

Supplementary Table 1: Characteristics of Keratitis caused by emerging and rare fungus

Reference	Organism	Source of literature	Type	Common causes	Common risk factors	Characteristic Manifestation	Treatment	Outcome	Other ocular manifestations
27-33	Pythium spp.	Case series	Filamentous fungus	<i>P. insidiosum</i> ,	CL, farming, contaminated water and trauma, thalassemia	Necrotic ulcer with surrounding dot-like and tentacle-like corneal infiltrates	Azithromycin, clarithromycin, minocycline, tigecycline, TPK	Poor, Recurrences are common	Scleritis
36,44,45	Alternaria spp.	Case series	Filamentous fungus	<i>A. alternata</i> ,	Trauma, ocular surgery	Brown pigmented appearance	AMB, NTM, VCZ	72% cases respond to medical therapy	Endophthalmitis
47-49	Acremonium spp.	Case series	Filamentous fungus	<i>A. recifei</i> , <i>A. strictum</i> ,	Trauma	Indolent keratitis, variable presentation	AMB, NTM, VCZ		Endophthalmitis
50,51	Cladosporium spp.	Case series	Dematiaceous fungus	<i>C. oxysporum</i> and <i>C. cladosporioides</i>	Trauma, Surgery, pet food-shop labourer, steroids	Indolent course, pigmented, feathery margin	VCZ, AMB	Indolent course, variable	ICK
52-54	Curvularia spp.	Case series	Dematiaceous fungus	<i>C. lunata</i> , <i>C. senegalensis</i>	Trauma, refractive surgery, CL, steroid, OSD	Superficial stromal infiltrate in early cases, focal necrotizing inflammation in late cases	NTM	Good	Endophthalmitis
55,56,68	Bipolaris spp.	Case series	Dematiaceous fungus	<i>B. spicifera</i> , <i>B. hawaiiensis</i>	Trauma, cow tail injury, Steroids	Central ulcer with feathery margins	NTM, AMB, ICZ, VCZ, PCZ	Variable	Endophthalmitis

57,59,60	Microsporidia spp.	Case series, case reports	Fungus	<i>Microsporidia</i>	CL, steroids, trauma, exposure to muddy water	Keratoconjunctivitis or deep stromal keratitis	Systemic – albendazole , itraconazole Topical - Propamidine, PHMB, chlorhexidine, VCZ, FCZ, Fumagillin	Keratoconjunctivitis- Good, Stromal- Poor	Conjunctivitis
69,70	Pseudallescheria spp.	Case reports	Filamentous fungus	<i>P. boydii</i> , <i>S. apiospermum</i>	Trauma, immunocompromised host, recurrent herpetic keratitis, ocular surgery	None	FCZ, NTM, AMB	Poor	Endophthalmitis, Scleritis
71-73	Colletotrichum spp.	Case series	Filamentous fungus	<i>C. coccoides</i> , <i>C. crassipes</i>	OSD, CL, trauma, atopy, steroid, corneal surgery, DM	Fungal keratitis, Arborescent edges	VCZ, NTM, FCZ, AMB, ICZ, MCZ, MFG	Good	Endophthalmitis
74	Exophiala spp.	Case reports	Dematiaceous Fungus	<i>E. phaeomuriformis</i> , <i>E. dermatidis</i>	Trauma, ocular surgery	Superficial corneal brown-pigmented infiltrate	AMB, FCZ	Good	Endophthalmitis
75	Corynespora cassiicola	Single Case report	Filamentous Fungus	<i>C. cassiicola</i>	Trauma, ocular surgery		VCZ, AMB, MFG	Good	
76,77	Schizophyllum commune	Case series	Fungus	<i>S. commune</i>		Cotton wool appearance and deep stromal infiltrate	NTM, VCZ, AMB	Variable	
78	Papulaspora spp.	Case series	Filamentous Fungus	<i>P. equi</i>		Dry lustreless surface with hyphate margin	NTM, KCZ	Good	

