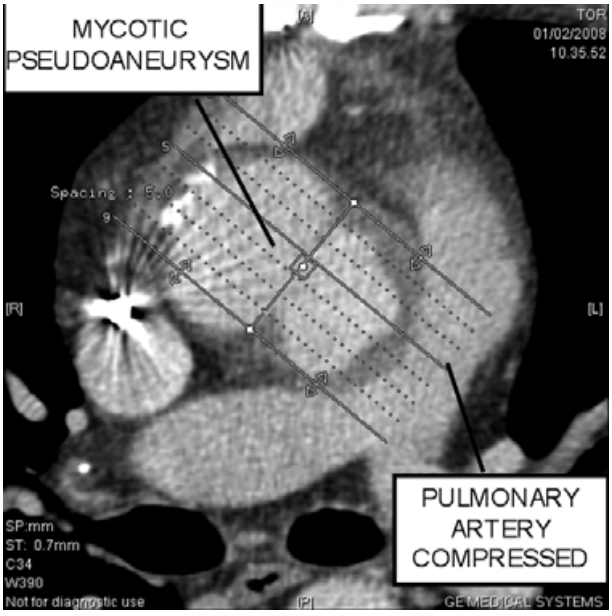

Figure 2 Surrounding tissues compression.

the development of pseudoaneurysm at the anastomotic site [4–5]. Mediastinitis is responsible for the formation of more than 50% of mycotic pseudoaneurysms, despite aggressive medical treatment [6].

A significant proportion of patients with mycotic aneurysm revealed a decreased immunocompetence. This is evocative of a higher risk of developing mycotic aneurysm in immunosuppressed transplant recipients [7]. However, we believe that no relationship between immunosuppressant trought levels and onset of infection existed in our case.

The most appropriate treatment of a mycotic pseudoaneurysm is debatable. Radical replacement of the diseased aorta with a graft should be a choice. Both homograft and Dacron graft have been used to treat infective pseudoaneurysms, even though individual surgeons have had preferences as to which graft is better to use. If the neck of the pseudoaneurysm is small and the surrounding aortic tissues are relatively preserved, a limited repair with a patch may be a possibility.

In conclusion, aortic mycotic pseudoaneurysm is a rare but troublesome complication following heart transplantation and it develops often consequent to mediastinitis. Antibiotic therapy alone is not curative. Early recognition and surgical intervention of the infected aneurysm is the key to successful management. Depending on blood cultures and sensitivity, a concurrent long-term antibiotic therapy is mandatory [5].

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