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On the Occurrence of *Haplorchis taichui* (Nishigori, 1924) Witenberg, 1930 (Trematoda : Heterophyidae) in Domestic Pigs (*Sus scrofa domesticus*)

C. GEORGE VARGHESE, K. MADHAVAN PILLAI,
P. C. THOMAS* AND C. T. PETER**
Department of Medicine and Parasitology, Kerala Veterinary College and Research Institute, Mannuthy, Trichur, Kerala, India

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According to the available literature, it seems that heterophyids have rarely been reported from domestic pigs (*Sus scrofa domesticus*). Ciurea (1933) reported swine as probable experimental host of *Metagonimus romanica*. But in natural infection, *Metagonimus yokogawai* (Katsurada, 1912) Katsurada, 1913 appears to be the only heterophyid so far reported from this host (Izumi, 1935 and Mallari, 1937).

In the present paper, the natural occurrence of *Haplorchis taichui*, another member belonging to the family Heterophyidae, in domestic pigs is reported.

Materials and Methods

During an investigation into the incidence of helminth parasites of pigs in Kerala State, collections were made from animals slaughtered at various regions. The duodenum of one of the pigs (local, non-descript breed) brought from the slaughter house at Angamaly (Ernakulam District, Kerala) revealed the presence of helminths referable to *Haplorchis taichui* and *Strongyloides* sp. The worms were found free in the intestinal lumen along with the intestinal contents mixed with mucus. The flukes were recovered by washing the intestinal contents in normal saline solution. Body measurements were made from live specimens under slight cover-slip pressure. The number of spines present on the ventral sucker was determined in live specimens. The other morphological details were studied from permanent mounts stained with acetic-alum carmine.

Description of *Haplorchis taichui* (Fig. 1)

The flukes are small in size and vary from oval to pyriform in shape. The cuticle is armed with scale-like spines all over the body. The oral sucker leads into a distinct pharynx which is followed by a long oesophagus. The caeca are simple and extend just beyond the posterior border of the testis. The ventral sucker located medially at the level of bifurcation of the intestinal caeca is highly modified with its apex directed anteriorly towards the left side. The basal part of the acetabulam is spherical, the external muscular capsule being traversed radially by muscle fibres and showing a few scattered nuclei. The apical part of the sucker is anucleate and armed with anteriorly directed typical fusiform spines, 12 to 17 in number and arranged like a fan. The genital pore opens into the ventro-genital sucker anteriorly.

The single testis is large and oval in shape and located in the posterior part of the body. The seminal vescicle is well developed and situated anterior to the testis. The ovary is spherical and placed right to the median line of the body and anterior to the testis. The uterus contains numerous eggs. Vitelline follicles are large and extra-caecal

Present address : * Veterinary Surgeon, Eloor, Kerala.
** Director of Animal Husbandry, Trivandrum, Kerala.