						and surface pigmentation			
79,80	Arthrographis spp.	Case reports	Filamentous Fungus	<i>A. kalrae</i>	CL, trauma		KCZ, ICZ, AMB	Poor	Panophthalmitis
81	Wickerhamomyces spp.	Case report	Fungus	<i>W. anomalus</i>	Immunocompromised host, OSD, ocular surgery		MFG	Good	
82	Exserohilum spp.	Case report and sries	Filamentous Fungus	<i>E. rostratum</i> , <i>E. longirostratum</i>	Trauma	Superficial feathery corneal infiltration	NTM, VCZ	Good	Endophthalmitis
83	Microsphaeropsis spp.	Case report	Filamentous Fungus	<i>M. olivacea</i>	Trauma	Deep stromal infiltrate, white endothelial plaque,severe anterior chamber reaction	AMB, NTM	Poor	Endophthalmitis
84,85	Aureobasidium spp.	27	Dematiaceous fungus	<i>A. pullulans</i>	Trauma, immunosuppression, ocular surgery, DM	Similar to fungal keratitis	NTM, ICZ, FCZ	Good	Scleritis
86,87	Chaetomium spp.	Case reports	Filamentous fungus	<i>C. atrobrunneum</i> , <i>C. globosum</i>	Trauma	Brownish pigmented plaque on the surface	NTM, KCZ, FCZ	Good	None
88	Lenzites spp.	Case report (1)	Filamentous fungus	<i>L. betulina</i>	Entropion, trichiasis, steroid, dog hair	Typical Fungal keratitis	VCZ	Good	None
89	Purpureocillium spp.	Prospective case series (n=22)	Filamentous fungus	<i>P. lilacinus</i>	Immunocompromised host, ocular trauma, prior ocular surgery, CL	Deep stromal infiltrate with sparing of epithelium	VCZ	Variable to Poor	Scleritis, endophthalmitis

					wear, and topical steroid				
90-92	Absidia spp.	Case reports	filamentous fungus	<i>L. corymbifera</i>	Trauma with a metallic foreign body	Multiple fluffy yellow-white infiltrate arranged in a ring-like pattern	AMB, PCZ	Variable to Poor	Endophthalmitis
93	Tintelnotia spp.	Case reports	Fungus	<i>T. destructans</i>	CL wear, trauma, ocular surgery	Similar to fungal keratitis, viscous hypopyon	VCZ, NTM, AMB	Poor	Conjunctivitis
94,95	Metarhizum spp.	Case reports	Fungus	<i>M. anisopliae</i>	CL wear	Keratitis, limbal involvement and scleral necrosis may be present	NTM, VCZ, CFG, MFG, AMB, TPK in severe cases	Good	Sclerokeratitis, endophthalmitis
96	Gjaerumia spp.	Case reports	Fungus	<i>G. minor</i>	Poorly controlled diabetic	Similar to fungal keratitis	Topical AMB, Systemic FCZ	Good	
97,98	Beauveria spp.	Case reports	Fungus	<i>B. bassiana, B. alba</i>	-	Similar to fungal keratitis	MFG, ICZ, VCZ, TPK	Poor	
99	Pestalotiopsis clavispora	Case reports	Fungus	<i>P. clavispora</i>	Prior herpetic keratitis, steroid use, OSD, glaucoma	Similar to fungal keratitis	VCZ, NTM, MFG	Poor, recurrences frequent	
100	Drechslera spp.	Case reports	Fungus	<i>D. brizae, D. spicifera</i>	Steroid use	Similar to fungal keratitis	NTM, VCZ	Good	
101	Lasiodiplodia spp.	Case reports	Filamentous fungus	<i>L. theobromae</i>	DM, trauma	Similar to fungal keratitis, corneal abscess	AMB, VCZ, NTM, FCZ, TPK	Poor	Panophthalmitis, endophthalmitis
85	Aureobasidium spp.	Case series, Case reports	Dematiaceous fungus	<i>A. pullulans</i>	Trauma, immunosuppression, ocular surgery, DM	Similar to fungal keratitis	NTM, ICZ, FCZ	Good	Scleritis

