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POSTHODIPLOSTOMUM CUTICOLA INFESTATION IN CYPRINIDAE IN IRAN

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INTRODUCTION :

Posthodiplostomosis is one of the most common parasitic diseases in fish.

Dubois in 1936 (1), cited that Nordmann in 1832 had reported the presence of Metacercariae of Posth. cuticola in skin, fins, superficial musculature, buccal mucosa, cornea, etc ..... of different birds and fishes.

Vladimirov in 1960 (2), described in detail and illustrated the furcocercariae of Posth. cuticola from sporocysts in Planorbis planorbis in the Astrakhan State Reserve. He also described the infectivity of Metacercariae in different temperature. This author again in 1961 (3 & 4) studied on morphology and development of eggs of Posth. cuticola.

Dönges in 1964 (5), described the life-cycle of Posth. cuticola and pathology of the fish host in the laboratory conditions.

Astokhova in 1964 (6), reported a case of Black Spot Disease of carpoid fish caused by Posth. cuticola.

Kamenski in 1965 (7), studied on the life-cycle of Posth. cuticola and later in 1966 (8), he has described the effect of Posth. cuticola Metacercariae on the growth of some carpoid fish.

The object of this communication is to report a case of Posth. cuticola infestation in Cyprinidae in Iran.

THE SUBJECT :

Two dead carpoid fishes from Zahack Dam in the East part of Iran, were sent by Zabol Veterinary Services to the Pathology Department of Razi Institute for diagnosis purposes.

CLINICAL SIGNS :

According to the field veterinarian's report, there was a high mortality among the fishes in the Dam. The infected fishes hardly struggled to move and it looked that the fins were out of their control. The fishes floated on the water surface and easily caught by birds and fishermen.

Numerous Melanine-pigmented cysts were found on the skin, fins, gills etc.....

GROSS PATHOLOGICAL FINDING :

In post-mortem examination numerous Melanin-pigmented cysts were scattered all over the body of two fishes.

The cysts were prominent on muscles, gills arch, skin, eyes and opercules (Fig. 1 & 2).

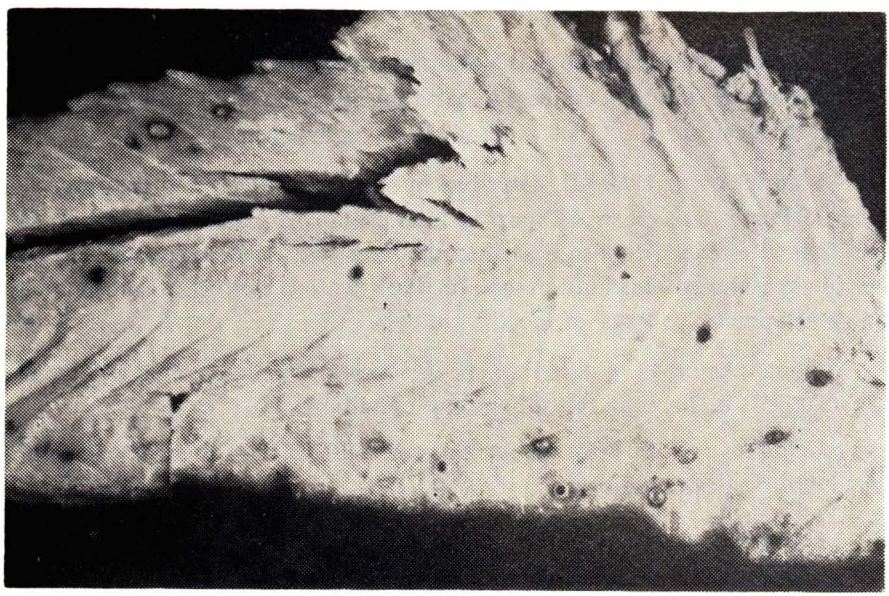

Fig. 1 – Different stages of Melanin-pigmented cysts Scattered all over the body.

The cysts were in various stages, some of them were like a vesicul and others were as a black granuls. They measured from 2–4 mm. in diameter. Most of the cysts were black in color and hard in consistency.

