



Review Articles

Magnusiomyces capitatus Breakthrough Infection in Allogeneic Hematopoietic Cell Transplant Recipients Receiving Echinocandin Prophylaxis: Clinical Features, Management, and Structured Review of the Literature

Claudia Gómez-Hernández¹, Carmen Corrales², Pedro José Mirete¹, Soraya Ramos¹, Mireia Micó-Cerdà¹, Clara Isabel Martínez-López¹, Juan Carlos Hernández-Boluda^{1,3}, Carlos Solano^{1,3,4}, Rafael de la Camara² and José Luis Piñana^{1,3}.

¹ Hematology Department, Hospital Clínico Universitario of Valencia, Spain.

² Hematology Department, Hospital de la Princesa, Madrid, Spain.

³ INCLIVA, biomedical research institute, Valencia, Spain.

⁴ Department of Medicine, School of Medicine, University of Valencia, Valencia, Spain.

Supplementary Files

Table S1. Detailed baseline, transplant, infection, treatment, and outcome data for all 13 patients with invasive *Magnusiomyces* infection after allogeneic HSCT (combines Tables 1A and 1B with additional case-level detail).

Variable	1	2	3	4	5	6	7	8	9	10	11	12*	13*
Reference (author, year)	Rodrigo Martino et al., 2004 [8]	González-Abad et al., 2012 [9]	S.K. Devadas et al., 2015 [10]	Dominika Tanuskova et al., 2017 [11]	Shuki Oya et al., 2018 [12]	M. Leoni et al., 2019 [13]	Giuliana Lo Cascio et al., 2020 [14]	Julio Maquera-Afaray et al., 2022 [15]	Rinaldi A et al., 2022 [16]	Rochelle Johnstone et al., 2022 [17]	Rahmah S. Alzahrani et al., 2025 [18]	Present study, Case 1, 2025	Present study, Case 2, 2025
Country	Spain	Spain	India	Slovakia	Japan	Italy	Italy	Peru	Italy	Canada	Canada	Spain	Spain
Age / sex	37 y / M	9 y / M	33 y / M	19 y / F	68 y / M	6 y / M	60 y / M	5 y / M	61 y / M	39 y / M	69 y / M	57 y / M	67 y / M
Underlying hematologic disease	ALL	AA	AML	MDS	ALL	AA	AML	AA	AML	AML	PMF	AML	PMF
Donor type (HLA match)	NR	MUD (10/10)	MRD (10/10)	MUD (9/10)	UCB	Haploidentical	NR	Haploidentical	MUD (10/10)	Haploidentical	MRD (10/10)	Haploidentical	MUD (10/10)
Conditioning regimen	NR	NR	MAC	MAC	RIC	RIC	NR	RIC	RIC	NR	RIC	MAC	RIC
GVHD prophylaxis	NR	NR	CsA + MTX	ATG + CsA + MTX	TAC + MTX	NR	NR	NR	ATG + CsA + MTX	NR	TAC + MMF	SIR + MMF + PTCy	SIR + MMF + PTCy
Stem cell source	PB	BM	NR	PB	UCB	PB	NR	BM	PB	NR	PB	PB	PB
Antifungal prophylaxis	FLC	NR	POS	MCFG	MCFG	L-AmB	POS	POS	POS	CAS	FLC	MCFG	MCFG
Fungal species*	<i>B. capitatus</i>	<i>B. capitatus</i>	<i>B. capitatus</i>	<i>M. capitatus</i>	<i>G. capitatum</i>	<i>M. clavatus</i>	<i>S. clavata</i>	<i>S. capitata</i>	<i>G. Clavatum</i>	<i>B. capitatus</i>	<i>M. clavatus</i>	<i>M. capitatus</i>	<i>M. spp</i>
Clinical presentation	FN	FN	Skin/soft-tissue nodules	FN	FN	FN	FN	FN	FN	FN	FN	FN	FN
Deep-organ involvement	Yes†	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
ANC at infection onset	0 ×10 ⁹ /L	NR	NR	0 ×10 ⁹ /L	0 ×10 ⁹ /L	0 ×10 ⁹ /L	NR	0 ×10 ⁹ /L	0 ×10 ⁹ /L	NR	0 ×10 ⁹ /L	0 ×10 ⁹ /L	0 ×10 ⁹ /L
Neutrophil engraftment achieved (day)	NR	NR	NR	Yes (+10 d)	No	Yes (+10 d)	NR	No	Yes (+17 d)	NR	No	No	No
Granulocyte transfusion (day)	NR	No	NR	Yes (+10 d)	No	NR	NR	No	NR	No	Yes (+20 d)	No	No
Site of isolation	Blood culture	Blood culture	Skin/soft-tissue biopsy	Blood culture	Blood culture	Blood culture	Blood culture	Blood culture	Blood culture + CSF	Blood culture	Blood culture	Blood culture	Blood culture

