

## Disseminated *Aspergillus* infection in a patient with recently diagnosed advanced HIV

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### Case presentation:

A 60-year-old man presented to hospital with one week of dyspnoea and cough. His history was significant for chronic obstructive pulmonary disease (COPD) and HIV, diagnosed two months prior and had not yet commenced antiretroviral therapy. A chest X-ray identified right lower lobe opacities and he was commenced on intravenous ceftriaxone and azithromycin. His CD4 count was 154 cells/ $\mu$ L (10%) and HIV viral load 2,254 copies/mL.

Seven days later, he required intubation and admission to intensive care for progressive respiratory failure. His antimicrobials were changed to piperacillin/tazobactam, trimethoprim/sulfamethoxazole and vancomycin. A bronchoscopy was performed which showed ulcerated airways with moderate secretions. The bronchoalveolar lavage sample was negative for *Pneumocystis jiroveci*, but positive for *Aspergillus fumigatus* and voriconazole was commenced.

Despite antifungal and broad-spectrum antimicrobials, the patient continued to deteriorate with persistent fevers and multi-organ failure. Voriconazole was changed to posaconazole due to hepatic dysfunction. There was progressive neurologic deterioration and he remained unresponsive despite weaning of sedation. An MRI brain revealed extensive signal abnormalities involving the basal ganglia, frontal lobes, temporal lobes and cerebellum with associated hydrocephalus requiring emergency bilateral external ventricular drain (EVD) insertion. Cerebrospinal fluid (CSF) demonstrated mildly elevated protein without pleocytosis and was negative for cytomegalovirus, cryptococcus and toxoplasmosis. There was no growth on CSF culture. Septate, acute angle branching fungal hyphae were identified within vascular and cortical tissue on brain biopsy, consistent with invasive *Aspergillus*.

Despite antifungal therapy and EVD placement, there was persistence of raised intracranial pressure leading to neurologic deterioration and death. A post-mortem examination confirmed changes consistent with disseminated *Aspergillus* involving the brain, lungs, kidneys, thyroid, liver and spleen.

Disseminated *Aspergillus* infection is an uncommon but important differential to consider in advanced HIV infection given its associated high mortality and short survival following diagnosis. Early recognition and treatment remain challenging in this population.

**Disclosure of Interest Statement:** Nothing to disclose