Bull. zool. Surv. India, 4 (1) : 17—21, 1981

ON THE OCCURRENCE OF *ANCHITREMA SANGUINEUM* (SONSINO, 1894) LOOSS, 1899 (TREMATODA : ACHITREMATIDAE MEHRA, 1935) FROM *SUNCUS MURINUS* (LINNAEUS, 1766) (SORICIDAE : MAMMALIA)*

R. K. GHOSH

Zoological Survey of India, Calcutta.

ABSTRACT

Anchitrema sanguineum **(Sonsino) Loss. is recorded for the first time from an Insectivore *Suncus murinus* from Bankura, West Bengal.**

While studying the helminth parasites of rats from West Bengal a single specimen of *Anchitrema sanguineum* (Sonsino, 1894) Looss, 1899 was obtained from *Suncus murinus* from the vicinity of Veterinary hospital compound, Bankura, West Bengal. This parasite has so far been reported only from bats and reptilian hosts. This record from *Suncus* is interesting and forms the subject matter of the present communication.

All the measurements are in millimeters

Family ANCHITREMATIDAE Mehra, 1935
Sub-family ANCHITREMATINAE Mehra, 1935

Anchitrema sanguineum (Sonsino, 1894) Looss, 1899 (Fig. 1)

Small distome, tongue-shaped, spinose anteriorly, 1.16 in length and 0.29 in maximum width at antero-testicular, acetabular level. Terminal oral sucker 0.1×0.13. No prepharynx, pharynx globular 0.06×0.05. Oesophagus narrow, 0.09 in length and bifurcates above the acetabulam in two narrow caeca which run almost upto the posterior end. Globular acctabulum (009×0.07), slightly smaller than oral sucker, placed just above the equatorial level.

Testes extra-caecal, placed in distinctive notch of the caecum of respective side, symmetrical and equatorial in position. Right testis 0.2×0.13 slightly bigger than left testis 0.18×0.09. Vasa efferentia and vas deferens could not be traced. Coiled seminal vesicle enclosed in globular sac 0.09×0.08, pre-acetabular and below the intestinal bifurcation. Genital pore median, pre-acetabular.

Ovary median immediately post-testicular in position, inter-caecal 0.09×0.07. Vitelline glands consisting of small follicles, extra-ceacal, extend laterally in post-testicular field some distance short of posterior end. Uterine coils poorly developed, containing very few matured eggs. Eggs yellowish, oval 0.016—0.024×0.009—0.015.

Excretory vesicle 'Y' shaped. Arms long witn short stem. Excretory pore terminal.

Discussion : The species was first recorded by Sonsino (1894) as *Distoma sanguineum*

* Abstract of this paper has been Published in Asian Congress of Parasitology, 1978 (23—26 Feb.) Bombay, 240. (Abs.)

from a reptile host. *Chamaeleo vulgaris* Gunther, 1864 from Tunisia (Africa). Looss (1899) erected the genus *Anchitrema* with this species as type. Subsequently this species was recorded from bats of Africa, Europe, Asia, and Australia.

