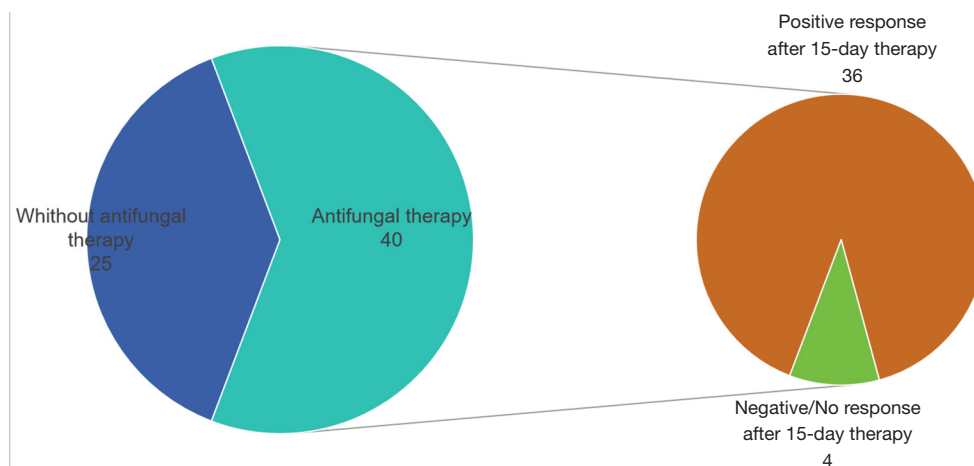


**Figure S1** Detection results and sample numbers for conventional fungal diagnostic methods. GM test, galactomannan assay; G test, [1-3]-β-D-glucan test; FFS test, fungal fluorescence staining, GXM test, *Cryptococcus* capsular polysaccharide antigen test. The left y-axis represents the number of patients who underwent testing for each fungal species (orange and blue bars), while the right y-axis indicates the positivity rate of each fungal detection method (yellow lines).



**Figure S2** Antifungal therapy profiles of mTGS-positive fungal cases.

**Table S1** The participating hospitals list and number of enrolled patients

Hospitals	Number of enrolled patients
Sir Run Run Shaw Hospital, Zhejiang University School of Medicine	33
Zhejiang Provincial People's Hospital, Affiliated People's Hospital, Hangzhou Medical College	20
The First Affiliated Hospital, Zhejiang University School of Medicine	134
Affiliated Hangzhou First People's Hospital, School of Medicine, Westlake University	66

**Table S2** Performance parameter of *Pneumocystis jirovecii* by mTGS

mTGS	Clinical diagnosis		Total	Sensitivity (95% CI), %	Specificity (95% CI), %	PPV (95% CI), %	NPV (95% CI), %
	+	-					
+	13	7	20	76.5 (52.7–90.4)	96.6 (93.1–98.3)	65.0 (43.3–81.9)	98.0 (95.0–99.2)
-	4	198	202				
Total	17	205	222				

**Table S3** Performance parameter of *Cryptococcus neoformans* by mTGS

mTGS	Clinical diagnosis		Total	Sensitivity (95% CI), %	Specificity (95% CI), %	PPV (95% CI), %	NPV (95% CI), %
	+	-					
+	14	0	14	82.4 (58.9–93.8)	100.0 (98.2–100.0)	100.0 (78.5–100.0)	98.6 (95.8–99.5)
-	3	205	208				
Total	17	205	222				

**Table S4** Performance parameter of *Aspergillus* spp. by mTGS

mTGS	Clinical diagnosis		Total	Sensitivity (95% CI), %	Specificity (95% CI), %	PPV (95% CI), %	NPV (95% CI), %
	+	-					
+	6	3	9	66.7 (35.4–87.9)	98.6 (95.9–99.5)	66.7 (35.4–87.9)	98.6 (95.9–99.5)
-	3	210	213				
Total	9	213	222				