

Background:

Infections due to *Cryptococcus* species occur globally and can affect both immunocompromised (IC) and non-IC hosts. To date, many cases of cryptococcal infection have been reported, but only 3 cases of concomitant severe influenza and cryptococcal infections have been mentioned in the English and Chinese literature.



Patients & Methods :

An unusual case of an avian influenza A (H7N9) infection with several severe mixed bacterial infections and systemic super-infection with *Cryptococcus neoformans* presenting as ventilator-associated pneumonia and bloodstream infection in a previously immunocompetent man during hospitalization was described and literature reviewed.

Results & discussion :

A 58-year-old man was admitted to our hospital complaining of hyperpyrexia, dyspnoea, cough and phlegm with blood. A chest computed tomography scan revealed multiple ground-glass opacities and consolidation in both lungs with right pleural effusion. An initial sputum test was positive for influenza A (H7N9) virus. After antiviral treatment and other supportive measures, the patient's condition improved. However, the patient's condition deteriorated again approximately 2 weeks after admission, and bronchoalveolar lavage fluid (BALF) and blood cultures were positive for *C. neoformans* (Fig1 A, B). Therapy with intravenous liposomal amphotericin B and fluconazole was started. After a 2-week antifungal treatment, BALF and blood cultures were negative for *C. neoformans*. However, the patient had persistent lung infiltrates with severe pulmonary fibrosis with a prolonged course of disease. On hospital day 40, BALF and blood cultures were both positive for multidrug-resistant *Stenotrophomonas maltophilia*. Finally, the patient developed septic shock, disseminated intravascular coagulation and multi-organ failure and succumbed to treatment failure.

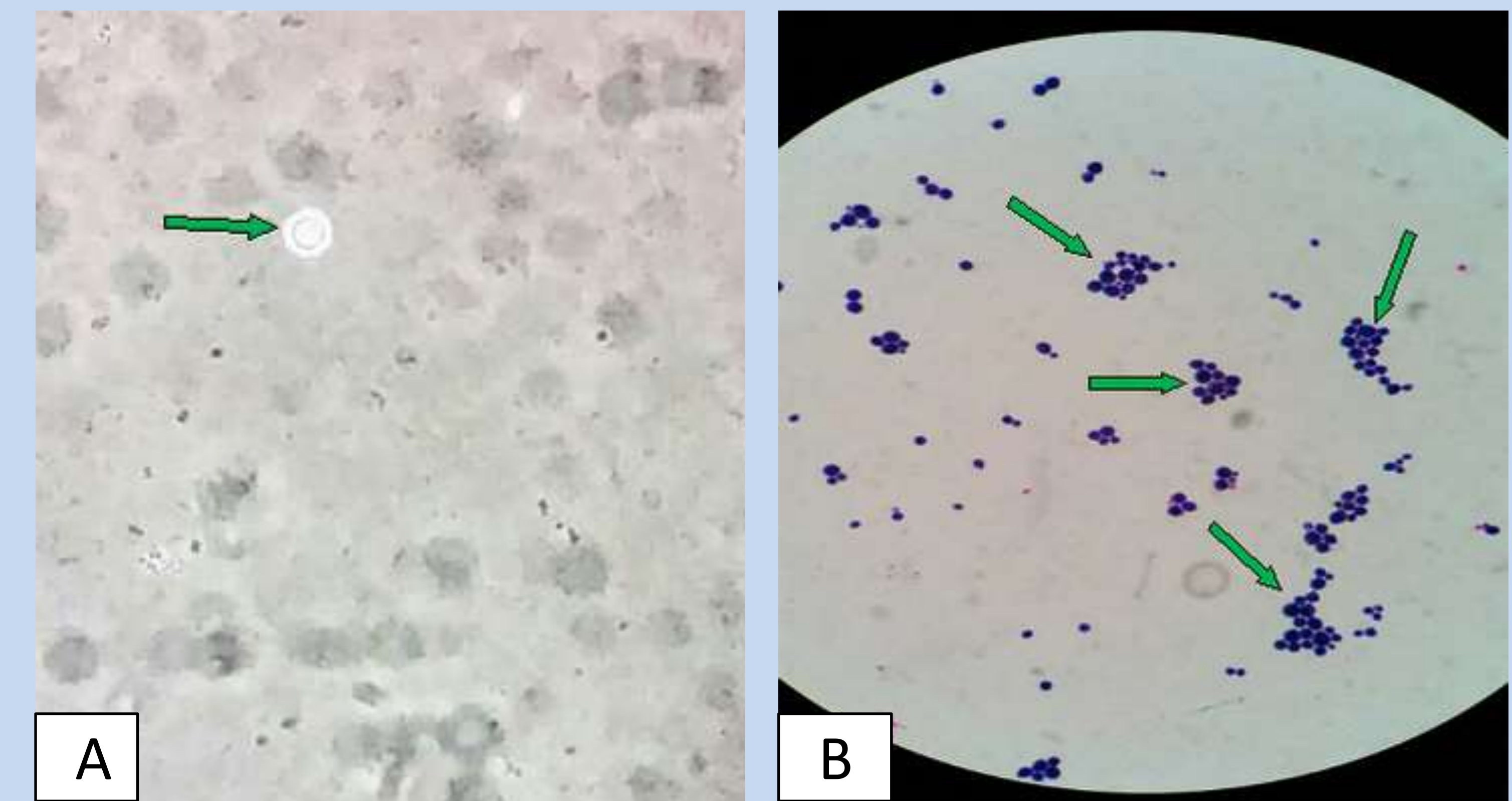


Figure 1 : The findings for blood culture specimens under oil immersion lenses. (A) India ink examination of a blood specimen demonstrating the typical transparent thick capsule *Cryptococcus* spore (green arrow); (B) Gram's stain smear of pure fungal colonies cultured from a blood sample showing *C. neoformans* without staining of the capsule (green arrows).

Conclusion & perspectives :

Although the patient died of MOF triggered by severe lung fibrosis at last, the successful treatment of refractory pneumothorax by combination of ECMO with VATS is encouraging. Thus, when refractory pneumothorax in a patient with severe pulmonary dysfunction fails to improve through routine therapy, the treatment of pneumothorax by VATS based on ECMO support can be considered as a feasible selection.