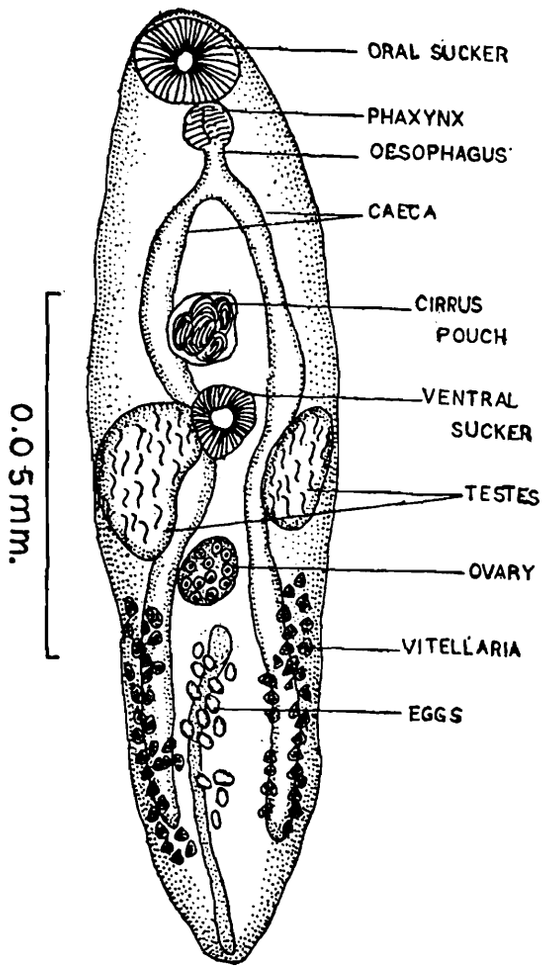

Fig. 1. *Anchitrema sanguineum* (Sonsino) Loss,

From India Pande (1935) described this species from *Nycticejus kuhli* (=*Scotophilus kuhli*), Allahabad. He also considered the genus *Exorchocoelium* Thapar, 1931 described from *Nycticejus kuhli* (=*Scotophilus kuhli*) from Lucknow as synonym of *Anchitrema*. Thapar (1956) eontradicted the opinion of pande (1935) and revalidated his genus. Simha (1960) recorded *A. sanguineum* from *Chameleon zeylanicus* from Hyderabad. Gupta (1962) recorded this species from *Taphozous kachensis kanchensis* from Jaisalmer (Rajasthan). Dwivedi and Chauhan (1970) described this species from *Chameleon zeylanicus* from Jabalpur and Chindwara (Madhya Pradesh), Gupta and Mehta (1970) recorded this species, from *Scotophilus hespeti* from Punjab. Srivastava and Ghosh (unpublished account) obtained this species from *Pipistrellus mimus*, Cumbum (Andhra Pradesh) ; and Ramtek (Madhya Pradesh). From Calcutta they recorded this species from distribution of *Anchitrema sanguineum* in India is given in Fig. 2.

Agrawal (1966) described a new species *A. lucknowensis* from *Nycticejus kuhli* (=*Scotophilus kuhli*) from Lucknow, India. She (1969) published the description of the same new species again. Agrawal (1966, 1969) supported the synonymy proposed by Pande (1935) for *Exorchoeoelium indicum* described by Thapar (1931) revalidated in 1956, with *A. sanguineum*. This synonymy is fully justified and supported by Pande (1935) and Yamaguti (1971).

Agrawal (1966, 1969) differentiated the species *A. lucknowensis* mainly on the basis of presence of spines in the body extension of vitellaria, position of genital pore, shape of cirrus pouch, smaller size of eggs, etc. All these characters are variable in *A. sanguineum* as observed by Rodhe (1966), Odening (1968) and other workers. As such the species described by Agrawal (1966) is considered synonym of *A. sanguineum*.

Rodhe (1966) recognised only the genotype *Anchitrema sanguineum* as valid species under the genus. He considered *A. phillippinorum* (Tubangui, 1928) and *A. congolensis* (Sandground, 1937) as synonyms of *A. sanguineum*.

Fig. 2. Distribution of *Anchitrema sanguineum* in India.

Higher taxonomy of the genus : Looss (1899) and Odhner (1910) placed the genus *Anchitrema* under the family Lecithodendriidae Odhner, 1911. Mehra (1935) proposed a new sub-family Anchitreminae under the family Lecithodendriidae to accommodate the genus *Anchitrema*. Pande (1935) and Skarbitovich (1948) placed the genus under sub-family Lecithodendriidae Looss, 1902. Yamaguti (1958) included the genus *Anchitrema* under the sub-family Anchitrematinae Mehra, 1935 (spelling amended) and family Dicrocoellidae Odhner 1911. Macy et al (1961), Gupta and Mehta (1970, Manning and Viyaant (1971) maintained this arrangement.

