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ON *ENTEROBIUS VERMICULARIS MICROBULBUS*
SUBSP. NOV. FROM A CHIMPANZEE

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For the species of *Enterobius* in primates, CAMERON (1929) has presented morphological descriptions of 11 species having the specific tribal names as follows; *vermicularis*, *anthropopitheci*, *foecundus* (= *simice*), *bipapillatus*, *pitheci*, *microon*, *trypanuris*, *sceleratus*, *minutus*, *atelis*, *nycticebi*. Since that time, *E. sceleratus* and *E. atelis* have been transplacated respectively in the genera *Lobatorobius* and *Odontorobius* by SKRJABIN and SCHIKHOBALOVA (1951). Among these, *E. anthropopitheci* has been found only from the chimpanzee, and only females have been known. *E. vermicularis* is a common human parasite. However, REWELL (1950) has found this species from the chimpanzee in the London Zoological Garden. Also in Japan there have found *Enterobius* from the chimpanzees and every one of the specimens has been identified with *E. vermicularis*.

The authors have obtained 30 specimens of *Enterobius* from a chimpanzee of African birth; female, 4 years of age; by dosing an anthelmintic in the Maruyama Zoological Garden of Sapporo City. This parasite is different from the known species of *Enterobius* morphologically.

MORPHOLOGICAL DESCRIPTIONS

Only females of this species were found. The body is an elongated spindle, the anterior extremity being terminated by a vesicular swelling formed by the bulging of the cuticle, while the posterior is subulate. They measure 5.8 to 6.7 mm long by 0.36 to 0.64 mm wide. The cuticle striations are present from just behind the head almost to the tail. Cervical papillae are absent. The nerve ring is situated just behind the cephalic swelling. The excretory pore is situated just behind the oesophageal bulb.

The lips extend anterior to the cuticular expansion. There are no teeth present, but the lips have small depressions on the inner margins which give the appearance of apical teeth when viewed laterally. The dorsal lip carries 2 small papillae, while each ventral has a small papilla in a ventral position and a large fleshy papilla in a lateral position. The oesophagus consists of an elongated thin anterior portion joined by a very narrow commissure to a posterior portion. The anterior portion has almost parallel margins but

swells slightly in its posterior half. The oesophageal bulb is almost spherical, its diameter being 0.13 to 0.15 mm. The oesophagus measures 0.88 to 0.94 mm long (including the bulb); it represents 1/7.3 to 1/6.2 of the body length. The intestine is normal and terminates in a fairly long straight rectum. The anus is situated 1.52 to 1.92 mm from the tip of tail, equivalent to 1/4 to 1/3.4 of the body length.

The vulva is situated 1.48 to 1.88 mm from the anterior end, equivalent to 1/4.2 to 1/3.6 of the body length; it has 2 slightly salient lips. The vagina is a short broad posteriorly directed tube which divides to form the 2 uteri. These are continued as the ovaries—one of which turns just posterior to the vulva and ends posteriorly to the anus; the other turns just behind the oesophagus and ends just posterior to the vulva. In the gravid female the whole apparatus is transformed into a fusiform sac full of eggs, occupying the whole body from the oesophageal bulb to the anus. Only the ovjector remains.

The eggs are of the typical bean-shaped form and measure 53 to 58 μ by 24 to 28 μ .

REMARKS

This species is very different from *E. anthropopitheci*, which was first recorded from the chimpanzee by GEDOELST (1916), in respect to the presence of cuticular striations of the head part, the length of oesophagus, the size of oesophageal bulb, the situation of vulva and especially the size of eggs. It is also quite different from the other species of *Enterobius*, excepting *E. vermicularis*.

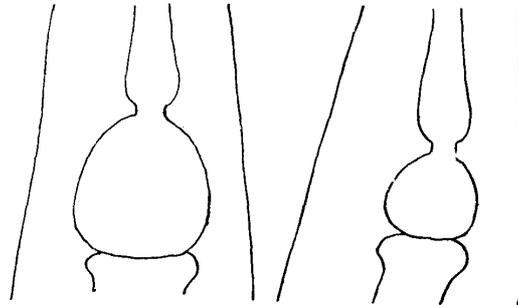
This species is obviously closely related to *E. vermicularis* collected from the human being, but differs in regard to the characters in the shape and size of oesophageal bulb (Fig. 1 and Table 1).

TABLE 1. *Dimensions of Oesophageal Bulb of E. vermicularis and E. vermicularis microbulbus in mm*

<i>E. VERM.</i> FROM MAN	<i>E. VERM. MIC.</i> FROM CHIMPANZEE
0.19×0.18	0.14×0.14
0.21×0.19	0.14×0.15
0.21×0.19	0.14×0.14
0.19×0.18	0.15×0.15
0.21×0.20	0.15×0.15
0.19×0.18	0.13×0.14

The oesophageal bulb of the species now under consideration is almost spherical, while that of *E. vermicularis* is slightly longer than broad, as a rule. As to its size, this species is very much smaller than *E. vermicularis*.

FIG. 1. Comparison of the Size of Oesophageal Bulb between 2 Species of almost Same Body-Size.



E. vermicularis (left) and *E. vermicularis microbulbus* subsp. nov. (right) drawn to same scale.

These differences observed in the oesophageal bulb seem to be sufficient to justify the creation of a new subspecies, *Enterobius vermicularis microbulbus*.

Type host: Chimpanzee, *Pan chimpanse* (MEYER), of African birth in the Maruyama Zoological Garden, Sapporo, Hokkaido.

Location: Intestine.

Specimens: Types and paratypes (30 females including 5 fully gravid females obtained by dosing an anthelmintic) preserved in the helminthological collection of the Department of Parasitology, Faculty of Veterinary Medicine, Hokkaido University.

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