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MEDIORHYNCHUS MATTEI SP. N. (ACANTHOCEPHALA, GIGANTHORHYNCHIDAE) FROM **TOCKUS ERYTHORHYNCHUS (AVES), THE RED-BEAKED HORNBILL,** **IN WEST AFRICA**

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ABSTRACT: In *Tockus erythrorhynchus* (red-beaked hornbill), a common bird in Senegal (West Africa) a new acanthocephalan (Gigantorhynchidae) belonging to the genus *Mediorhynchus* has been discovered. This new species is distinguished mainly by a unique proboscis armature (15 rows of 4 hooks and 10 to 12 rows of 6 to 8 spines), and by a cephalic dorsal protuberance involving a ventral position of the proboscis. **Males** were 2 to 3 cm long, females 3 to 11 cm long. This is the first record of *Mediorhynchus* in Senegal and in the Bucerotidae.

In the digestive tract of *Tockus erythrorhynchus*, a common bird in West Africa, an acanthocephalan was discovered that belongs to the genus *Mediorhynchus* Van Cleave, 1916. Its description is presented below.

MATERIALS AND METHODS

Since 1975, 18 Hornbills have been examined; among them 12 were infected by one to 10 acanthocephalans previously called *Mediorhynchus* sp. (Marchand and Mattei, 1978).

Taxonomic material studied: one adult male and two adult females (25 March 1977), three juvenile females (6 Feb. 1981), three adult males and six adult females (20 Feb. 1981), and three adult females, the longest of which was 11 cm long (20 Feb. 1981).

***Mediorhynchus mattei* sp. n.**

Description

Morphological characters common to both sexes: Elongated Acanthocephala with an obvious pseudosegmentation (Fig. 1). Body size unequal from one specimen to another but sexual dimorphism pronounced. Females 3 to 11 cm long, males 2 to 3 cm long. Proboscis armature similar in both sexes (Fig. 3), conical, truncated in two parts. Proboscis with 15 nearly longitudinal rows of four hooks each. Teloboscis spined with less uniform number and arrangement (10 to 12 nearly longitudinal rows of 6 to 8 spines each). Proboscis and teloboscis terminology as proposed by Schmidt (1977). Hooks about 40 μ m long and 13 to 15 μ m wide, roots about 50 μ m long and 18 to 20 μ m wide. Spines 10 to 15 μ m long and 5 to 10 μ m wide, with roots 12 to 20 μ m long and 3 to 10 μ m wide. Cephalic ganglion located in the anterior one-third of proboscis receptacle. Every living or fixed specimen with a cephalic dorsal protuberance resulting in pro-

boscis being ventral, making body asymmetrical anteriorly. Proboscis bent ventrally, with a 90 to 120° angle between proboscis and body axes (Fig. 2). Such an anterior asymmetry has not been clearly described in any other species of *Mediorhynchus*.

Male (24-mm-long specimen): At the level of anterior testis, body width 1.1 mm. Proboscis (with hooks) 350 μ m long with 300 μ m anterior diameter and 350 μ m posterior diameter. Teloboscis (with spines) 450 μ m long with 400 μ m anterior diameter and 600 μ m posterior diameter. Neck about 250 μ m long. Proboscis receptacle 650 μ m long and 220 μ m wide. Lemnisci usually slightly subequal in length, about 2.2 mm long. Anterior testis 2 mm long and 0.5 mm wide, 12.5 mm from the anterior body end. Eight cernent glands, paired in four successive stages, each with single giant nucleus (Fig. 4).

Female (30-mm-long specimen): Width about 2.5 mm. Trunk with superficial pseudosegmentation beginning 3 mm from anterior end and extending to the posterior end, 50 to 60 pseudosegments present. Proboscis 400 μ m long, mean diameter 350 μ m. Teloboscis 450 μ m long, mean diameter 550 μ m. Neck about 200 μ m long. On neck, 50 μ m below basal circle of proboscis spines, a sensory pit 50 μ m long and 35 μ m wide. Proboscis receptacle 800 μ m long and 300 μ m wide. Lemnisci, subequal, 4 mm long. Uterine bell beginning 800 μ m from genital pore. Mature female with numerous developing eggs (developing embryos) and mature eggs (shelled acanthor before hatching). Fully formed eggs 75 μ m long and 30 μ m wide (Fig. 5). Acanthor shell 7 μ m thick, apparently constituted of at least three successive layers. Dense outer layer thickest (5 μ m). In mature eggs, acanthor surrounded by shell, 65 μ m long and 25 μ m wide. Central pycnotic nuclear mass 25 μ m long and 15 μ m wide. Eggs and shelled acanthors ellipsoid without polar swelling. Longest female studied 11 cm long and 2.5 mm wide.

