

CRYPTOCOCCOSIS

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Several mammalian species, Cercopithecidae, Cebidae, Prosimiae, Scandentia.	Aerogenously	Lethargy, CNS-symptoms, lymphadenitis	Yes	Amphotericin B	<i>In houses</i> <i>in zoos</i>

Fact sheet compiled by Manfred Brack, formerly German Primate Center, Göttingen/Germany.	Last update 22.11.2008
Susceptible animal groups Dogs, horses, cats, nonhuman primates : <i>Cercopithecus ascanius</i> , <i>C. Neglectus</i> , <i>Allenopithecus viridans</i> , <i>Macaca mulatta</i> , <i>M. cyclopis</i> , <i>Mandrillus leucophaeus</i> , <i>Erythrocebus patas</i> , <i>Saimiri sciureus</i> , <i>Callithrix jacchus</i> , <i>Eulemur mongoz</i> , <i>Tupaia tana</i> , <i>T. minor</i>	
Causative organism <i>Cryptococcus neoformans</i> , (dimorphal fungus, normally not growing in its mycelial phase)..	
Zoonotic potential Yes, particularly in immunocompromised (AIDS) patients.	
Distribution World – wide, predominantly in USA	
Transmission Probably aerogenously from soil, pigeon droppings, bat guano.	
Incubation period	
Clinical symptoms Lethargy, seizures, blindness, lymphangitis, lymphadenitis.	
Post mortem findings Fibrinonecrotizing enteritis, granulomatous lymphangitis or lymphadenitis, meningoencephalitis, gelatinous cysts in brain, lungs, heart or other organs. Macrophages are the principal inflammatory cells in brain lesions!	
Diagnosis Histopathology, fresh smears (Indian ink, mucicarmine – red- or methenamine silver staining), immunohistochemistry, serology.	
Material required for laboratory analysis Gelatinous materials, organs (necropsy).	
Relevant diagnostic laboratories 1. Konsiliarlaboratorium fuer <i>Cryptococcus neoformans</i> , <i>Pseudoallescheria boydii</i> /Scedosporidium spp. Und Erreger außereuropaeischer Systemmykosen, Robert Koch-Institut, Mykologie Nordufer 20 13353 Berlin Tel.: 01888 – 754 – 2208 Fax.: 01888 – 754 – 2614 e-mail: tintelnot@rki.de 2. Institut für Medizinische Mikrobiologie, Unversitätskliniken Göttingen Kreuzbergin 57 37075 Göttingen, Germany Tel.: 0551 – 39 5801 Fax: 0551 – 39 5861 e-mail: ugross@gwdg.de	

Treatment Amphotericin B (0.5 – 1 mg/kg/day for 10 weeks).
Prevention and control in zoos
Suggested disinfectant for housing facilities
Notification
Guarantees required under EU Legislation
Guarantees required by EAZA Zoos
Measures required under the Animal Disease Surveillance Plan
Measures required for introducing animals from non-approved sources
Measures to be taken in case of disease outbreak or positive laboratory findings
Conditions for restoring disease-free status after an outbreak
Experts who may be consulted 1. Prof. Dr. U. Groß Inst. Med. Mikrobiol. Univ. Göttingen; 2. Dr. K. Tintelnot Robert Koch-Institut Berlin
References <ol style="list-style-type: none"> 1. Barrie, M T., and C. K. Stadler. 1990. Antemortem diagnosis and treatment of cryptococcosis in an Allen's swamp monkey (<i>Allenopithecus nigroviridis</i>). Proc. Am. Assoc. Zoo Vets. Annu. Meet., p. 274 2. Barrie, M.T., and C. K. Stadler. 1995. Successful treatment of <i>Cryptococcus neoformans</i> infection in an Allen's swamp monkey (<i>Allenopithecus nigroviridis</i>) using fluconazole and flucytosine. J Zoo Wildl. Med. 26 : 109 – 114. 3. Bodey, G. P. 1999. Fungal infections in immunocompromised patients. II. Aspergillosis and cryptococcosis. Infect. Dis. Rev. 1 : 87 – 92. 4. Brack, M. 1987. Agents Transmissible from Simians to Man. Springer- Verlag, Berlin. Pp. 281 – 284 5. Bodey, G. P. 1999. Fungal infections in immunocompromised patients. I. Aspergillosis and cryptococcosis. Infect. Dis. Rev. 1 : 87 – 92. 6. Helke, K. L., M. C. Denver, E. Bronson, and J. L. Mankowski. 2006. Disseminate cryptococcosis in a guenon (<i>Cercopithecus ascanius</i>). Vet. Pathol. 43 : 75 – 78. 7. Juan – Salles, C., A Mario, and M. Domingo. 1998. Intestinal cryptococcosis in a common marmoset (<i>Callithrix jacchus</i>). J. Med. Primatol. 27 : 298 – 302. 8. Morris, P. J., L. Laratta, and A. Legendre. 1987. Dacrocystitis caused by <i>Cryptococcus neoformans</i> in a drill baboon (<i>Papio leucophaeus</i>) Proc. 1. Int. Conf. Zool. Av. Med. East Northport, N.Y., pp. 455 – 458. 9. Pal., M., G. D. Dube, and B. S. Mehrotra. 1984. Pulmonary cryptococcosis in a rhesus monkey (<i>Macaca mulatta</i>). Mykosen 27 : 309 – 312 10. Roussilhon, C., J. – M. Postal, and P. Ravisse. 1987. Spontaneous cryptococcosis of a squirrel monkey (<i>Saimiri sciureus</i>) in French Guyana. J. Med. Primatol. 16 : 39 – 47..