Pulmonary infection caused by *Talaromyces amestolkiae*

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A 38-year-old woman was admitted for uterine fibroid surgery. A routine preoperative CT chest scan identified bilateral patchy, high-density shadows, with unclear boundaries, more evident in the upper lobes (figure 1A). She had no respiratory symptoms, such as coughing or expectoration, and was an office worker with allergies to seafood and mango. She denied having comorbidities including diabetes, renal disease, liver disease, malignancy or HIV. In March 2023, she received cefuroxime anti-infective treatment during her hospitalisation for gynaecological surgery and did not continue antibiotics after discharge. Six months later, in November 2023, a follow-up CT chest revealed radiographic progression of bilateral upper lobe changes (figure 1B). Despite being asymptomatic, she was prescribed moxifloxacin at the outpatient clinic for presumed bilateral bacterial pneumonia. A subsequent CT chest a week later showed no noticeable improvement in her lung condition. Therefore, she was hospitalised for further examination to determine the cause of the lung infection. During her hospitalisation, the results of her routine laboratory tests, including HIV test, blood routine test, hypersensitive C reactive protein, sputum culture and sputum acid-fast bacilli test, were all in the normal range. Bronchoscopy revealed moderate mucus in the bilateral bronchi, and the results of the bronchoalveolar lavage fluid (BALF) culture, virus screening and other tests were also normal. The result of BALF metagenomic next-generation sequencing (mNGS) showed a high abundance and sequence number of *Talaromyces amestolkiae* (figure 2). On discharge, she was prescribed voriconazole to be taken orally at a dosage of 200 mg every 12 hours. However, following 6 weeks of treatment, she developed an allergic rash, necessitating the discontinuation of voriconazole. She did not receive further courses in antimicrobial therapy. After 2 months, the CT chest showed significant improvement in her lung condition (figure 1C). Four months later, the lesions in her lungs were completely resolved (figure 1D).

The genus *Talaromyces* was introduced in 1955. It is worth noting that while *Talaromyces* is