Diagnosis: *Mediorhynchus mattei* sp. n., parasite of *Tockus erythrorhynchus* in West Africa, has a proboscis with 15 rows of four hooks each and 10 to 12 rows of six to 10 spines.

Specimens deposited: One male and one female. Laboratoire de Zoologie des Vers du Muséum d'Histoire Naturelle de Paris. Coll. No. 118 BB.

Host: *Tockus erythrorhynchus*, red-beaked hornbill (Bucerotidae).

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FIGURE 1. *Mediorhynchus mattei* sp. n. from *Tockus erythrorhynchus* in Senegal, lateral view in toto.

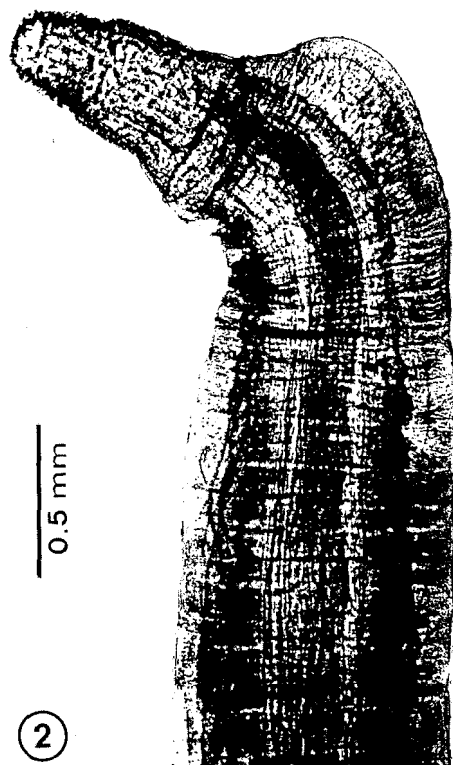


FIGURE 2. *Mediorhynchus mattei* sp. n. Anterior end of body showing cephalic dorsal protuberance.

Locality: Rufisque (Cap-Vert peninsula) Senegal, West Africa.

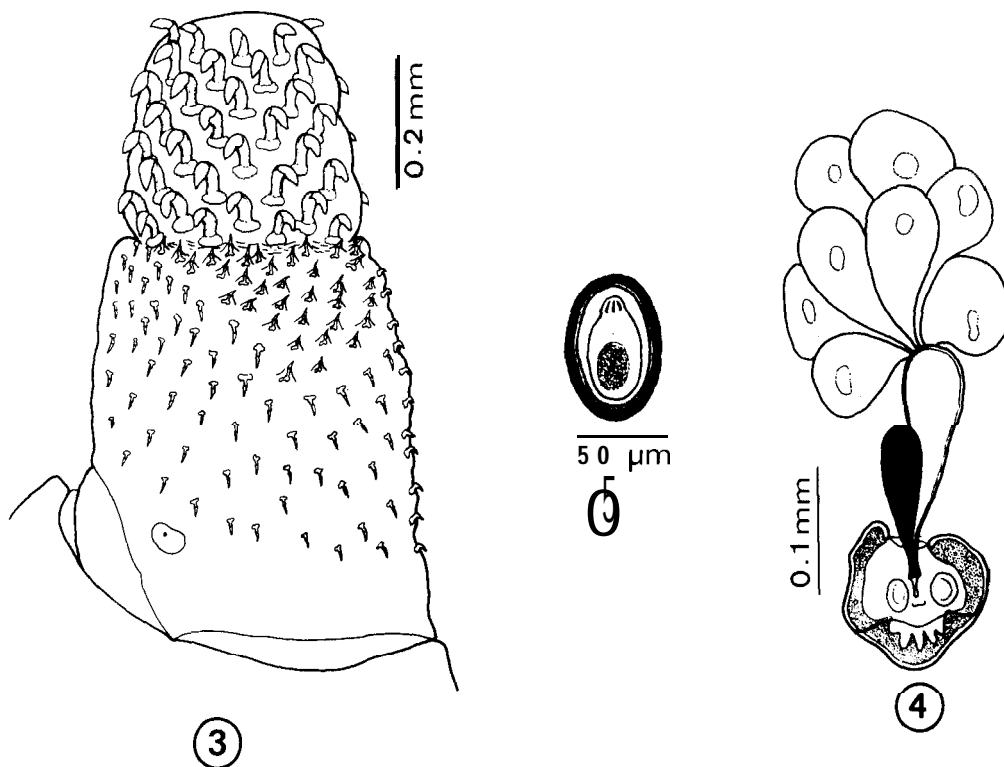
Site of infection: Small intestine.

