

## *Geotrichum candidum* in Infective Endocarditis

Sir,

*Geotrichum candidum* is yeast found globally in soil, water, air, and sewage, as well as in plants, cereals, and dairy products which is rarely pathogenic in humans. It is a budding pathogen in immunocompromised hosts. We report a case of *G. candidum* infective endocarditis in a 6-year-old child with pulmonary atresia. The boy presented to the pediatric outpatient department at our hospital with complaints of fever for 3 months associated with weight loss and anorexia. On examination, there was facial puffiness, abdominal distension, and pedal edema. Auscultation revealed a mid-systolic murmur. Further, echocardiography revealed a mobile tricuspid valve vegetation (1.3 cm × 1.5 cm) attached to septal tricuspid leaflet and anterior tricuspid leaflet. The grade of tricuspid valve regurgitation was evaluated as 4°. The left ventricular ejection fraction was normal. A chest X-ray revealed pulmonary congestion. The cardiothoracic ratio was increased suggesting heart failure. The patient was started empirically on vancomycin, cefoperazone, and liposomal amphotericin B which was later changed to voriconazole after identification of the etiology. Subsequently, vegetectomy and valve reconstruction using homologous anterior mitral leaflet and moderate tricuspid valve annuloplasty was done.

Vegetation was sent to bacteriology and mycology laboratory to discern out the pathogen. The isolate was identified as *G. candidum* based on morphological characteristics and sugar assimilation. To confirm the identity of the isolate, DNA sequence of the 18S (partial), ITS1, 5.8S, ITS2, and 28S (partial) ribosomal region. The sequence obtained was compared with that in the GenBank DNA database and gave 100% identity with an ex-type strain of *G. candidum* (accession no. KX237567). Antifungal susceptibility testing of the strain was performed to determine the minimum inhibitory concentration (MIC) by the approved protocol of Clinical and Laboratory Standards Institute document M27-A3.<sup>[1]</sup> The isolate was susceptible to voriconazole (0.016 µg/ml), posaconazole (0.016 µg/ml), caspofungin (0.032 µg/ml), micafungin (0.016 µg/ml) but resistant to amphotericin B (>16 µg/ml), and itraconazole (>16 µg/ml). The patient improved dramatically after voriconazole and was discharged after 10-week postsurgery but voriconazole was continued for 6 more months with regular follow-up on an outpatient basis.

Invasive infections by rare and opportunistic fungal pathogens in immunocompromised patients are posing a major trouble in the management of these patients. Since the first report of invasive geotrichosis in 1971 by Ghamande *et al.*, few sporadic cases have been reported over the year. Infective fungal endocarditis is a

**Table 1: Summary of Case Reports of Infective Endocarditis Due to *Geotrichum spp***

Age sex	Sites of infection	Signs, symptoms and clinical findings	Underlying disease/predisposing factors	Treatment	Outcome	References
65 female	Mitral valve	Fever	COPD, RHD, mitral valve replaced with prosthetic device	Amphotericin B, oral flucytosine	Death	Polacheck <i>et al.</i> <sup>[3]</sup>
1.5 male	Homograft valve	Fever, weight loss, frequent chest infections	VSD, single arterial trunk, 5-flucytosine for <i>C. guilliermondii</i> isolated from portions of homograft	5-flucytosine	Death	Arnold <i>et al.</i> <sup>[4]</sup>
5 female	-	-	Multiple surgeries and endoscopic procedures	Amphotericin B	-	Oscar <i>et al.</i> <sup>[5]</sup>
6 male	Tricuspid valve	Fever, weight loss, anorexia	Pulmonary atresia	Voriconazole	Cured	Present case

COPD: Chronic obstructive pulmonary disease, RHD: Rheumatic heart disease, *C. guilliermondii*: *Candida guilliermondii*, VSD: Ventricular septal defect

severe opportunistic infection with a high mortality rate of about 50%.<sup>[2]</sup> Among yeasts, various candida species, *Trichosporon* species, *Saccharomyces cerevisiae* has been reported. Table 1 summarizes reported cases of infective endocarditis in which *Geotrichum* and its synonyms have been isolated. The optimal approach to therapy is not yet defined. Although *in vitro* susceptibility testing has demonstrated decreased antifungal activity to amphotericin B, clinical results have been promising with or without flucytosine or high-dose fluconazole. Voriconazole yields very low MICs against *G. candidum* and may represent first-line therapy. In the present case, the patient was started empirically on amphotericin B. However, on the identification of the etiological agent, the patient was shifted on voriconazole following which fever spikes subsided.

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### Conflicts of interest

There are no conflicts of interest.

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