A NEW SPECIES OF THE GENUS ACANTHOTAENIA, WITH A NOTE ON ANONCHOTAENIA TROCHILII FROM A NEW HOST*

SULTANA WAHID

Department of Zoology, University of Karachi, Karachi

(Received August 17, 1967; revised September 18, 1967)

The specimens of the genus *Acanthotaenia* were collected from the intestine of a green python, *Chondropython viridis*, which died at the London Zoological Gardens. This appears to be belonging to a hirtherto unknown species of the genus *Acanthotaenia* for which the name *Acanthotaenia pythonis* n. sp. is proposed.

Several specimens were available for study. The length of the strobila varies from 135–150 mm and its maximum width is 0.83–1mm, which is observed in the posterior half of the body, in the mature and semi-gravid segments. The mature segments are wider than long. Fully mature ones are seen after about eighty segments. Average measurements of the mature segments and the gravid segments are 0.83 mm × 0.58 mm, and 0.75–0.86 × 1–1.66 mm in width and length respectively. The gravid segments are longer and narrower. The external segmentation is very indistinct. The cuticle is covered with minute spines which are present all over the strobila, though not seen at the apex of the scolex. These spines are also observed inside the suckers in the longitudinal sections taken through the scolex.

The scolex is 0.87–0.9 mm in diameter and it is prominently marked off from the succeeding part of the strobila. The suckers are not deeply set in the strobila, and are cup-shaped, measuring 0.35–0.36 mm in diameter. At the apex of the strobila is the apical organ, the musculature of which is weakly developed compared to that of the suckers. The unsegmented part of the strobila just below the scolex measures 0.365 mm in width.

The rudiments of genital organs start appearing at about 0.9 mm from the posterior end of the suckers. There are 60–70 testes, which are not separated in two fields, except in the region of the cirrus and vas deferens. The testes are oblong in shape and measure 0.067–0.09 × 0.27 mm in width (across the segment) and length respectively. The vas deferens is very much coiled. The cirrus pouch is pear-shaped and measures 0.186 mm without any prominent seminal vesicle; the coils of the vas deferens appear like it. The cirrus is armed with small spines.

The ovary is butterfly-shaped and located at the posterior end of the segment. It is 0.5 mm in width. Below the ovary a shell gland is present. No receptaculum seminis is present. The vagina usually opens posterior, sometimes anterior, to the cirrus. The genital pores are irregularly alternating and are situated in the posterior half of the segment. The uterus appears in the form of a longitudinal tube which later gives 20–25 outgrowths or pockets on each side. The eggs are aggregated in the uterus, and are discharged outside the segment through rupture of the ventral wall of the uterus. The type specimens are deposited at the Department of Helminthology, London School of Hygeine and Tropical Medicine.

Discussion

All the species of the genus *Acanthotaenia* are described from varanid lizards except *A. gallardi* Johnston,[8] which was originally recorded from the black snake, *Pseudechis porphyriacus* and later found in *Notechis scutatus*, *Denisonia superba*, *Dispadomorthus*, *Constrictor*, *Bothrops*, *Eunectas* and *Liophis*.

The present specimens are the second species of *Acanthotaenia* from a snake. They differ from *A. gallardi* in the shape of the scolex, position of the genital pores and in possessing an armed cirrus, which is not present in the latter. The differences are also present in the general measurement; the length of the strobila is 400 mm. in *A. gallardi* and 135–150 mm in the present worms; the scolex is much larger and the testes are divided in two fields in *A. gallardi*, but the scolex is small and the testes are not divided into two fields in the present worms; differences are shown in Table 1.

A. shipleyi von Linstow, possesses an armed cirrus but it differs from the present species in the length of the strobila, size of the scolex and diameter of the suckers, which are much smaller in the former species. The mature segments are much longer than broad in *A. shipleyi* and broader than long in *A. pythonis*.

*Part of the Ph. D. thesis, University of London, 1960.

It differs from *A. nilotica* Beddard,[2] a detailed description of which is given by Baer in the size of the scolex, diameter of the suckers, in the size and shape of testes and the position of the genital pores, although the cirrus is armed with minute spines.

