

SCHISTOSOMIASIS

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Old World monkeys, great apes	Percutaneous-ly	<i>S.mansoni</i> : Anaemia, ascites, hepatomegaly emaciation, anorexia <i>S.haematobium</i> : hydronephro-sis	Occasionally	Praziquantel	<i>In houses</i> <i>in zoos</i>

Fact sheet compiled by Manfred Brack, formerly German Primate Center, Göttingen / Germany.	Last update November 2003
Fact sheet reviewed by W. Rietschel, Wilhelma Zoologischer-Botanischer Garten, Stuttgart, Germany C. Furley, Howletts Zoo, Bekesbourne, United Kingdom	
Susceptible animal groups <i>Pan troglodytes</i> , Cercopithecidae.	
Causative organism <i>Schistosoma mansoni</i> , <i>S.haematobium</i> .	
Zoonotic potential Yes.	
Distribution <i>S.mansoni</i> : Africa, Asia, South America, West Indies, <i>S.haematobium</i> : Africa, Asia.	
Transmission Percutaneous. From eggs in faeces or urine developed Miracidia are released into fresh water, they develop to cercaria in fresh water snails (<i>Biomphalaria</i> spp. in <i>S.mansoni</i> , <i>Bulinus</i> spp. in <i>S.haematobium</i>). Cercaria emerging from the snails float at the water surface and infect new hosts percutaneously. Juvenile animals are probably more susceptible to <i>S.mansoni</i> infections than adults.	
Incubation period In chimpanzees 42 days.	
Clinical symptoms <i>S.mansoni</i> : Anaemia, ascites, hepatomegaly, emaciation, anorexia, death; <i>S.haematobium</i> : in experimentally infected baboons and chimpanzees: hydronephrosis.	
Post mortem findings <i>S.mansoni</i> : portal / periportal hepatic fibrosis (pipe stem fibrosis), hepatomegaly, colonic mucosal erosions near the nesting sites of adult schistosomes. <i>S.haematobium</i> : granulomas along the urinary tract, especially in the urinary bladder wall.	
Diagnosis Ovodiagnosis (Telema concentration technique) Serology: agargel – immunoprecipitation, ELISA.	
Material required for laboratory analysis Faecal samples, serum.	
Relevant diagnostic laboratories Nationales Referenzzentrum für tropische Infektionserreger am Bernhard-Nocht-Institut für Tropenmedizin Bernhard-Nocht-Str. 74 D 20359 Hamburg, Germany Phone : 040 42818 401 Fax: " " 400 e-mail: MZD@bni-hamburg.de	
Treatment	



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. B. Fleischer, NRZ Hamburg 2. Prof. Dr. H. Schmitz, “ “
References 1. Brack, M. 1987. Agents Transmissible from Simians to Man. Springer, Berlin. 2. Lunde, M. N., and E. A. Ottessen. 1980. Enzyme – linked immunosorbent assay (ELISA) for detecting IgM and IgE antibodies in human schistosomiasis. Am. J. Trop. Med. Hyg. 29: 82 – 85. 3. Müller – Graf, C. D. M., D. A. Collins, C. Packer, and M. E. J. Woolhouse. 1997. <i>Schistosoma mansoni</i> infection in a natural population of olive baboons (<i>Papio cynocephalus anubis</i>) in Gombe Stream National Park, Tanzania. Parasitology 115: 621 – 627. 4. Muriuki, S. M. K., R. K. Murugu, E. Munene, G. M. Karere, and D. C. Chai. 1998. Some gastro – intestinal parasites of zoonotic (public health) importance commonly observed in Old World non – human primates in Kenya. Acta Trop. 71: 73 – 82. 5. Njenga, M. N., I. O. Farah, G. K. Muchemi, and M. Nyindo. 1998. Peri – portal fibrosis of the liver due to natural or experimental infection with <i>Schistosoma mansoni</i> occurs in the Kenyan baboon. Ann. Trop. Med. Parasitol. 92: 187 – 193. 6. Polman, K., F. F. Stelma, B. Gryseels, G. J. van Dam , I. Talla, M. Niang, L. van Lieshout., and A. M. Deelder. 1995. Epidemiologic application of circulating antigen detection in a recent <i>Schistosoma mansoni</i> focus in northern Senegal. Am. J. Trop. Med. Hyg. 53: 152 – 157. 7. Rotmans, J. P., and G. W. Mooij. 1980. Separation and comparative immunoassay (DASS, ELISA) with antigens from adult <i>Schistosoma mansoni</i> . Trans. R. Soc. Trop. Med. Hyg. 74: 463 – 468. 8. Sturrock, R. F., J. Bain, G. Webbe, M. J. Doenhoff, and H. Stohler. 1987. Parasitological evaluation of curative and subcurative doses of 9 – acridone – hydrazone drugs against <i>Schistosoma mansoni</i> in baboons, and observations on changes in serum levels of anti – egg antibodies detected by ELISA. Trans. R. Soc. Trop. Med. Hyg. 81: 188 – 192. 9. Tscherner, W. 1995. Zu Vorkommen und Bedeutung von Helminthen bei Primaten. Verh. ber. Erkr. Zootiere 37: 193 – 199. 10. Zahed, N. Z., A. M. Ghandour, A. A. Banaja, R. K. Banerjee, and M. S. Dehlaw. 1996. Hamadryas baboons <i>Papio hamadryas</i> as maintenance hosts of <i>Schistosoma mansoni</i> in Saudi Arabia. Trop. Med. Int. Health 1: 449 – 455.