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Histopathological Effect Of *Senga* Sp. (Cestode: Pseudophyllidea) In Liver Of *Mastacembelus armatus*

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Abstract
Present investigation was undertaken to find outhistopathological damages caused by cestode parasites *Senga kaigoanesis* in liver of freshwater fish *Mastacembelus armatus* from Kaigaon toka, Dist. Aurangabad. Adult parasites were found to be located in lamina propria of intestinal folds of the gut, forming a hole and passing through the intestinal wall, penetrating in the liver tissue. The parasite's penetration in the liver damaged bile passages, sinusoids were ruptured and filled with blood vessels.
Key words:*Senga, Mastacembelus armatus*, Liver, Histology, Pathology

Introduction

Freshwater fish are an important source of protein for people in many areas, but sometimes being infected with parasites (Srisawangwong *et al*, 1997; Waikagul, 1998)Adult cestodes are common parasites in the digestive tract of freshwater fishes. However, compared to larval stages, adult helminth in general and cestode in particular, are looked upon as of the pathogenecity of cestodes on fishes are available (Williams, 1960, 1967;Musselius et al., 1963; Chubb, 1964;Arme Owen, 1965, Lien, 1970;Sindermann, 1970;Bylund, 1972;Duijin, 1973;Korting, 1975;Scott, 1979). But often the pathology of infection is reported only in very general terms and the exact nature of the damage is not fully examined.

Mastacembelus species generally are found at high altitude as well as in low land in both still and running waters (Woo, 1995). It is a popular indigenous aquarium fish and also an economically important food fish (Tripathi, 2004). It is esteemed as highly proteinaceous food and attributed as tasty and medicinally important fish. They are commonly known as zigzag eel, spiny eel, leopard spiny eel and white-spotted spiny eel. It is also locally called as Pedda papera or papera or freshwater Baam or Bommidai and harbours a variety of metazoan parasitic fauna which includes monogeneans, digeneans, cestodes, nematodes, acanthocephalans, copepods and isopods (Vankara,et al., 2011).

During the present study an attempt was made to investigate the nature of the infection by cestode parasite *Senga kaigaonesis* (Wankhede and Reddy, 2009) and its histopathological impact on freshwater fish *Mastacembelus armatus* (Lacepede).

Material and Methods

The specimens of freshwater fish *Mastacembelus armatus* (Lacepede) were collected from Kaigaon Toka, Dist Aurangabad during March;2015.The animals were packed in ice and brought to the laboratory for examination. During the parasitological examination, the intestines and liver were examined under stereomicroscope to observethe degree of infection (Fig 1, 2). The tapeworms were collected, placed in saline solution, freed from the adhering mucus by gentle shaking, flattened, processed and stained for morphological studies.They were identified as *Senga kaigaonensis.* Pieces of proximal liver (2-3 cm) containing tapeworms were fix in Bouin's solution for 24 hrs. The fixed materialswereprocessed through ascending grades of alcohol, dried in a wax miscible agentand impregnated in wax (M.P 58° to 60°C). Transverse sections were taken with the help of rotary microtome at 6µmthickness.The sections were floated on warm water at 48°C and mounted on clean slides coated with egg albumin. The mounted, unstained sections were de-waxed in three stages of xylene, 1 minute each, and stained with haematoxylin and eosin (Bullock, 1978).The stained andmounted sections were examined under light microscope.


Fig 1


Fig 2

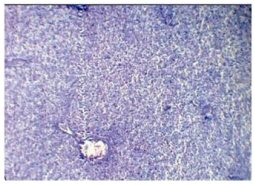
Fig 3

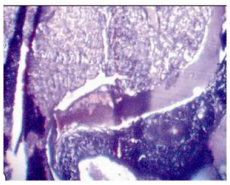
Fig 4

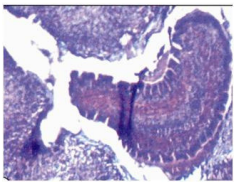
Fig 5

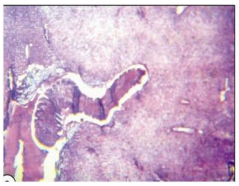
Fig 6

Fig 1-6: (1) Instestinal tissue of *M.armatus* infected with cestode parasite, *S. kaigaonesis*, (2) Mature cestode parasites penetrating in liver tissue (3) Stained section of noninfected liver (4) Section showing scolex (Head) in compressed liver tissue (5-6) Showing mature proglottids of the cestode parasites.

Result and Discussion

Histopathological alterations due to infection of fresh water fishes with helminthes are variable and pathogenic in heavy infection (Taraschewski , 2000). During present investigation, *M. armatus* was heavily infected with *Senga kaigaonensis,* damaging the intestinal wall (Fig 1) and emerging into the viscera, near the region of pyloric caeca, entering the liver (Fig 2).

The pathological changes included both morphological and histo-pathological changes. The morphological changes observed in the liver of infected fish indicated change of colour and inflammation (pale red and yellow).The conspicuous histopathological changes included enlargement of hepatocytes, loss of their distinct shape and vacuolation of cytoplasm. The sinusoids were ruptured and filled with blood vessels. The parasite's penetration into liver resulted in blockage of bile passages (Fig 4-5). The infections changed in histological architecture of the liver.

Mature cestodes are intestinal parasites and very few records are available regarding their occurrence in liver. Recently ThanoponYooyen (2006) reported adult cestode parasite, *Senga chiangmaiensis*in the liver of *Mastacembelus armatus*, which confounds our finding.

This histopathological damage caused by*Senga kaigaonesis* is similar to the damage caused by *Penetrocephalus ganapatii* in the liver of *Saudina tumbil* (Bloch) (Radhakrishan, Nair and Balasubramanian 1983).

Thus it can be concluded that the worm contact with host tissue and utilize the nutritive material to the favourable for its nourishment and growth from the host tissue and make host weak, affecting the growth of host causing damage to liver tissue of host.

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