

OESOPHAGOSTOMIASIS

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Old World monkeys, great apes, man	Perorally	Diarrhea, weight loss, weakness	In heavy infections yes	Thiabendazole	<i>In houses</i> Ovocontrol, steam disinfection of wood-chip beddings / soil. <i>in zoos</i> ovocontrol Steam disinfection of wood-chip beddings / soil

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Susceptible animal groups Great apes, Old World monkeys, man.	
Causative organism <i>Oesophagostomum apistomum</i> , <i>O.aculeatum</i> , <i>O. bifurcum</i> , <i>O stephanostomum</i> , <i>O.kherai</i> .	
Zoonotic potential Yes.	
Distribution As natural infections: Africa, Asia, in captivity : World-wide.	
Transmission Perorally through the sheathed fourth larval stages (very resistant to drying!).	
Incubation period	
Clinical symptoms Minor infections are usually well tolerated, heavy infections induce diarrhea, weight loss, weakness , and death, in man "Dapaong tumor". <i>O.stephanostomum</i> appears especially harmful in orangutans.	
Post mortem findings Semi-globose to lentil-shaped, pearl-like or greenish-grey to blackish nodules of 2 – 5 mm diameter in the submucosal layer of the large intestines. On the cut surface the nodules are cysts filled by a brown, creamy material and connected to the intestinal lumen by a small ulcer. (The swallowed 3 rd larvae burrow into the large intestinal submucosa, and return after one more molt to the intestinal lumen. In pre- immunized hosts the return to the intestinal lumen is blocked by immune reactions, the larvae are trapped and die, thereby leading to inflammation, necrosis and haemorrhages in the surrounding tissues: cyst formation).	
Diagnosis Ovodiagnostic (Cave: <i>Oesophagostomum</i> – eggs are easily confused with hookworm-eggs!) PCR-RFLP, Random Amplified Polymorphic DNA –Gel – electrophoresis.	
Material required for laboratory analysis Faecal samples, at necropsy adult worms, nodular tissues.	
Relevant diagnostic laboratories Local veterinary laboratories.	
Treatment Thiabendazole.	
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, Berlin.2. Chang, C. C., and V. – F. Pang. 1994. Oesophagostomiasis in black gibbon (<i>Hylobates concolor</i>) and orang utan (<i>Pongo pygmaeus</i>). J Chin. Soc. Vet. Sci. 20 : 357 – 361.3. de Gruijter, J. M., J. Ziem, J. J. Verweij, A. M. Polderman, and R. B. Gasser. 2004. Genetic substructuring within <i>Oesophagostomum bifurcum</i> (Nematoda) from human and non – human primates from ghana based on random amplified polymorphic DNA analysis. Am..J. Trop. Med. Hyg. 71 : 227 – 233.4. Gasser, R. B., W. G. Wood, M. A. Huffman, J. Blotkamp, and A. M. Polderman. 1999. Molecular separation of <i>Oesophagostomum stephanostomum</i> and <i>Oesophagostomum bifurcum</i> (Nematoda : Strongyloidea) from non – human primates. Int. J. Parasitol. 29 : 1087 – 1091.5. Kalia, D. C. 1985. On a new strongyloid nematode (Chabertiidae : Oesophagostominae) from langur, <i>Presbytis entellus</i> (Dufresne). Res. Bull. Panjab Univ. 36 : 405 – 407.6. Krepel, H. P., S. Baeta, C. Kootstra, and A. M. Polderman. 1995. Reinfection pattern of <i>Oesophagostomum bifurcum</i> after anthelmintic treatment. Trop. Geogr. Med. 47 : 160 – 163.7. Krepel, H. P., E. A. van der Velde, S. Baeta, and A. M. Polderman. 1995. Quantitative interpretation of coproculture in a population infected with <i>Oesophagostomum bifurcum</i>. Trop. Geogr. Med. 47 : 157 – 159.8. Pit, D. S., S. M. Baeta, and A. M. Polderman. 1997. Seasonality of <i>Oesophagostomum bifurcum</i> transmission in man. Am. J. Trop. Med. Hyg. 57 (Suppl.3) : 167.9. Polderman, A. M., and J. Blotkamp. 1995. <i>Oesophagostomum</i> infections in humans. Parasitol. Today 11 : 451 – 456.10. Polderman, A. M., H. P. Krepel, S. Baeta, J. Blotkamp, and P. Gigase. 1991. Oesophagostomiasis, a common infection of man in northern Togo and Ghana. Am. J. Trop. Med. Hyg. 44 : 336 – 344.11. Romstad, A., R. B. Gasser, P. Nansen, A. M. Polderman, J. R. Monti, and N. B. Chilton. 1997. Characterization of <i>Oesophagostomum bifurcum</i> and <i>Necator americanus</i> by PCR-RFLP of rDNA. J. Parasitol. 83 : 963 – 966.12. Stewart, T. B., and L. C. Gasbarre. 1989. The veterinary importance of nodular worms (<i>Oesophagostomum</i> spp.). Parasitol. Today 5 : 209 – 213.