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Case Report

Occult invasive aspergillosis infection following multivisceral transplantation

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ABSTRACT

Patients undergoing multivisceral transplantation are particularly susceptible to post-operative infections due to immunosuppression and the inclusion of bowel in the transplanted graft. These patients typically receive broad-spectrum antimicrobial and antifungal agents as prophylaxis and treatment. However, evidence for this is limited due to the small number of patients undergoing the procedure. We present a case of occult disseminated invasive aspergillosis infection in a patient who underwent multivisceral transplantation.

Case

A 53-year-old female, diagnosed with Crohn's disease in 1979, had a colonic perforation with peritonitis and was left with short bowel syndrome following surgery in 1989. She was dependent on parenteral nutrition but developed intestinal failure associated liver disease and underwent a multivisceral transplant (stomach, liver, pancreas, small bowel and colon) in December 2011. She was discharged home after 5 months.

Fifteen months post-transplantation she was readmitted with diarrhoea and nausea due to small and large bowel rejection. She failed to respond to increasing immunosuppression (methylprednisolone, tacrolimus, mycophenolate mofetil and infliximab) and so her transplanted colon was resected to facilitate reduction in her immunosuppression. She developed sepsis and was temporarily neutropenic, so received broad-spectrum antibacterial agents and fluconazole (due to an anaphylactic reaction to liposomal amphotericin B).

She developed multiorgan failure including a microangiopathic haemolytic anaemia requiring plasma exchange. Magnetic resonance imaging of her brain showed multiple small ischaemic lesions in the cortex and white matter bilaterally and a larger lesion in the right cerebellum, which was either haemorrhagic or an abscess (Fig. 1). A transthoracic echocardiogram showed no vegetations.

Two days later a serum galactomannan was performed which was positive (1.18 [normal range < 0.5], and sputum grew *Aspergillus fumigatus*; fluconazole was changed to posaconazole. Despite this the patient continued to deteriorate and died. Post mortem confirmed aspergillosis involving the brain, lungs and myocardium (Fig. 2).

Discussion

Invasive aspergillosis occurs in 1–15% of solid organ transplant recipients [1]. There are three case reports of invasive aspergillosis infection following multivisceral transplantation [2–4]. It should be considered in profoundly immunosuppressed individuals even after a significant time post-transplant.

We believe that mould-active prophylaxis should be considered in this group of patients as studies of the use of antigen tests (e.g. galactomannan) and nucleic acid amplification tests in solid organ

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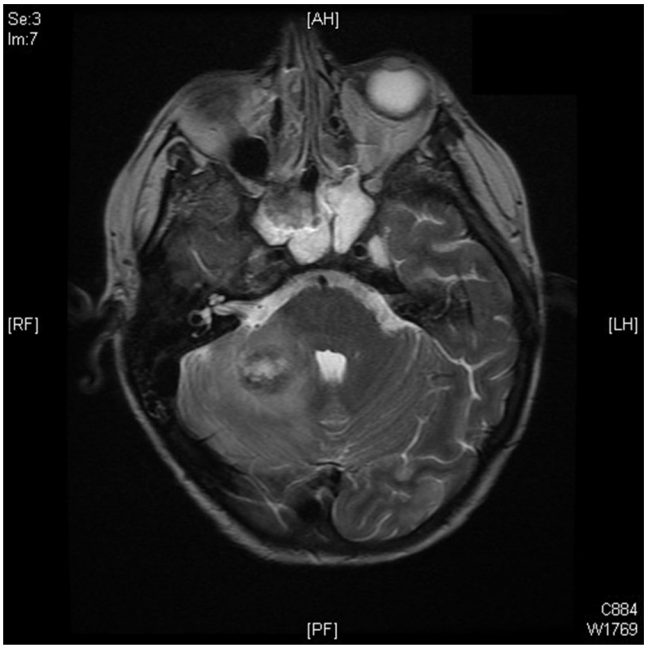

Fig. 1. MRI brain showing lesion in right cerebellum suggestive of haemorrhage or an abscess.