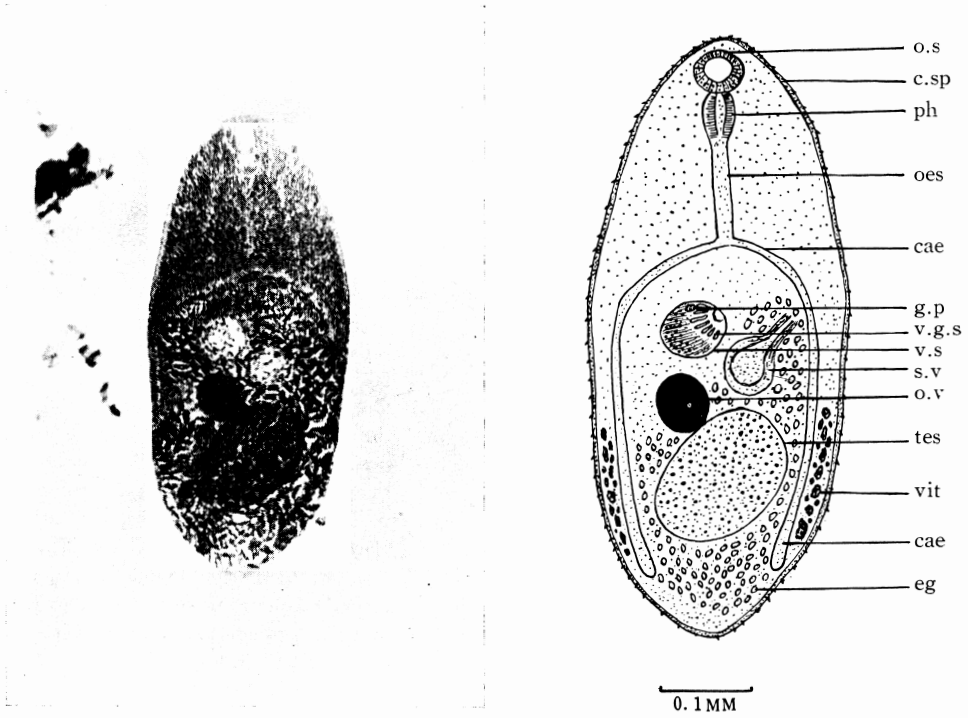

Fig. 1

cae=caeca
c.sp=cuticular spines
eg=egg
g.p=genital pore
oes=oesophagus
o.s=oral sucker
ov=ovary
ph=pharynx
sv=seminal vescicle
tes=testis
v.g.s=ventro-genital sucker spines
vit=vitelline glands
v.s=ventral sucker

confined to the distal half of the body.

The average measurements (in millimeters) are as follows : Body length 0.640 ; body width 0.272 ; oral sucker diameter 0.048 ; pharynx diameter 0.048 ; oesophagus length 0.112 ; testis 0.165×0.105 ; ovary diameter 0.060 ; ventro-genital sucker 0.060×0.051 ; large spines 0.012×0.003 ; seminal vescicle 0.060×0.051 and egg 0.021×0.009. The morphological features of the specimens agreed with those of *Haplorchis taichui* (Nishigori, 1924) Witenberg, 1930.

Discussion

Nishigori in 1924 described a trematode collected from a night heron (*Nycticorax nycticorax*) under the name of *Monorchotrema taichui* which was subsequently transferred to the genus *Haplorchis* by Witenberg (1930), who also (1929) reported the occurrence of the species in dogs and cats in Israel. *Monorchotrema microrchia* described by Katsuta (1932) who obtained the worms from experimentally infected hosts was made synonymous with *H. taichui* by Yamaguti (1958), Pearson (1964) and Ito (1964). Gohar (1934) recorded this fluke from *Milvus migrans* in Egypt. The fluke was reported from dogs and cats at Canton by Chen (1936) ; from cats at Calcutta and Mukteswar by Bhalerao (1936) ; from dogs, cats and egret in Phillipines by Africa (1938) ; from duckling, chicken and cat (as experimental infection) in Canton by Hsu (1950) ; from cats in Yemen and dogs and cats in Egypt by Kuntz and

Chandler (1956) and from cats (experimental infection) in Hawaii by Martin (1958). Yamaguti (1958) mentioned this parasite under the name of *Haplorchis microrchis*. Pearson (1964) described *H. taichui* from a kite in Egypt and from cat in Taiwan. Sahai (1970) reported the occurrence of this trematode in dogs at Barally, India.

Among the many morphological features the number and shape of spines present on the ventro-genital sucker is the most important feature by which the different species of the genus *Haplorchis* are distinguished. The number and arrangement of spines present on the ventro-genital sucker complex of the material under study are in agreement with those reported for *Haplorchis taichui* by Witenberg (1929), Bhalerao (1936), Chen (1936), Ujiie (1936) and Pearson (1964).

Summary

The natural occurrence of *Haplorchis taichui* (Nishigori, 1924) Witenberg, 1930 in domestic pig (*Sus scrofa domesticus*) is reported for the first time.

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