

ANCYLOSTOMIASIS (HOOKWORM DISEASE)

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Pongidae, Cercopithecidae, Cebidae.	Percutaneous-ly (in man also perorally via breast milk).	Larva migrans symptoms, dyspnea, diarrhea.	rarely	Mebendazol	<i>In houses</i> <i>in zoos</i>

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Susceptible animal groups <i>Gorilla gorilla, Pan troglodytes, Hylobates sp., Papio sp., Macaca mulatta, Cercopithecus mona : A. duodenale ; Cebus capucinus, Ateles sp., Erythrocebus patas, Cercopithecus mona : Necator americanus.</i>	
Causative organism <i>Ancylostoma duodenale, Necator americanus</i> (Nematoda, Strongylina: Ancylostomatidae).	
Zoonotic potential Yes.	
Distribution <i>A. duodenale</i> : world-wide, predominantly in tropical/subtropical S.E. Asia and America; <i>N. americanus</i> : tropical and subtropical rain forests.	
Transmission Percutaneously by filariform (3 rd stage) larvae.	
Incubation period	
Clinical symptoms Pot belly syndrome, apnea, cutaneous larva migrans, persistent diarrhea, in man also anemia.	
Post mortem findings Not reported in nonhuman primates.	
Diagnosis Ovodiagnosis (cave: ancylostomatid eggs may be confused with the very similar oesophagostomid eggs!), followed by fecoculture of filariform larvae (Harada-Mori technique).	
Material required for laboratory analysis	
Relevant diagnostic laboratories	
Treatment Mebendazole (2 x 15 mg / kg or 10 x 3 mg / kg). Ivermectin is almost useless against adult ancylostomes, but very effective against migrating larva nigrans. Albendazole (400 mg for 1 – 5 days).	
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
References <ol style="list-style-type: none">1. Brack, M. 1987. Agents Transmissible from Simians to Man. Springer Verlag, Berlin, pp 333 – 339.2. Caumes, E., J. Carriere, A. Datry, P. Gaxotte, M. Danis, and M. Gentilini. 1993. A randomized trial of ivermectin versus albendazole for the treatment of cutaneous larva migrans. Am. J. Trop. Med. Hyg. 49 : 641 – 644.3. Eulenberger, K., C. Bachmann, A. Bernhard, R. Scheller, und R. Schmaeschke. 2001. Quarantäne von illegal aus Nigeria eingeführten Monameerkatzen (<i>Cercopithecus mona</i>). Proc. Arb. Tag. Zootierärzte dtsch.spr. Raum 21 : 42 – 48.4. Harada, Y., and O. Mori. 1955. A method for culturing hookworm. Yonago Acta Med. 1955 : 177 – 179.5. Jozefzoon, L. M. E., and B. F. Oostburg. 1994. Detection of hookworm and hookworm – like larvae in human fecocultures in Suriname. Am. J. Trop. Med. Hyg. 51 : 501 – 505.6. Naqira, C., G. Jimenez, J. G. Guerra, R. Bernal, D. R. Nalin, D. Neu, and M. Aziz. 1989. Ivermectin for human strongyloidiasis and other intestinal helminths. Am. J. Trop. Med. Hyg. 40 : 304 – 309.