



## BAYLISASCARIASIS

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Raccoons; Orangutan; Gibbon, macaques, <i>Ateles</i> sp.; Golden lion tamarins; Ruffed lemur man	perorally	Eosinophilic encephalitis, neuroretinitis	yes	Albendazole	<i>In houses</i> Strict hygienic control  <i>in zoos</i>  destruction of raccoon latrines

<b>Fact sheet compiled by</b> Manfred Brack, formerly German Primate Center, Göttingen/Germany.	<b>Last update</b> 22.11.2008
<b>Susceptible animal groups</b> : primary host : raccoon ( <i>Procyon lotor</i> ) Paratenic hosts : man, <i>Pongo pygmaeus</i> , <i>Hylobates lar</i> , <i>Macaca fuscata</i> , <i>Ateles</i> sp., <i>Leontopithecus rosalia chrysomelas</i> , <i>Varecia variegata</i> .	
<b>Causative organism</b> <i>Baylisascaris procyonis</i> (rarely <i>B.columnaris</i> ).	
<b>Zoonotic potential</b> Yes- through contact with raccoon feces.	
<b>Distribution</b> In raccoons:USA, Germany, Canada, Poland, Czech Republic, Japan., in nonhuman primates: USA	
<b>Transmission</b> Peroral ingestion of embryonated eggs.	
<b>Incubation period</b> Up from 15 days (exp.infection) to several months.	
<b>Clinical symptoms</b> In nonhuman primates: depression, head tilt, Babinski-reflexes, araxias, tremors,death; in man: lethargy, irritation, somnolence, Babinski-reflexes, ataxias,paralyses, spasms, coma, death. In ocular infections unilateral neuroretinitis, blindness.	
<b>Post mortem findings</b> Eosinophilic, granulomatous encephalitis.	
<b>Diagnosis</b> In raccoon feces: ovodiagnosis; In man and nonhuman primates mainly post-mortem: eosinophilic encephalitis with cross sections of large nematode larvae with patent, round gut.	
<b>Material required for laboratory analysis</b> Raccoon feces, brain tissues of suspected animals.	
<b>Relevant diagnostic laboratories</b> Dept. Pathobiol. Purdue Univ., West Lafayette, Indiana/USA.	
<b>Treatment</b> In raccoons: piperazine citrate, in man and nonhuman primates Albendazole possible (anti-nematode effects,blood-brain barrier crossing), but still questionable.	
<b>Prevention and control in zoos</b> Identification and heat destruction (propane torch) of raccoon latrines.	
<b>Suggested disinfectant for housing facilities</b> Heat destruction of raccoon latrines	



<b>Notification</b>
<b>Guarantees required under EU Legislation</b>
<b>Guarantees required by EAZA Zoos</b>
<b>Measures required under the Animal Disease Surveillance Plan</b>
<b>Measures required for introducing animals from non-approved sources</b>
<b>Measures to be taken in case of disease outbreak or positive laboratory findings</b>
<b>Conditions for restoring disease-free status after an outbreak</b>
<b>Experts who may be consulted</b> Dr. Kevin Kozakos, Purdue University, West Lafayette/Indiana/USA.
<b>References</b> <ol style="list-style-type: none"><li>1. Ball, R., L., M. Dryden, S. Wilson, and J. Veatch (1998). Cerebrospinal nematodiasis in a white – handed gibbon (<i>Hylobates lar</i>) due to <i>Baylisascaris</i> sp. <i>J. Zoo Wildl. Med.</i> 29 : 221 – 224;</li><li>2. Campbell, G. A., J. P. Hoover, W. C. Russell, and J. E. Breazile (1997). Naturally occurring cerebral nematodiasis due to <i>Baylisascaris</i> larval migration in two black – and – white ruffed lemurs (<i>Varecia variegata variegata</i>) and suspected cases in three emus (<i>Dromaius novaehollandicus</i>). <i>J. Zoo Wildl. Med.</i> 28: 204 – 207;</li><li>3. Fox, A. S., K. R. Kazakos, N. S. Gould, P. T. Heydemann, C. Thomas, and K. M. Boyer. 1983. Fatal eosinophilic meningoencephalitis and visceral larva migrans caused by the raccoon ascarid <i>Baylisascaris procyonis</i>. <i>New Engl. J. Med.</i> 312 : 1619 – 1623.</li><li>4. Garlick, D. S., L. C. Marcus, M. Pokras, and S. H. Schelling (1996). <i>Baylisascaris</i> larva migrans in a spider monkey (<i>Ateles</i> sp.). <i>J. Med. Primatol.</i> 25: 133 – 136;</li><li>5. Hanley, C. S., H. A. Simmons, R. S. Wallace, and V. L. Clyde (2006). Visceral and presumptive neural baylisascariasis in an orang-utan (<i>Pongo pygmaeus</i>). <i>J. Zoo Wildl. Med.</i> 37: 553 – 557;</li><li>6. Kazacos, K. R., W. Wirtz, P. Burger, and C. Christmas. 1981. Raccoon ascarid larvae as a cause of fatal central nervous system disease in nonhuman primates. <i>J. Am. Vet. Med. Assoc.</i> 179 : 1089 – 1094.</li><li>7. Page, L. K., R. K. Swinhart, and K. R. Kazacos. 1998. Raccoon latrine structure and its potential role in transmission of <i>Baylisascaris procyonis</i> to vertebrates. <i>Am. Midl. Nat.</i> 140 : 150 – 185.</li><li>8. Pessier, A. P., C. Stringfiel, J. Tragle, H. J. Holshuh, D. K. Nichols, and R. J. Montali (1997): Cerebrospinal nematodiasis due to <i>Baylisascaris</i> sp. in golden headed lion tamarins (<i>Leontopithecus chrysomelas</i>): implications for management. <i>Proc. Am. Assoc. Zoo Vets.</i> 1997: 245 – 247;</li><li>9. Sato, Y., Y. Une, S. Kawakami, E. Saito, H. Kamiya, N. Akao, and H. Furuoka (2005). Fatal <i>Baylisascaris</i> larva migrans in a colony of Japanese macaques kept by a safari – style zoo in Japan. <i>J. Parasitol.</i> 91: 716 – 719;</li><li>10. Stringfield, C. E., and C. J. Sedgwick (1997). <i>Baylisascariasis</i>: a zoo - wide experience. <i>Proc. Am Assoc. Zoo Vets.</i> 1997: 73 – 77;</li><li>11. Wise, M., F. J. Sorvillo, S. C. Shafir, L. R. Ash, and O. G. Berlin (2005). Severe and fatal central nervous system disease in humans caused by <i>Baylisascaris procyonis</i> , the common roundworm of raccoons : a review of the current literature. <i>Microbes Infect.</i> 7: 317 – 323.</li></ol>