

Eimeria trichechi n.sp. from the Amazonian manatee, *Trichechus inunguis* (Mammalia: Sirenia)

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Summary

Eimeria trichechi n.sp. is described and figured from the manatee, *Trichechus inunguis*, from Amazonas State, north Brazil. Undifferentiated oocysts are passed in the faeces and complete their sporulation in ~36h at 24 to 26°C. Oocysts are spherical, with a mean size of $13.40 \times 13.30 \mu\text{m}$. The wall is uni-layered, smooth, colourless and ~0.5 μm thick; there is no micropyle, oocyst residuum or polar body. Sporocysts are ellipsoidal, with a mean size of $8.65 \times 4.62 \mu\text{m}$. The sporozoites are longer than the sporocyst and recurved at their ends: there is a sporocyst residuum of fine granules, but no visible Steida body.

Introduction

Coccidial oocysts were found by direct examination of the faeces of 9 out of 14 (64%) apparently healthy, captive adult manatees, *Trichechus inunguis* (the 'peixe-boi'), obtained from rivers in Amazonas State, north Brazil. Sporulation of the oocysts showed the parasite to be a hitherto unrecorded species of *Eimeria*, described below.

Materials and methods

The manatees (Figs. 1 and 2) were isolated singly in clean, dry tanks until they defaecated, which was usually promptly. Faecal material was suspended in 2.0% (w/v) aqueous $\text{K}_2\text{Cr}_2\text{O}_7$ solution and placed, in thin layers, in loosely covered Petri-dishes kept at ~24–26°C. Fifty oocysts and 25

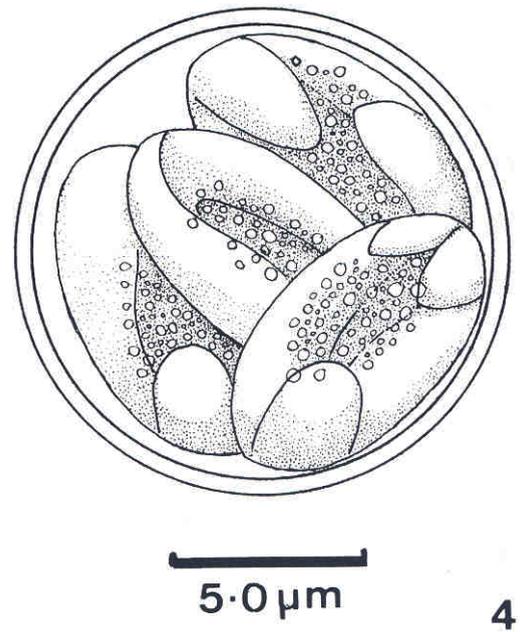
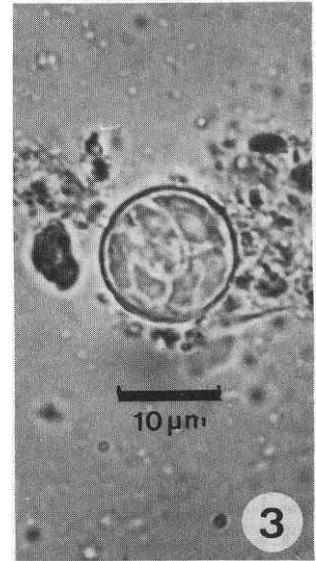
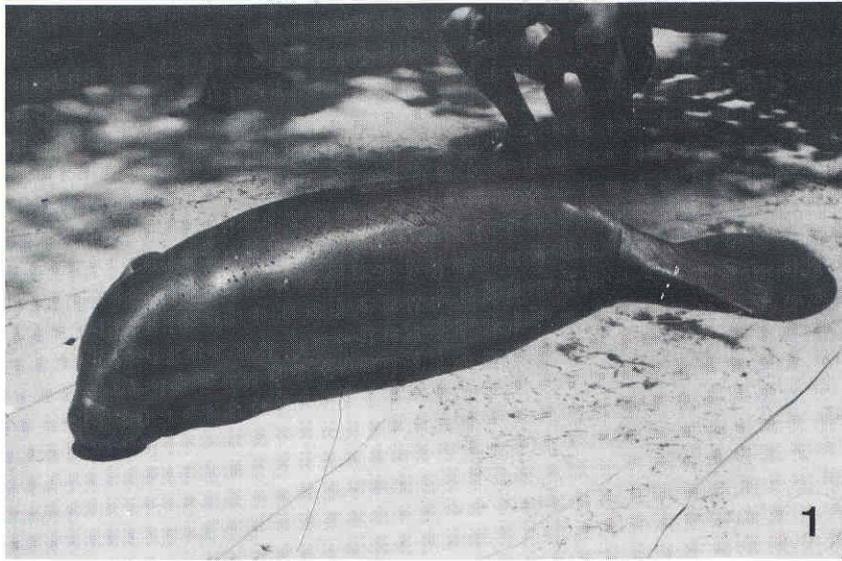
sporocysts were measured by reflected light microscopy, using an ocular micrometer. All measurements are recorded in micrometres (μm) and means are given with their standard deviations.