Samples from different organs were taken for Histopathological and parasitological examinations. The results of these examinations were as follow:

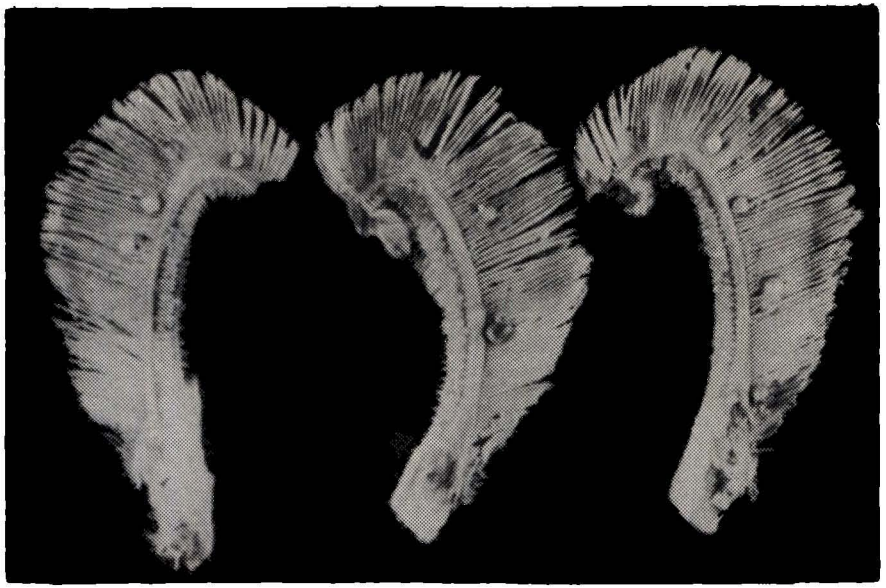

Fig. 2 – The cysts on the gills arch that are prominently noted.

a) HISTOPATHOLIGICAL CHANGES:

Tissues from muscles, gills, fins and other organs, which contained the Melanin-pigmented cysts were fixed in 10 % Formalin saline solution and processed by paraffin embeded method. The tissues were cut in 5 micron in thickness and stained with Hematoxyline-Eosine (H.E.). The parasitic cysts were observed in all examined tissues.

The cyst wall which surrounding larvae, composed of two distinct layers. The outer layer was very thick approximately 100–150 micron in thickness and consisted of dense fibrous connective tissues (Fig.3)

There were numerous Melanoblasts containing large amounts of Melanin-pigment which were located in periphery of the cyst wall (Fig.4).

Fibrous connective tissue that surrounding the cyst were elongated between the skeletal muscle as a narrow fibrous band and extended to next cyst.

The inner layer was detached from the outer one and was quite free, but, in some instances a severe attachment was observed between two layers.

The metacercariae was located centrally and was much smaller than the cyst, so there was a wide gap between parasite and cyst wall, with dark violet granulated materials that scattered through. (Fig.5)

These granules were round and varying in size 0.5–3 micron in diameter.

