Aspergillus niger fungemia secondary to chronic pulmonary aspergillosis in a patient with invasive squamous cell carcinoma

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DESCRIPTION
A 46-year-old man presented with shortness of breath and increased tracheal respiratory secretions. His medical history included a stroke 6 months prior with resultant chronic hypoxic respiratory failure with tracheostomy placement, recently diagnosed thyroid-invasive squamous cell carcinoma and a 30 pack-year history of smoking. He had recently been hospitalised and treated with ampicillin–sulbactam for aspiration pneumonia and had undergone left superior thyroid artery embolisation due to tracheal bleeding secondary to invasion of the trachea by the malignant mass. Blood cultures drawn on admission due to concerns for sepsis revealed Aspergillus niger in one out of two sets (figure 1A and B).

Vital signs revealed tachypnea and increased oxygen requirements but were otherwise unremarkable. Physical examination revealed bilateral rales of the lower lung fields and copious secretions noted in the endotracheal tube. Laboratory investigations were significant for a mild leucocytosis. A chest X-ray revealed no cardiopulmonary abnormalities. CT angiography of the chest performed a month prior to admission revealed emphysematous changes and bilateral pulmonary nodules, the largest measuring up to 1.7 cm (figure 2), along with poorly defined fascial planes in the neck concerning for oedema. CT of the neck revealed extensive infiltrative neoplasm around the native laryngeal and supraglottic region with occlusion of the right jugular vein and encasement of the right carotid artery. The patient underwent bronchoscopy and bronchoalveolar lavage (BAL) which was found to be positive for Aspergillus galactomannan antigen with an index of 4.87, although the fungal culture was negative. At the time of the bronchoscopy, the patient had received 4 days of vancomycin and piperacillin–tazobactam and 2 days of voriconazole. The patient was treated with voriconazole for 6 weeks with significant improvement noted in his respiratory status.

A. niger is a ubiquitous hyaline mould marked by its large, biseriate conidia that cover the entire vesicle.1 The role of A. niger in invasive disease has been less described than other species. This is likely due to the fact that its large conidia do not easily reach deep into lung tissues. Invasive aspergillosis largely affects those with profound, prolonged neutropenia, however, is known to affect critically ill patients, especially those with chronic obstructive pulmonary disease.2 Fungemia due to Aspergillus species is rare, with only 30 cases noted in the literature in one review.3 In the critically ill population, galactomannan from BAL fluid is more sensitive than serum galactomannan and a cut-off

Learning points
► Aspergillus fungemia is a rare sequela of pulmonary aspergillosis. Critical illness and chronic obstructive pulmonary disease (COPD) are important risk factors for developing invasive disease.
► Galactomannan from bronchoalveolar lavage fluid is more sensitive than serum galactomannan for diagnosing invasive aspergillosis in critically ill patients with COPD.
► Malignancy with angioinvasion in an already colonised host may be an additional risk factor for developing fungemia with Aspergillus.
of 0.8 has been suggested for diagnosis of invasive disease. In this case, the patient’s thyroid mass with encroachment on the trachea associated with recurrent bleeding may have facilitated entry of *Aspergillus* into the patient’s bloodstream.

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**REFERENCES**


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