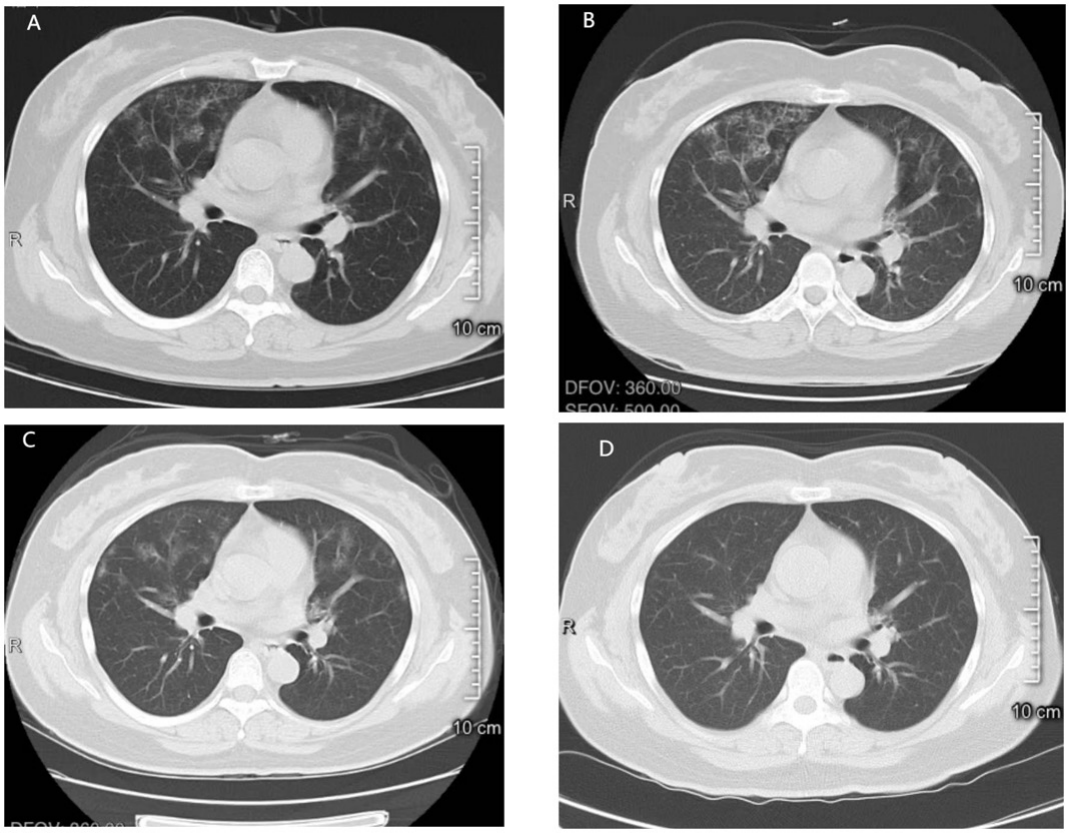

Figure 1 (A) Chest CT performed during hospitalisation for uterine fibroid surgery. (B) The chest CT taken 1 week before admission suggested lesion progression. (C) Chest CT performed 2 months after receiving voriconazole treatment. (D) Chest CT performed 4 months after receiving voriconazole treatment.

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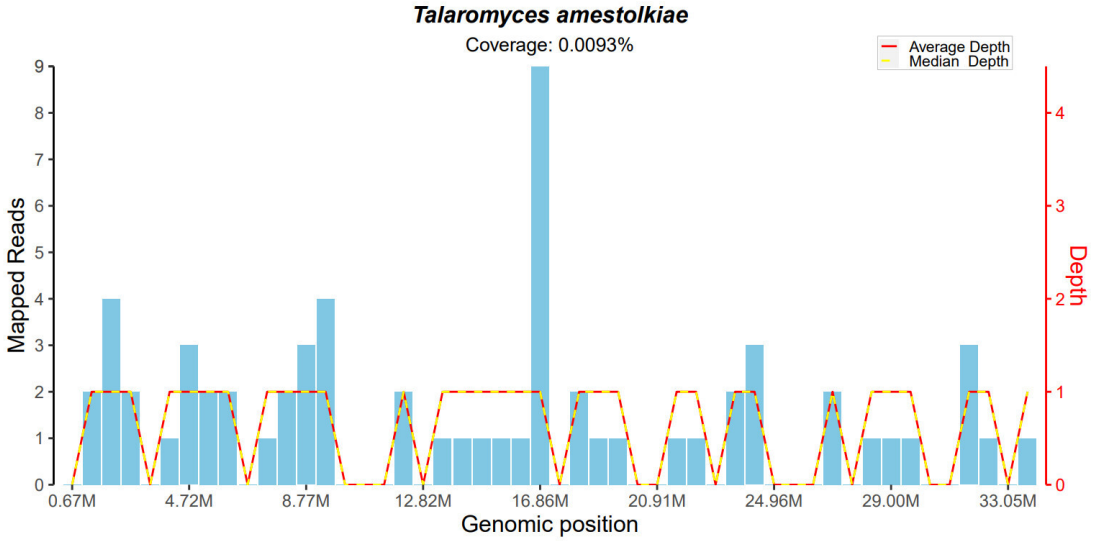

Figure 2 The results of metagenomic next-generation sequencing.

distributed worldwide, the clinical issues it causes are primarily concentrated in Southeast Asia.[1] *T. amestolkiae*, first found in 2012, is present in indoor dust, air, soil and the lungs of cystic fibrosis patients.[2] Currently, the understanding of *T. amestolkiae* is quite limited. Diagnosis of *T. amestolkiae* infection mainly relies on traditional methods such as microbial culture, microscopy and PCR. Experience in treating *T. amestolkiae* infections is scarce. A previous published case of pulmonary *T. amestolkiae* infection in a patient with acute lymphoblastic leukaemia was successfully treated with voriconazole, indicating that this may be an effective therapeutic drug.[3]

The patient is noteworthy, as she lacks any known immune deficiencies, challenging the conventional understanding that *Talaromyces* infections predominantly affect immunocompromised individuals. The detection of *T. amestolkiae* in her BALF through mNGS, coupled with her response to antifungal therapy, underscores the fact that even individuals with normal immune functionality can develop lung infections caused by *T. amestolkiae*. In conclusion, our case demonstrates that immunocompetent individuals can develop pulmonary *T. amestolkiae* infection and treatment with voriconazole can be effective.

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