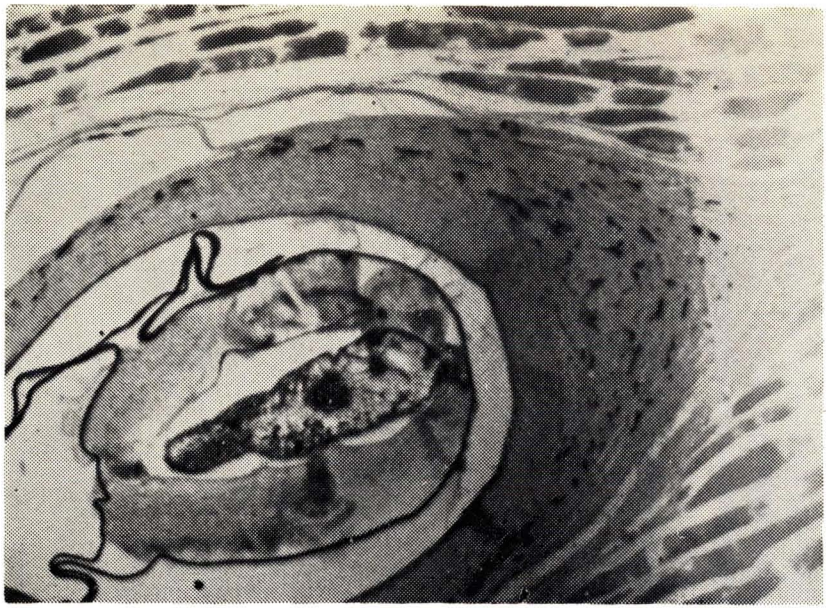

Fig. 3 – Note the cyst wall that is composed of two layers. X 50

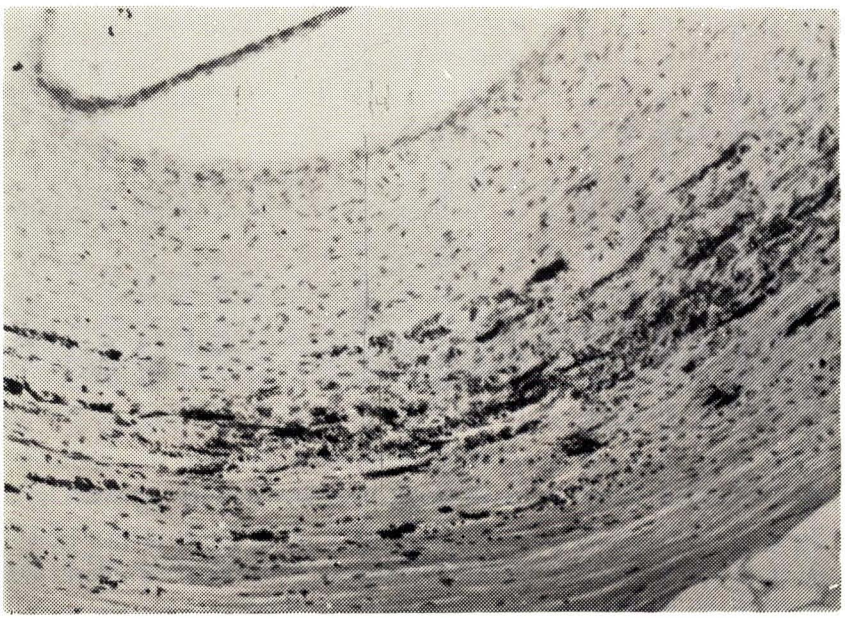

Fig. 4 – Note the Melanin-pigments in the cyst wall. X 125

Fig. 5 – Metacercariae surrounded by pigmented materials. X 125

According to Dönges (9) these materials may be due to metaceric products of growing metacercariae of posth.cuticola.

b) **PARASITOLOGICAL FINDING:**

Some Melanin-pigmented cysts were taken from different tissue and cleared and differenciated by lacto-phenol and examined by Stereo-microscope. The metacercariae was observed inside the cyst (Fig.6)

By exposing the cysts, 500 metacercariae were taken out from different organs. The metacercariae was covered with a thin membrane. This membrane was divided by an incision and the metacercariae pulled off (Fig.7). The studied metacercariae resembled those described by Berezantsov et al. in 1968 (10):

DISCUSSION:

According to the clinical, histopathological and parasitological examinations, the posth. cuticola was the causal agent of the disease. Unfortunately we could neither get the opportunity to follow the mature trematode in mice and poulet by per-os infected with live metacercariae and nor we received the infected birds from that area.

ACKNOWLEDGMENT :

The authors are indebted to Mrs. and Mr. Dr. Mojabi, Zabol Veterin-

Fig. 6 – The taken out cyst from skeletal muscles which has been cleared by Lacto-phenol. X 50

Fig. 7 – The pulled off cyst. X 125

arians, for sending the fishes and also to Eng. Vossughy for identification of fish species.

SUMMARY :

A case of Posthodiplostomum cuticola infestation in Cyprinidae was diagnosed by Clinical, Histopathological and Parasitological examination in Iran.

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