

## LATE ONSET OF ASPERGILLUS AORTITIS PRESENTING AS FEMORAL ARTERY EMBOLISM FOLLOWING CORONARY ARTERY BYPASS GRAFT SURGERY

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**Summary:** *Aspergillus sp.* are ubiquitous mould infections and in most patients, the source is presumed to be air-borne infections during surgical procedures. Prevention of these infections requires special attention of ventilation systems in operating rooms. Post-operative aspergillosis occurs mainly in immunocompromised patients as well as those who receive corticosteroids temporarily. We report a case of a 71-year-old immunocompromised patient who developed multiple lower limb embolisms due to *Aspergillus niger* originating from an aortitis of the ascending aorta nine months following coronary artery bypass graft (CABG) surgery.

**Key words:** *Aspergillus*; Aortitis; Cardiac surgery; Embolism; Amphotericin B.

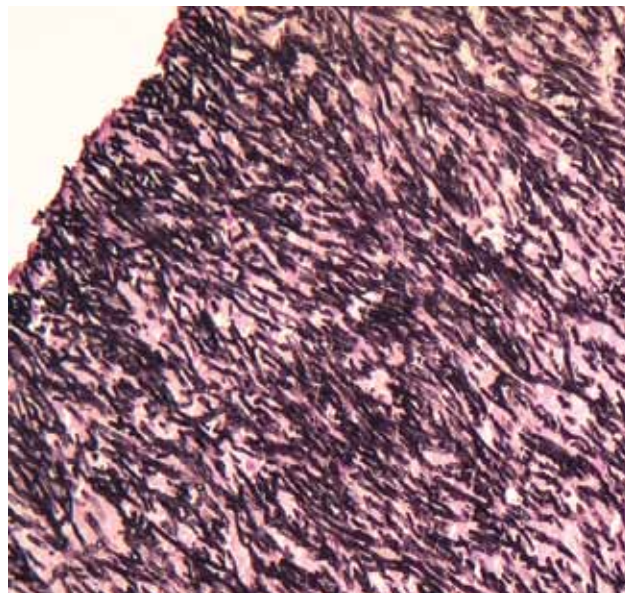
### Case history

A 71-year-old woman was admitted to our emergency department for an acute onset of a right lower limb pain. Her past medical history revealed essential hypertension, hypercholesterolemia, chronic renal failure, monoclonal gammopathy, idiopathic thrombocytopenic purpura and prophylactic splenectomy. Nine months prior to her admission, she had an aortic valve replacement and coronary artery bypass graft surgery. Her medications consisted of Aspirin 80 mg o.d., Furosemide 20 mg o.d., and Spironolactone 50 mg o.d. On admission, her blood pressure was 121/65, ECG tracing was 76/min and sinus, and had a pale, cold, pulseless right lower limb. Pathological blood results were: CRP 4.3 mg/dL (N < 1), hemoglobin of 8.8 g/dL (N: 12–16 g/dL), a hematocrit of 27.6% (N: 35–47%), a platelet count of 40,000/μL (N: 150,000–440,000/μL) and a white blood cell count of 14,700/μL (N: 3500–11,000/μL).

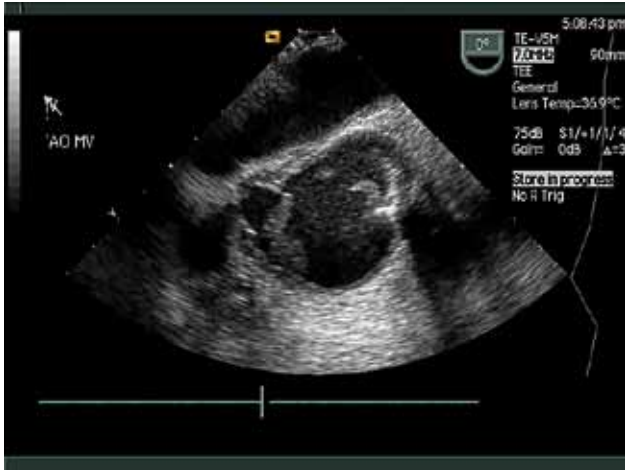
An Angio-CT scan of her right lower limb showed multiple emboli in her right superficial and deep femoral arteries as well as in her right popliteal and peroneal arteries and underwent successful Fogarty intervention. Femoral embolectomy specimens at histopathology showed septate dichotomously branching hyphae of *Aspergillus niger* (Fig. 1). Serum *Aspergillus* antigen index was 5.76 (N < 0.5) while blood cultures were negative.