102	Engyodontium spp.	Case reports	Fungus	<i>E. album</i>	Trauma	Similar to fungal keratitis	NTM, AMB, FCZ, TPK	Poor	
103	Cladorrhinum spp.	Case reports	Dematiaceous fungus	<i>C. bulbillosum</i>	Trauma	Similar to fungal keratitis	NTM, AMB, FCZ, ICZ, MCZ	Poor	
104	Rhizoctonia spp.	Case reports	Fungus		Trauma	-	-	Variable	
105	Blastomyces spp.	Case reports	Dimorphic fungus	<i>B. dermatidis</i>	Trauma	Corneal ulcer with descemetocoele	TPK	Poor, Need for TPK	Panophthalmitis
106	Cephalophora spp.	Case reports	Fungus	<i>C. irregularis Thaxter</i>			KCZ, NTM		
107	Sporothrix spp.	Case reports	Dimorphic fungus	<i>S. pallida, S. schenckii</i>	-	Similar to fungal keratitis	ITC, FCZ, AMB	Good	
108	Phialophora spp.	Case reports	Fungus	<i>P. verrucosa, P. lilacinus</i>	Trauma	Similar to fungal keratitis	Poor	Poor	
109,110	Rhodotorula spp.	Case reports	Dimorphic fungus	<i>R. glutinis,</i>	Trauma, immunocompromised, surgery	Similar to fungal keratitis, cotton wool like infiltrates	AMB, VCZ, most cases require TPK	Poor	Endophthalmitis, scleritis, dacrocystitis
111	Scytalidium spp.	Case reports	Filamentous fungus	<i>S. dimidatum, S. hyalinum</i>	CL, ocular surgery, trauma	Atypical reticular corneal infiltrate with surrounding immune-like ring	AMB, FCZ, ICZ	Good	Endophthalmitis
83	Microspheeropsis spp.	Case report	Dematiaceous fungus	<i>M. olivacea</i>	Trauma	Deep stromal infiltrate, extension of fine fibrous process in AC	NTM, AMB, FCZ	Fair	Endophthalmitis
112,113	Scopulariopsis spp.	Case reports	Filamentous fungus	<i>S. brevicaulis S. gracilis</i>	Trauma, Ocular Surgery	Similar to fungal keratitis	AMB, VCZ, NTM	Good	Endophthalmitis

114	Basidiobolus spp.	Case report	Filamentous Fungus	<i>B. ranarum</i>	Trauma	Keratitis associated with multiple scleral abscess	KCZ, FCZ, ICZ	Poor	Scleritis, orbital cellulitis
115	Sarocladium spp.	Case reports	Fungus	<i>S. kilensis</i>	Trauma, CL, OSD	Blurred white corneal opacity with small whitish edge and short delicate projections	NTM, VCZ, AMB	Poor	Conjunctivitis , endophthalmitis, panophthalmitis
116	Pseudopestalotiopsis spp.	Case reports	Fungus	<i>P. theae</i>	Trauma	Ring infiltrate	NTM, VCZ, KCZ	Good	

Footnote:

CL- Contact lens; TPK- Therapeutic penetrating keratoplasty; AMB- Amphotericin B; NTM- Natamycin; VCZ- Voriconazole; ICK- Infectious crystalline keratopathy; OSD- Ocular surface disorder; PCZ- Posaconazole; PHMB- Poly-hexa methyl biguanide; FCZ- Fluconazole; DM- Diabetes mellitus; FCZ- Fluconazole; ICZ- Itraconazole; ICZ- Itraconazole; MCZ- Miconazole; MFG- Micafungin; KCZ- Ketoconazole; PCR- Polymerase chain reaction.