Variable	1	2	3	4	5	6	7	8	9	10	11	12*	13*
Day of infection post-HSCT	NR	NR	>Day +180 (>6 mo)	Day +3	Day +11	Day +2	Day +5	Day +147	NR	Day +5	Day +13	Day +21	Day +23
CVC/PICC removed	No	Yes	NR	Yes	NR	Yes	NR	No	NR	NR	Yes	Yes	Yes
Galactomannan (GM) assay	NR	NR	NR	NR	NR	NR	NR	Negative	NR	NR	NR	Negative	Negative
β-D-glucan (BDG) assay	NR	NR	NR	NR	Positive	NR	NR	NR	NR	NR	NR	Positive	Positive
Antifungal treatment	L-AmB	L-AmB + POS	VRC	MCFG + VRC	L-AmB + FLC	L-AmB + VRC	L-AmB	CAS	L-AmB + ISA	VRC + L-AmB	VRC + L-AmB	POS + AmB‡	POS + L-AmB
Other concurrent infections	No	Yes	No	Yes	Yes	No	No	No	No	No	Yes	No	Yes
Outcome	Alive	Death (+90 d)	Alive	Death (+71 d)	Death (+25 d)	Alive	Alive	Death (+150 d)	Death (+17 d)	Death (+13 d)	Death (+22 d)	Death (+24 d)	Death (+45 d)
Cause of death	–	Septic shock	–	Multiorgan failure	Respiratory failure	–	–	Septic shock	Severe neurological damage	Intracerebral hemorrhage	Septic shock	Multiorgan failure	Septic shock

* Present study cases (columns 12 and 13; shaded), reported here for the first time. All other cases (columns 1–11) are from the previously published literature cited in the reference row. NR: not reported in the source publication; –: not applicable. **Abbreviations:** AA, aplastic anemia; ALL, acute lymphoblastic leukemia; AML, acute myeloid leukemia; ANC, absolute neutrophil count; ATG, antithymocyte globulin; BDG, beta-D-glucan; BM, bone marrow; CAS, caspofungin; CsA, cyclosporine A; CSF, cerebrospinal fluid; CVC, central venous catheter; F, female; FLC, fluconazole; FN, febrile neutropenia; GM, galactomannan; GVHD, graft-versus-host disease; HLA, human leukocyte antigen; HSCT, hematopoietic stem cell transplantation; ISA, isavuconazole; L-AmB, liposomal amphotericin B; M, male; MAC, myeloablative conditioning; MCFG, micafungin; MDS, myelodysplastic syndrome; MMF, mycophenolate mofetil; MRD, matched related donor; MTX, methotrexate; MUD, matched unrelated donor; NR, not reported; PB, peripheral blood; PICC, peripherally inserted central catheter; PMF, primary myelofibrosis; POS, posaconazole; PTCy, post-transplant cyclophosphamide; RIC, reduced-intensity conditioning; SIR, sirolimus; TAC, tacrolimus; UCB, umbilical cord blood; VRC, voriconazole. B, *Blastoschizomyces*; M., *Magnusiomyces*; G, *Geotrichum*; S, *Saprochaete*. **Notes on standardization applied.** Taxonomy: the causative genus is reported uniformly as *Magnusiomyces* (current accepted name; historical synonyms in the cited literature include *Geotrichum capitatum/clavatum*, *Blastoschizomyces capitatus*, and *Saprochaete capitata/clavata*). Species-level identification (*M. capitatus* vs. *M. clavatus*) was not consistently reported across the reviewed sources; we could confirm *M. clavatus* for the Leoni et al. 2019 and Alzahrani et al. 2025 cases from the original publications.