Of the remaining species, *A. woodlandi* differs from it in possessing an unarmed cirrus and a large number of testes, which are 90-130 in number. *A. biroi* and *A. saccifera* possess 42 and 30-38 testes respectively; again the cirrus is unarmed in *A. tidswelli*, *A. varia* and *A. gracilis*. All these species are described from Australian monitors, while the present worm is from a snake.

On the basis of the differences mentioned above, the writer considers it as belonging to a new specie and proposes the name *Acanthotaenia pythonis* n.sp. for it.

Linstow, 1903 erected the genus *Acanthotaenia* for a spiny proteocephalid *A. shipleyi* in *Varanus salvator* from Ceylon. In 1909, Johnston described another reptilian cestode with spines on the cuticle, *A. tidswelli*, from *Varanus varius*, which he assigned to Linstow's genus. He also amplified the character of the genus and transferred *Ichthyotaenia biroi* and *I. saccifera* von Ratz, 1900 to Acanthotaenia. In 1911 *A. striata* Johnston, 1914, described one more proteocephalid from a snake, *P. gallardi*, which also possessed spine, but he assigned it to the genus *Proteocephalus* Weinland, 1858. La Rue[9] considered it a valid genus but, Beddard[2] regarded it a subgenus of *Ichthyotaenia* and added to it *A. varia*, *A. nilotica* and *A. articulata* from *Varanus niloticus*. Nybelin (1917) described *A. varia*) 1926 Beddard, which was renamed *beddardi* by Woodland (1925), considering it distinct from Beddard's species. In 1925 *A. woodlandi* (Moghe)[11] and in 1943, *A. sandgroundi* (Carter)[5], later synonymised with *A. varia* Beddard, 1913, were added to this genus.

TABLE 1.—COMPARISON BETWEEN *A. Gallardi* AND *Pythonis*.

	A.Gallardi	*A. Pythonis*
Length of strobila	400	135-150
Maximum width	1.7	0.38-1.0
Diameter of scolex	0.96	0.87
Diameter of suckers	0.44	0.35-0.36
Neck or unsegmented part	8	0.36
Ripe proglottids L×W	4.35.25 × 1-1.2	1.1.66× 0.75-0.86
Testes	Divided into two fields	Not divided
Number of testes	72-80	60-70
Size of testes	0.05	
Ovary breadth	0.5	0.5
Cirrus	Unarmed	Armed with spines
Genital pore	Anterior to the middle of the segment	Posteriior to the middle of the segment
Host	*Pseudechis porphyriacus*	*Chondropython viridis*

All measurements in mm.

Woodland (1925). considered *Acanthotaenia* synonymous with *Proteocephalus* and pointed out that the presence of spines is not an important character. Bear (1927) followed the classification of Woodland and regarded it a synonym of *Proteocephalus*. He also considered *A. articulata* and *A. continua* synonyms of *A. nilotica*.

In 1929 Baylis wrote that "the fact, however, remains that there is a series of forms, chiefly parasitic in species of *Varanus*, having the same character in common, viz., a covering of minute spines extending all over the holdfast and usually over the whole or at least the anterior part of the body, and it is conveninet to speak of them as *Acanthotaenia*". Harwood (1933) also recognised it as a valid genus. It was accepted by Wardle and McLeod[14] too, for all those species possessing spines on the cuticle, chiefly from varanid lizards.

Yamaguti[17] regarded it a separate genus from *Proteocephalus* but he divided the species described under *Acanthotaenia* or which posses spines on the cutcile, into two groups on the base of "testes in two separate fields, vitellaria cortical." Those of the first group are assigned to *Proteocephalus* and that of the second group to the genus *Acanthotaenia*.

The writer, following Baylis[1] considers it convenient to keep all those species with spines on the cuticle in the genus *Acanthotaenia* and proposes to transfer the following species to this genus:

	Host
A. articulata Rudin, 1917	*Varanus niloticus*
A. beddardi Woodland, 1925.	*V. bengalensis*
A. continua Rudin, 1917	*V. niloticus*
A. gracilis Beddard, 1913	*V. varius*
A. nilotica Beddard, 1913	*V. niloticus*
A. woodlandi Moghe, 1926	*V. bengalensis*

Anonchotaenia trochitii Fuhrmann, 1908

Fragments with three scolices were present for study which were collected from a violet-eared

numming bird, *Colibri coruscans*. The specimens were not in a well-preserved conditon.