Results

Eimeria trichechi n. sp. (Figs. 3 and 4)

Diagnosis: The oocysts are passed undifferentiated: they are spherical, with a mean size of 13.4 ± 1.06 (range 11.25–16.25) \times 13.3 ± 1.11 (range 11.25–16.25). The wall is uni-layered, smooth, colourless and ~0.5 thick. When first passed, the zygote (sporont) almost fills the oocyst but condenses to ~7.5 in diameter before sporoblast

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Figs. 1 and 2. The manatee, *Trichechus inunguis*, isolated in a dry aquarium for the collection of faecal samples. Figs. 3 and 4. Photomicrograph and semi-diagrammatic representation of the mature oocyst of *Eimeria trichechi* n.sp.

formation. There is no alteration in the size of the oocysts during the process of maturation and no micropyle, oocyst residuum or polar bodies could be detected.

A few mature oocysts were first seen after 36 h and most were fully developed at 48 h (Figs. 3 and 4).

The four sporocysts are ellipsoidal, with a mean size of 8.65 ± 0.49 (range 7.5–10.0) \times 4.62 ± 0.67 (range 3.75–6.25). The wall is very thin, colourless and without a Steida body. The two sporozoites are longer than the sporocyst and recurved at their ends: refractile bodies, if present, are very inconspicuous. There is a finely granular sporocyst residuum, lying principally in the space between the two sporozoites. The sporocysts may become deformed with age.

Type Host: The Amazonian manatee, *Trichechus inunguis* (Mammalia: Sirenia).

Developmental Site in Host: Uncertain: most probably in the epithelial cells of the intestine.

Type Locality: River Ariáú, Manacapuru, Amazonas State, north Brazil.

Type Material: Formol-fixed faecal material containing mature oocysts deposited in the Wellcome Parasitology Unit, Section of Parasitology, The Instituto Evandro Chagas, Belém, Pará, Brazil. Holotype 'Peixe-boi Cairé' dd 29/06/1982. Paratypes 'Peixe-boi 02-08' dd 17/11/1982

Discussion

Although oocysts were not seen in the faeces of five of the fourteen manatees examined, we used no concentration methods and it is very likely that the infection-rate is higher than recorded here.

The small numbers of oocysts passed, and the absence of any signs of disease in the infected animals, suggests this coccidial infection to be of a benign nature. It may be of prolonged duration, however, as oocysts were found in the faeces of one manatee when it was examined in January, March and November of the same year.

Since these studies were concluded, an examination of faecal samples from *newly captured* manatees has revealed oocysts of *E. trichechi* in seven out of eight of these animals (87.5%), and this suggests that the unduly close contact of the captive manatees was not the sole factor responsible for the high infection-rate. It is probably simply due to the frequent coprophagous habit shown by *T. inunguis*, as recently discussed by Best (1981).

The site of development of *E. trichechi* in its host has yet to be ascertained: the manatee is a protected animal in Brazil and we have so far had no opportunity to examine an autopsied specimen for the endogenous stages of the parasite.

The oocysts present no unusual features other than their small size. This does appear to be the first record of a coccidian from a member of the Sirenia, however, – a very restricted group of aquatic mammals, represented only by the two genera *Dugong* and *Trichechus* in the Old and New World tropics.

Reference

- Best, R.C. (1981) Foods and feeding habits of wild and captive Sirenia. *Mammal Review*, **11**, 3–29.

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