Cabellero (1961) proposed a new family Anchitremidae and maintained the sub-family named Anchitreminae Mehra, 1935 suppressing the amendment by Yamaguti

(1958). Odening (1968) recognised the family Anchitrematidae Caballero, 1961, amending the spelling Anchitremidae Caballero, 1961. Yamagvti (1971) also recognised the family Anchitrematidae apparently amending the status and spelling of Anchitreminae Mehra, (1935) but kept the name of Mehra (1935) in parenthesis after the family name. According to the rules of Zoological Nomenclature (Article 36) the authorship should go exclusively to the author of the sub-family if the status of sub-family is raised to the family rank afterwards. As such Mehra (1935) is the author of the family and not Cabellero, 1961.

The affinities of the genus *Anchitrema* with that of families Lecithodendriidae and Dicrocoelidae and also the status of the family Anchitrematidae Mehra, 1935 will remain an open question till the life history of the species *Anchitrema sanguineum* is known.

Host Parasite relationship : This genus has so far recorded only from Chiropteran and reptilian hosts and this is the first record of this species from an Insectivore. Out of about forty shrews examined from different parts of West Bengal only one shrew was found infected on a single occasion with one parasite, so it can be assumed to be an accidental host. The host might have been infected by devouring the second intermediate host (insect), containing metacercarial stage of this parasite. This assumption gets further support from the fact that the specimen is smallest of all the record of this species. Further, reproductive organs specially the uterus are poorly developed and contained very few matured eggs. Mention may be made that this reduction in size may be due to host incompatibility (reaction). It has been observed by many workers that when the parasite is found in an unusual host the size remains small and fertility restricted. Bauer (1958) observed that *Azygia lucii* reaches large size and is very fertile in *Esox lucious* (its normal host) while in *Perca acernia* and *Luciperca* (unusual hosts) it is much smaller in size and reproduces less vigorously. Layman (1949) made this observation in case of *Bunodera lucipercae* from the gut of *Luciperca* (the normal host) and *Acernia* (the unusual host). Srivastava and Ghose (1969), recorded progenetic development of a snake parasite *Proalarioides tropidonotis* Vidyarthi, 1937 in *Rana tigrina* with much less number of eggs in the uterus. They presumed that one of the reasons of such low fecundity may be due to imperfect adaptation in intermediate host.

The other probability in this case is that the parasite *Anchitrema sanguineum* is extending its host range and facing the usual hazard, i.e., low intensity, retarded development and fecundity.

ACKNOWLEDGEMENT

Thanks are due to Director, Zoological Survey of India, for providing laboratory facilities. I am also grateful to Dr. C. B. Srivastava for critically going through the manuscript.

REFERENCES

AGRAWAL, V. 1966. Two new trematodes from the intestine of a yellow bat *Nycticejus kuhlii* from Lucknow, India. *Trans. Am. microsc. Soc.*, **85** (4) : 559-563.

AGRAWAL, V. 1969. Two new trematodes from the intestine of a yellow bat *Nycticejus kuhlii* from Lucknow, India. *Revta. Biol. trop., Costa Rica.*, **15** (2) [1967] : 207-219.

BAUER, O. N. 1958 Relationships between host fish and their parasites. In Dogeil et. al. ed. *Parasitology of fishes* (English Translation by Kabata, 1961). Oliver & Boyd, London.

CABALLERO, Y. C. E. 1961. Trematodes de los murcielagos de Mexico VIII Catalogo taxonomico de los trematodes que parasitan a los murcielagos (Mammalia, Chiroptera Blumenbach) 1774. An. *Inst. Biol.* (Mexico). **31** : 215-287.

DWIVEDI, M. P. and CHAUHAN, B. S. 1970. On some Digenetic trematodes Part I. *J. zool. Soc, India,* 21 (1). 1969 : 141-148.