The exact length of the strobila could not be measured because of the lack of complete specimens, but it measures at least 34 mm. The maximum width is 0.43 mm, attained in the semi-gravid segments, after which it narrows again towards the fully gravid proglottids. All the segments are broader than long. The mature segments measure 0.24-0.33 mm in width and 0.33-0.35 mm in length; in the gravid segments, the length is up to 0.1 mm and the width 0.26 mm. The scolex is rounded, 0.33-0.33 mm, in diameter, devoid of a rostellum, with four rounded and muscular suckers measuring 0.13-0.15mm in diameter. The neck is very narrow. The genital organs start appearing at 1.82 mm from the scolex. The genital pores alternate irregularly. There are four testes, rarely five, in each segment situated almost in a straight line, partly overlapping the ovary and the vitelline gland measure 0.018 ×0.016 mm. The cirrus pouch is very inconspicuous and small in the mature segments, but becomes more prominent in the semi-gravid segments, increasing in size too. It measures 0.26-0.46 mm, across the segment. The ejaculatory duct is very much coiled and

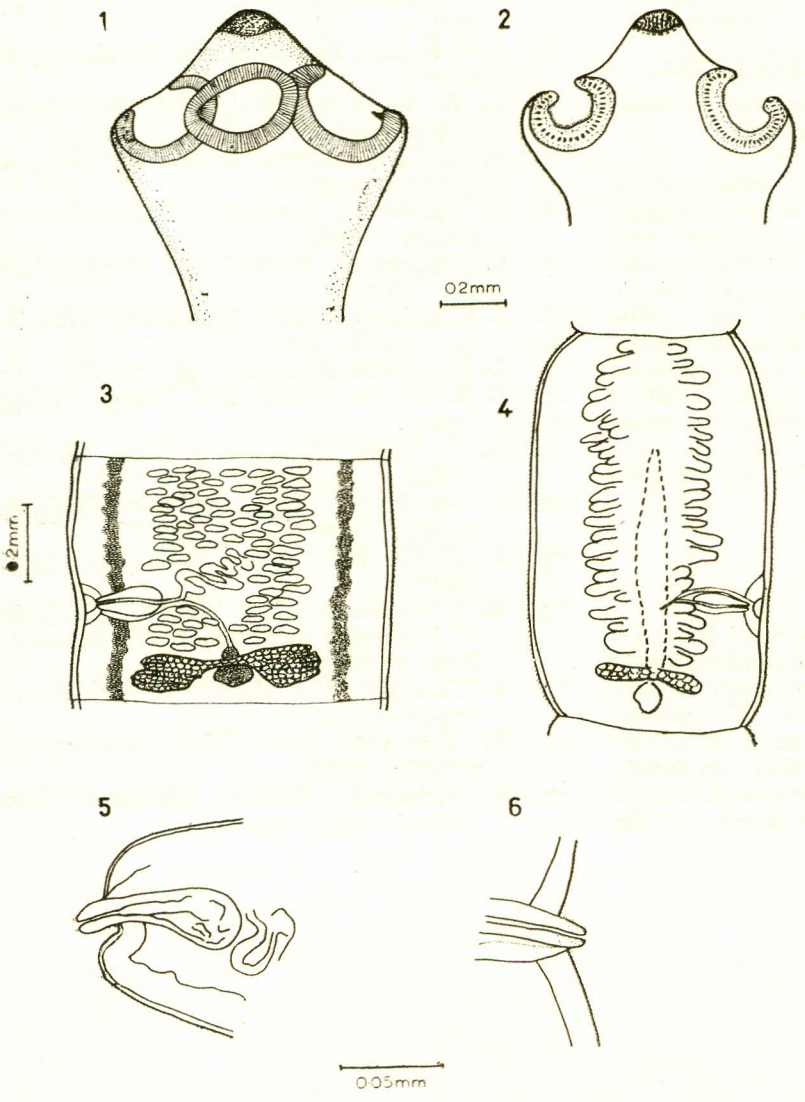

Plate I.—*Acanthotaenia pythonis* n. sp. 1. scolex; 2, section through the suckers; 3, mature segment; gravid segment; 5, section through the cirrus pouch; 6, cirrus showing spines.