Etymology: The species is named in honor of Professor Xavier Mattei, who has contributed greatly to our knowledge of Acanthocephala.

DISCUSSION

Following features show that this species belongs to the genus *Mediorhynchus* Van Cleave, 1916 revised by Golvan (1962) and by Schmidt and Kuntz (1977): adults commonly found in the intestine of birds, body with an obvious superficial pseudometamerism, proboscis divided in two conical truncated parts (protoboscis with hooks and teloboscis with spines), testes located in posterior half of body, male with eight cernent glands associated in four successive pairs, protonephridia absent, and mature eggs surrounded by a thick shell.

To our knowledge, about 47 species have been described for the genus (Petrochenko, 1958; Golvan, 1962). However, in the revision of *Medio-*



FIGURES 3-5. *Mediorhynchus mattei* sp. n. 3. Proboscis, lateral view (protoboscis with hooks and teloboscis with spines). 4. Dissected male genital apparatus (without testes) showing eight cement glands, seminal vesicle, Saeffigen's pouch and copulatory bursa. 5. Mature egg.

rhynchus by Schmidt and Kuntz (1977) only 29 were included in their key, but three others (*Alagodekhiensis*, *M. passeris*, and *M. lophura*) were thought probably valid. Species of *Mediorhynchus* are commonly encountered worldwide as parasites of various vertebrates, mainly birds.

In Africa only 10 species have been reported. All of those species are different from ours for several reasons. *Mediorhynchus conirostris* Ward, 1966 is parasite of rodents in Egypt and has a proboscis with 16 to 20 longitudinal rows of four to five hooks each; *M. numidae* (Baer, 1925) Meyer, 1932, parasite of a guinea fowl in Southwest Africa, has 12 rows of three hooks; *M. gallinarum* (Bhalero, 1937) Van Cleave, 1947, parasite of gallinaceous birds in Africa and India, has 18 to 22 rows of four to five hooks; *M. tenuis* Meyer, 1931, parasite of passeriform birds in North Africa, has 24 rows of four to five hooks; *M. leptis* Ward, 1966, parasite of hawks, *Falco tinnunculus*, in Egypt, has 22 rows of five to six hooks; *M. kuntzi* Ward, 1960, parasite of cur-

lews, *Burhinus* spp., in Egypt, has 24 rows of five to six hooks; *M. wardi* Schmidt and Canaris, 1967, parasite of passeriform birds in Kenya, has 24 to 26 rows of six to eight hooks; *M. textori* Barus et al., 1978, parasite of *Textor cucullatus* in Ghana, has 10 to 11 rows of nine to 10 hooks; *M. giganteus* Meyer, 1931, parasite of domestic turkey, *Meleagris gallopavo*, in East Africa, has a proboscis with about 14 rows of five hooks, and the longest studied female was 11 cm long.

Thus *M. giganteus* is the species most similar to *M. mattei*. In both species, the longest females are 11 cm. Nevertheless hook numbers differ: 15 rows of four hooks in the Acanthocephala from the hombill, instead of 14 rows of five hooks in *M. giganteus*. Moreover, *M. giganteus* (redrawn in Petrochenko, 1958) does not exhibit a dorsal protuberance. Such a dorsal protuberance has not been clearly described for *Mediorhynchus*, but sometimes has been suggested (e.g., Meyer, 1932: Figs. 194, 198).

Furthermore, *Tockus erythrorhynchus* is a pre-

viously unknown host and Senegal a previously unknown locality for any species of *Mediorhynchus*.

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