GUPTA, N. K. and MEHTA, S. 1970. Observation on *Anchitrema sanguineum* Sonsino, 1895 (Trematode : Dievocoeliidae) from bat — *Scotophilus hesthei* Herrfield, 1831 *Proc. 2nd Int. Congr. Parasit* (Washington 6-12 Sept, 1970). *J. Parasit.,* 56 (4) Sect, 2(1) : 129.

GUPTA, P. D. 1970. Fauna of Rajasthan, India. Part 8. Trematoda. *Rec. zool. Surv. India,* 62 : 171-190.

LAYMAN, E. M. 1949. Manual of Fish diseases. Publ. *Pischepromizdat.*

MACY, R. W., HEYNEMAN, D. and KUNTZ, R. E. 1961 Records of the trematodes of the families Lecithodendriidae, Dicrocoeliidae and Heterophidae from Chiroptera in Egypt and Yemen, S. W. Arabia. *Proc. helminth. Soc. Wash.,* 28 (1) : 13-17.

MANNING, G. S. and VIYANANT, V. 1971. New host and distribution record for *Anchitrema sanguineum* (Sousino, 1894) Looss, 1899, *J. Parasit.*. 57 (1) : 184.

MEHRA, H. R. 1935. New trematodes of the family Lecithodendriidae Odhner, 1911 with a discussion on the classification of the family. *Proc. Acad. Sci. U. P. India,* 5 (1) ; 99-121.

ODENING. K. 1968. Trematoden aus vietnamesischen Chiropteren. *Zool. Abh. Sl. Mus. Tierk. Dresden,* 29 (12) : 119-157.

ODHNER, T. 1911. Nordostafrikanische Trematoden, grosstenteils von Weissen Nil. Results Swedish Zoological Expt. to *Egypt and the White Nile,* 1901 *U. Direct, I. A. Jagerskiold.* Part IV. 1-166.

PANDE, B. P. 1935. Contributions to the digenetic trematodoes of the Microchiroptera from Northern India. Part I. New species of the genus *Pycnoporus* with a note on *Anchitrema. Proc. Acad. Sci. U. P. India,* 5 (4) : 371-380.

PETRUSHEVSKI, G. K. 1940. Contributions to Parasitology of fihes of Kerelia II. Fish parasites of lake Onega Uch. *Zap. len. gos ped in-tain,* Gertsevar. 30.

RODHE, K. 1966. On the trematode genera *Lutztrema* Travassos, 1941 and *Anchitreme* Looss, 1899 from Malayan Bats, with with a discussion on Allometric growth in helminths. *Proc. helminth. Soc. Wash.,* 33 : 184-199.

SIMHA, S. S. 1960. Observations on *Anchirema sanquineum* (Sonsino, 1894). *J. biol. Sci.,* 3 (1) : 46-47.

SKARBILOVICH, T. S. 1947. Lecithodendriidae Odhner, 1911. En K. I. Skrjabin. *Trematodes of animal and man.* vol. 2. 1-600 Moscow.

SRIVASTAVA, C. B. and GHOSE, R. K. 1968. On a new host of *Proalaroides tropidonotis* Vidyarthi, 1937 (Trematode : Proterodiplostomidae). *Indian J. Helminth.,* 21 (1) : 13-17.

THAPAR, G. S. 1931. On a new trematode from the intestine of yellow bat, *Nycticejus Kuhli. Proc.* 18 *Indian Science Congress.,* 220.

THAPER, G. S. 1958. On the morphology and systematic position of a new genus of trematodes from the intestine of the yellow bat, *Nycticejus kuhli. Indian J. Helminth.,* 8 (2) [1956] : 85-91.

YAMAGUTI, S. 1958. *Systema Helminthum.* vol. 1 digenetic trematodes of vertebrates London. 1-1575.

YAMAGUTI, S, 1971. *Synopsis of digenetic trematodes of vertebrates* Vol. 1. Keigaku Publishing Co. Tokyo. 1—1074.