A transesophageal echocardiography revealed a vegetative mass above her normal Carpentier-Edwards aortic prosthesis, without valvular leak (Fig. 2). She underwent a composite graft replacement of the aortic valve (Carpentier-Edwards by a St. Jude prosthesis), aortic root and ascending

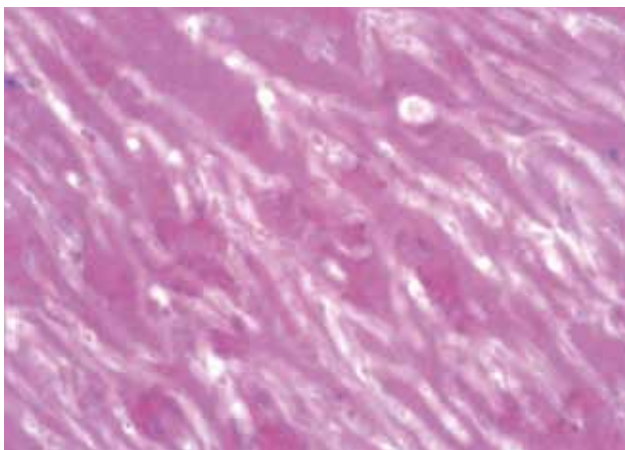
aorta, with re-implantation of the coronary arteries into the graft (Bentall procedure). The mycotic mass was removed *en bloc* as well as part of the ascending aortic wall and sent for histopathological examination which confirmed *Aspergillus niger* aortitis (Fig. 3). She responded well to intravenous Amphotericin B 1 mg/kg and left the intensive care department 8 days later. Unfortunately, 6 days after leaving the



**Fig. 1:** *Aspergillus* in thrombus: parallel hyphae with septa (Grocott stain, ×200)



**Fig. 2:** Transesophageal echocardiography showing a bilobar supralvalvular mass (25 × 13 mm) above the coronary sinus with thickening of the posterior aortic wall



**Fig. 3:** Dichotomous branching, hyphae not taking PAS-stain (PAS stain, ×400)

intensive care unit, while she was waiting in the radiology department for a routine chest X-ray, she had a sudden cardiac arrest and died.

### Discussion

We report the first case of post operative *Aspergillus niger* aortitis in an immunocompromised patient presenting as femoral artery embolism. Verghese *et al.* reported two

cases of post operative endocarditis due to *Aspergillus terreus* and *A. flavus* presenting as femoral artery embolism (1). Furthermore, Sanchez-Recalde *et al.* reported a delayed presentation of aspergillosis aortitis of 4 to 24 months post cardiac surgery with an incidence of 0.085% of aspergillus aortitis (2). Our patient presented multiple femoral embolisms due to an ascending aortitis with concentric thickening of the aortic walls colonized by *A. niger* nine months following CABG surgery. The aortic valve prosthesis was free of vegetation although fungal endocarditis tends to affect mostly aortic valve prosthesis.

We considered the patient to be at risk as she has low grade monoclonal gammopathy and had prophylactic splenectomy for idiopathic thrombocytopenic purpura 20 years ago. Damage to the aortic wall during aortic cannulation at the time of aortic surgery is recognized as a risk factor for intra-operative infection, as a result of contamination with airborne fungal spores. Laminar airflow ventilation systems reduce the risks of such contaminations.

The diagnosis of aortitis was made on the basis of culture of the embolectomy specimen. The diagnosis of *Aspergillus* aortitis is difficult because of the absence of endocarditis vegetation. This condition is better detected by transesophageal rather than transthoracic echocardiography, with magnetic resonance imaging and aortic angiography being useful adjuncts (2). Pasqualotto *et al.*, in a review of patients with aortitis due to *Aspergillus* aortitis following cardiac surgery reported an overall mortality rate of 92.7% (3). Moreover, in their study, 11.2% of *Aspergillus* aortitis were due to the *niger* species. Amphotericin B remains the treatment of choice while in cases of resistant strains, voriconazole is the antifungal of choice.

### Conclusion

Distal embolisms in immunosuppressed post operative cardiac surgery patients with low grade fever should be investigated for mould aortitis or endocarditis. Nonetheless, investigations of patients and ventilatory systems at surgery during the time frame of the surgical procedure of our patient failed to detect any fungal contaminants.

### References

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