

Case Report

CONCURRENT FATAL HELMINTHOSIS AND BALANTIDOSIS IN RED MONKEY (*Erythrocebus patas*) IN IBADAN, NIGERIA

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SUMMARY

Fresh fecal specimen from a moribund red monkey (*Erythrocebus patas*) from the zoological garden, University of Ibadan with a history of dysentery was examined. Ova of *Trichuris spp.*, *Enterobius spp.*, *Ancylostoma spp.* and *Strongyloides spp.*, as well as *Balantidium spp* oocysts were found. Post mortem, findings revealed the large intestine heavily infected with worms especially *Trichuris spp.*, *Ancylostoma spp.* and *Trichostrongylus spp.* which were enmeshed in a thick layer of mucous and blood on the mucosa. The public health importance is discussed.

KEY WORDS: Helminthosis, Balantidium, Diarrhoea, Monkey.

INTRODUCTION

Gastrointestinal parasitism in the captive and free wild primates has been reported (Mc, Connell *et al.*, 1974; Pandey, 1978; Gorman *et al.*, 1986; Loomis and Wright, 1986; Brock Utne *et al.*, 1988, Nwosu, 1995) while the efficacy of various drugs in the treatment of such infection has been reported in zoo animals (Kumar *et al.*, 1978; Kan, 1983). The public health importance of some of certain helminths like *Trichuris spp* and *Oesophagostomum spp.* has also been reported (Okon and Dipeolu 1975; Chang and McClure, 1975).

In Nigeria, there had been few reports of helminthosis in primates (Okon and

Dipeolu, 1975; Bamidele and Ogunrinade, 1980; Nwosu, 1995) with few fatal cases (Emikpe, *et al.*, 2002). In these reports, mixed infections with protozoan parasites were not observed. Heavy mixed infections of helminth parasites superimposed with protozoa parasites often vary from the normal or expected clinical manifestation, such as the case of the red monkey, *Erythrocebus patas*, with a concurrent helminthosis and balantidosis resulting in death which is hereby reported.

MATERIALS AND METHODS

An adult male red monkey (*Erythrocebus patas*) in a group of four, with history of chronic dysentery;

dehydration and anorexia for a week was presented for post mortem examination in the department of veterinary pathology, University of Ibadan. The carcass was presented fresh but emaciated with sunken eyes. The perianal region was soiled with dark tarry diarrhoeic faeces.

Fecal materials was obtained from the moribund monkey and examine for parasite eggs or cysts using a sodium chloride floatation method by Folaranmi *et al.*, 1982. Egg counts were not performed but visual estimation was made on the number of egg found on the 18 mm X 18 mm cover glass preparations. Positive scores ranging from one plus to four pluses (+ - +++) were used to represent degree of infection as described by Folaranmi *et al.*, 1982, in hookworm infection in dogs. Post mortem examination was carried out and the procedure for worm recovery and counting was according to Urquhart *et al.* (1996) while the identification using handlens and microscopy was according to Soulsby (1982) and Smyth (1994).

RESULTS AND DISCUSSION

There was large number of small and large worms in the colon and caecum. The worms were enmeshed in a thick hemorrhagic intestinal content (Fig. 1). The results of the faecal examination revealed very high faecal egg output for *Trichuris spp.*, Strongyles and Strongyloides. *Balantidium spp.* was numerous in the specimen examined. *Balantidium spp* outline with fine cilia suggests *Balantidium coli*. (Smyth 1994).



Fig. 1: Large numbers of worms enmeshed in a thick hemorrhagic large intestinal content

Identification of helminths recovered at post mortem showed that *Trichuris spp.*, *Ancylostoma spp* and *Enterbius spp* had the highest burden. *Trichostrongylus spp* was however few. This report shows that primates kept at the University zoological garden harbour infection with a variety of parasites as reported by Nwosu (1995) in Northern Nigeria. The infection rate in this case is relatively higher; this may be associated with the more humid environmental condition of Southern Nigeria, which favours the survival of helminth parasites. These parasites especially *Ancylostoma spp.*, *Trichuris spp.*, *Strongyloides spp* and *Balantidium coli* are of public health importance as reported by various workers (Okon and Dipeolu 1975; Chivers and Ford 1978; Kumar *et al.*, 1978; Nwosu, 1995). Therefore, cross infection may occur between the primates and human handlers through contaminated food or

water. Cases of human infection of these parasites; *Ancylostoma*, *Oesophagostomum* *Trichuris spp* and *Balantidium coli* have been reported, (Dipeolu, 1975; Chang and McClure, 1978; Chivers and Ford, 1978)