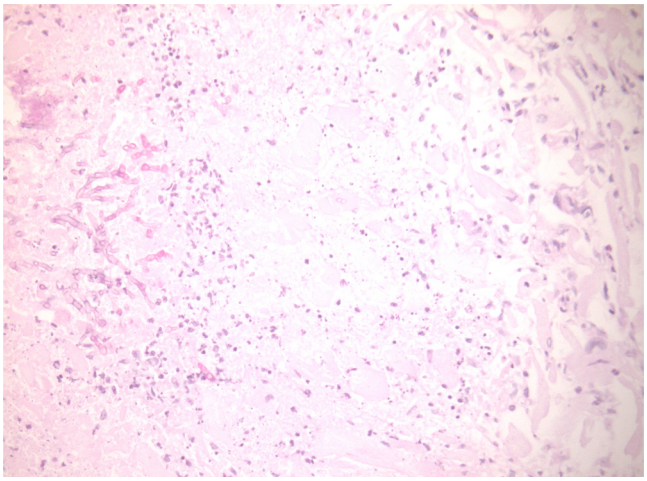

Fig. 2. Cardiac myocardium specimen showing fungal hyphae.

transplant recipients are limited [5] and have not been described in this population. In haematology patients, studies suggest normal neutrophil counts [6] and mould-active prophylaxis can reduce the sensitivity of this test [6,7]. It has been reported that they are less sensitive in other solid organ transplant recipients than in the stem cell transplant population [1]. The choice of antifungal can be difficult as some patients are intolerant to amphotericin B (including lipid formulations) and triazoles interact with many other agents.

Our patient demonstrated disseminated invasive aspergillosis infection more than 18 months post transplantation. This is later than has previously been reported in this patient group [2–4]. In addition, it was difficult to diagnose despite using galactomannan testing, imaging and a low threshold for therapy.

Transplant teams (including microbiology, infectious diseases and radiology) must be aware of the risk of mould infections in all patients undergoing multivisceral transplant and ensure adequate therapy is administered. Early diagnosis is also essential to improve prognosis.

Author contributions

Charlotte Rutter (first author, literature review,); Lisa Sharkey (reviewing author), Rui Gao (reviewing author), Charlotte Pither (reviewing author), Ashraf Ibrahim (reviewing author, provided histopathology image), David Enoch (reviewing author, literature review), Andrew Butler (reviewing author), Stephen Middleton (reviewing author). All authors have approved the final article.

Conflict of interests

The authors declare no conflict of interest.

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Ethics approval

Not required.

Consent

Written informed consent was obtained from the patient's next of kin for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

References

[1] Singh NM, Hussain S, AST Infectious Diseases Community of Practice. Aspergillosis in solid organ transplantation. Am J Transplant 2013;13:228–41.
[2] Viana R, Misra V, Fridell JA, Goldman M, Mangus RS, Tector J. Survival after disseminated invasive aspergillosis in a multivisceral transplant recipient. Transplantt Proc 2007;39:306–7.
[3] Kohler S, Gerlach U, Guckelberger O, Sauer IM, Jorres D, Neuhaus P, et al. Successful treatment of invasive spenoidal, pulmonary and intracerebral aspergillosis after multivisceral transplantation. Transplant Int 2009;22(5):589–91.
[4] Gerlach UA, Kohler S, Sauer IM, Joerres D, Kandziora F, Neuhaus P, et al. Aspergillosis spondylodiscitis after multivisceral transplantation. Ann Transplant 2009;14(4):52–7.
[5] Tabarsi P, Soraghi A, Mariani M, Zandian P, Baghaei P, Najafizadeh K, et al. Comparison of serum and bronchoalveolar lavage galactomannan in diagnosing invasive aspergillosis in solid-organ transplant recipients. Exp Clin Transplant 2012;10:278–81.
[6] Barton RC. Laboratory diagnosis of invasive aspergillosis: from diagnosis to prediction of outcome. Scientifica (Cairo) 2013;459405. http://dx.doi.org/10.1155/2013/459405.
[7] Leeflang MM, Debets-Ossenkopp YJ, Visser CE, Scholten RJ, Hooft L, Bijlmer HA, et al. Galactomannan detection for invasive aspergillosis in immunocompromized patients. Cochrane Database Syst Rev 2008;(October (4)):CD007394.