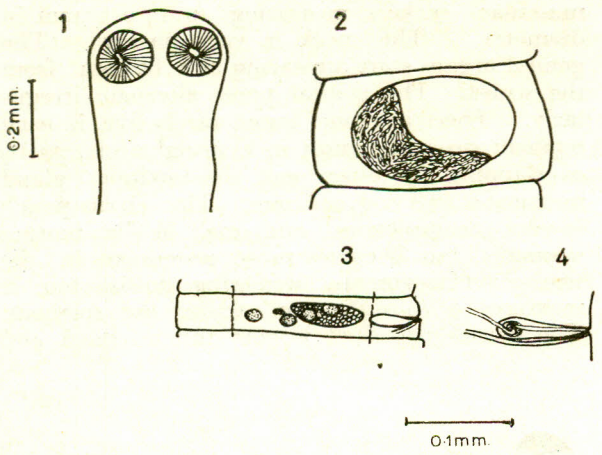

Plate II.—*Anonchotania trochilii* Fuhramann, 1908.

1, scolex; 2, gravid segment, showing paruterine organ; 3, mature segment; 4, cirrus pouch and vagina.

gives the appearance of an internal seminal vesical which is surrounded by prominent muscles (Fig 4). The ovary is oval or elliptical, 0.05-0.07 mm across the segment situated on the poral side. The viteline gland is compact, oval and lies by the side of the ovary on the aporal side. The vagina opens posterior to the cirrus in the genital atrium. Receptaculum seminis is not present. The uterus is with a paruterine organ which is situated beside the former, and fused with it, making a large sac. The uterus is empty in fully gravid segment . The onchosphere are elongate and spindle shaped.

Discussion

Anonchotaenia trochilii was described by Fuhrmann,[6] from *Eupetomena macrure*, but unfortunately he also had fragments and gave a very short description. It has not been recorded since. The present material described above is from a new host *Colibri coruscans* from the same locality, i.e. Brazil. The present specimens are very close to *A. trochilii* in the number of testes, in the shape of the paruterine organ, the drawing of which is given by Fuhrmann, and as both these specimens are found in humming birds, the writer considers it as belonging to *A. trochilii.*

A drawing of the scolex and that of the mature segment is given here for the first time, though the details of the genital organs were not clear because of the state of the specimens. Only one more cestode *Arostellina reticulata* Neiland, 1955, is recorded from humming birds.

References

1. H. A. Baylis, Ann. Mag. Nat. Hist., Ser. 10, 10 (1929).
2. F. E. Beddard, Proc. Zool. Soc. Lond., 4-36 (1913).
3. F. E. Beddar, Proc. Zool. Soc. Lond., 153-168 (1913).
4. F. E. Beddard, Proc., Zool. Soc. Lond., 243-261 (1913).
5. W. J. Carter, Trans. Amer. Micr. Soc., **62,** 301-305 (1943).
6. O. Fuhrmann, Centralbl. Bakt. Abt.I, **46,** 622-631 (1908).
7. O. Fuhrmann, Mem. Univ. Neuchatel., **8,** 381 (1932).
8. J. H. Johnston, Ann. Queensland Mus. No. 10, 175-182 (1911).
9. G. R. La Rue, Zool. Anz., **38,** 473-482 (1911).
10. G. R. La Rue, Illinois Biol. Mongr. 1, 1-350 (1914).
11. M. A. Moghe, Rec. Indian Mus., **28,** 53-60 (1926).
12. S. von Ratz, Compt. rend. Soc. biol., **52,** 980-981 (1900).
13. E. Rudin Rev. suisse Zool., **25,** 179-381 (1917).
14. R. A. Wordle, and J. A. McLeod, *The Zoology of Tapeworms* (University of Minnesota Press, 1952), pp. 780.
15. S. Yamaguti, II. Japan. J. Med. Sci., **1,** 175-211 (1940).
16. S. Yamaguti, Acta. Med. Okayama, **8,** 375-385 (1954).
17. S. Yamaguti, *Systema helminthum* (Interscience, 1959), pp. 860.