It should be noted that the severity of infection and its fatality may be associated with mixed infection of helminths such as *Ancylostoma* and *Trichuris spp* which are highly pathogenic in primates (Soulsby, 1982) and also potentiate endotoxaemia as reported by Brock – Utne *et al*, (1988). The severity of the acute enterocolitis observed in this case with hemorrhages, ulceration and fibrinous exudation could be attributed to effects of a mixed infection of these parasites and the resultant case fatality observed. Although *Balantidium coli* has been reported to have little effects on non-human primates (Chivers and Ford, 1978), the concurrent infection with the helminths and the potentiating endotoxaemia as reported by Brock – Utne *et al*. (1988) may account for the marked pathogenicity seen. Although the source of infection of the *Balantidium spp* is not clear, it has also been reported to the greatest in newly introduced zoo animals or in a stressed induced state, and in cases of faecal contamination of feed, hence the need to introduce strategic measures to reduce stress on zoo animals (Fraser *et al.*, 1991). In this case however, the level of hygiene at the zoo was fair but the routine health management of the primate was questionable. There is need for routine faecal examination for helminths and protozoans, appropriate chemotherapy in correct dosage and duration should be given as suggested by

Kumar *et al*. (1978) and Emikpe *et al*. (2002).

REFERENCES

- BAMIDELE, O. and OGUNRINADE, A.F. (1980): Helminth parasites of captive animals. *Afr. J. Ecol.* **18**: 265 – 266.
- BROCK – UTNE J.G., WESSELS B., WELLS M.T. and GAFFIN S. L. (1988): Helminthiasis causes low grade Endotoxaemia in primates. *Veterinary Medical Review* **59**: 88 – 89.
- CHANG J. and MCCLURE H.M. (1975): Disseminated oesophagostomiasis in the Rhesus Monkey. *J. Am. Vet. Med. Ass.* **169**: 628 – 630.
- CHIVERS D.J. and FORD E.H.R. (1978): *Recent Advances in Primatology* Vol. 4 (Medicine) Academic Press Ltd London, 29 – 30.
- DIPEOLU, O.O. (1975): Public health aspects of parasitic infection of zoo: Agodi gardens experience. *The Vet. Surgeon Journal*, **4**: 40 – 43.
- EMIKPE, B.O. AYOADE, J.O., OHORE, O.G. OLANIYAN, O.O. and AKUSU, M.O. (2002): Fatal trichuriasis in a captive baboon (*Papio anubis*) in Ibadan. *Tropical Veterinarian*. **20**: 36–39.
- FOLARANMI, D.O.B., USMAN, S., OKWORI, J. and GIMBA, D., (1982): Incidence of hookworm

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- infection in dogs in Zaria area (Nigeria). *Nig. Vet. J.* **11**: 55 – 58
- FRASER C.M. BERGERON J., MAYS A. and AIELLO S.L. (1991): The Merck Veterinary Manual 7th Edn. Merck and Co Inc. U.S.A : 227; 998.
- GORMAN, T.R., RIVEROS, V., ALCAINO, H.A., SALAS, D. R. and THIERMANN, E. R. (1986): Helminthiasis and toxoplasmosis among exotic mammals at the Santiago National zoo. *J. Am. Vet. Med. Ass.* **189**: 1068 – 1070.
- KAN S. P. (1983): The anthelmintic effects of flubendazole on *Trichuris trichiura* and *Ascaris lumbricoides*. *Trans. Royal Soc. Trop. Med. Hyg.* **77**: 668 – 670.
- KUMAR, V., CENLEMANS, F. and DE MEURICHY, W. (1978): Chemotherapy of helminthiasis among wild mammals. IV. Efficacy of Flubendazole 5% (17889) against *Trichuris trichiura* of baboons, *Papio Hamadryas*. *Acta zool. Pathol. Antverp.* **13**: 3 – 9.
- LOOMIS, M.R. and WRIGHT J.F. (1986): Gastric trichuriasis in a black and white colobus monkey. *J. Am. Vet. Med. Ass.* **189**: 1214 – 1215.
- MCCONNELL, E. E., BASSON, P. A., DEVOS, V., MYYERS, B. J., and KRUNTZ, R.E. (1974). A Survey of Diseases among 100 Free – Ranging Baboons *Papio Ursinus* from the Kruger National Park. *Onderstepoort. Journal of Veterinary Research* **41**: 97 – 168.
- NWANSU, C.O. (1995): Helminth parasites of captive wild animals in Borno State of Nigeria. *Tropical Veterinarian.* **13**: 59 – 64.
- OKON, E.D. and DIPEOLU, O.O. (1975): *Trichuris Muris* in Monkey. *Journal of Nigeria Veterinary Medical Association* **4**: 51.
- PANDERY, V.S. (1978): Observations on gastro intestinal helminths of zoo animals in Lubumbashi, Zaire – a coprological survey. *Bull. Anim. Hlth. Prod. Afr.* **26**:361.
- SMYTH J.D. (1994): Introduction to Animal Parasitology 3rd Ed. Cambridge University Press 50 – 95
- SOUSBY, E.J. (1982): *Helminths, Arthropods and Protozoa of Domesticated Animals.* 6th ed. London, Bailliere. Tindal and Cassel Ltd. 788 – 791.
- URQUHART G.M. AMOUR J DUNCAN J.L, DUNN A.M. and JENNINGS F.W. (1996) *Veterinary Parasitology* 2nd Ed Black well Science Ltd : 278 - 279.