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Title Key: ***Histopathological studies of Lytocestus*** …

Histopathological studies of Lytocestus in fresh water fish *Clarias batrachus*

Mote A. N[1] V.D.Suryawanshi[2]R.K.Pardeshi[3]
Sant Reamdas College Ghansawang Dist- Jalna[1-2-3]
moteashok2010@gmail.com

Introduction

Many scientists have worked out on the host-parasite relatiosship. The cestode parasites were attached mostly in the stomach and duodenal mucosa. Heavy infection with this cestode parasites caused inflammation, congestion (Khadap, 2009). Lytocestus is a caryophyllaeid cestode of fresh water fishes. During the present study on the helminth parasites of the fresh water fishes of Clarias batrachus are found to be frequently and mainly parasitized by the Lytocestus indicus in the stomach. However,in earlier reports this parasite was found to be infected in the intestine (Chakravarthy &Tandon.1989). The occurrence of cestodes, caryophyllaeid in particular was reported in the piscine hosts by Amlacher (1961), Musselius and Strelkov(1963).Akhmetova (1966).Mackiewicz et al(1972), Bauer et.al(1973).Hayunga (1979), Kadav and Agarwal (1982,1983).An attempt has been made on the mode of attachment and also assess the pathogenecity of parasite.

Lytocestus tape worm infects the freshwater Clarias batrachus, Histopathological changes have been noticed in the stomach of fishes due to infection with *Lytocestus indicus*. Histopathological changes include shortening and destructruction of villi, Damage of mucous and submucous membranes. Complete damage of lamina propria, Vacuolation and necrosis of gastric glands. & stomach shows mechanical damage

Materials and Methods

Pieces of the infected and uninfected stomach of fresh water fish Clarias batrachus were fixed in Bouins, fluid for the histopathological studies (Pearse, 1968; Bancroft, 1975).They were dehydrated by graded alcohol, cleared and embedded in paraffin wax. And section were cut by microtome and stained with Eosin-haematoxyline method, best section selected for histopathological observation.

Results and Discussion

The body of cestode, Lytocestus indicus is elongated,tapering anteriorly and rounded posteriorly. The scolex is not well differentiated and the body is not divided into segments. The presence of Lytocestus in the stomach wall of Clarias batrachus disrupted the basic structural organization of the stomach in the host. This species penetrates deep into the muscularis layer. At the site of scolex attachment to the stomach wall, mechanical displacement and compression of tissue layers, such as mucosa, submucosa and muscularis were noticed. Due to excess pressure exerted by

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the scolex, at some places the submucosa became hyperplastic. At some places a thin mucoid interferes between the host tissue and the scolex was also observed. This histopathological change within the hosts tissue, stomach shows a definite habitat preference. However, the effect on the host depends upon the mode of attachment. This deep penetration of parasite caused serious damage to the host s stomach. The observations made in the present study are in conformity with those of Mackiewicz et al (1972) and Bauer et.al (1973), particularly mode of attachment. Borvelnska & Caira (1993) explain the mode of all attachment and pathogenecity of tapeworm infecting the spiral intestine of the nurse shark.. Shinde et al. (1984) studies interrelationship between cestode parasites with their host Caracharias acutus. Similar observations were made by Satpute and Agarwal(1974),Ahmed and sanaullah (1979), Bose and Sinha (1981) and Niyogi and Agarwal(1985).The pronounced tissue reaction expressed as hyperplasticity of the submucosal layer may probably be attributed to the secretion of gland cells of the parasite. The highly developed musculature in the parasite may be also responsible for exertion of pressure in the tissue layers of host leading to their compression. However the mechanical obstruction is caused due to occurrence of parasites (Chakravarthy and Tandon, 1989). In the present study it is observed that the stomach is highly affected due to lytocestus infestations which resulted to a major disruption of the structural organization of the organ which might have profound influence on the nutrition and digestion process of the fish. The parasite brought about severe histopathological changes in the stomach of infected fish that includes shortening of villi, thickening of the muscle layer, destruction of the villi, hold fast penetration of the mucosa and the damage of both mucous and submucous membranes. Flattening of the surface epithelium, complete damage of lamina propria and oedema of submucous columnar cells present in it are completely degenerated necrosis and the raising of secondary folds of the muscularis layer is also evidenced. The musularis layer which is distinctly marked as longitudinal and circular muscle layer in the infected fish has shown vacuolation and clumping of tissue at many places and the necrosis of their .The pathological lesions, of the stomach results in the damage of tissue of stomach was clearly evidenced in the present study. The blood vessels have undergone marked dialation and the submucosa slugging into the mucosa layer. These histopathological changes within the hosts tissue.The effect on the host depends upon the mode of attachment. This deep penetration of parasite caused serious damage to the host s stomach Nanware et al. (2005), explained relationship of pathology and site secretion in host intestine. The pathological conditions due to Lytocestus infections cause changes in the physiological functioning of the effected organs. Rees (1967) observed inflammation fibrosis associated with hyperplasia and metaplasia in cestode infection. The epithelial necrosis was clearly noticed. The shallow ulcers are formed due to Lytocestus after prolong and chronic infections (Ahammad and Muhammad, 1979). Heavy infection with cestode parasites causes inflammation, congestion and haemorrhagia. The stomach infections also interfere with the food digestion causing metabolic disorders following are the changes represented in the fig A, B, & C.

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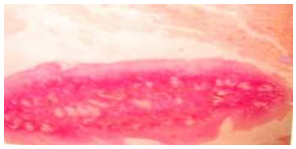

Fig. [A] T.S of Infected Intestine of *Clarias batrachus with enlarged parasite*

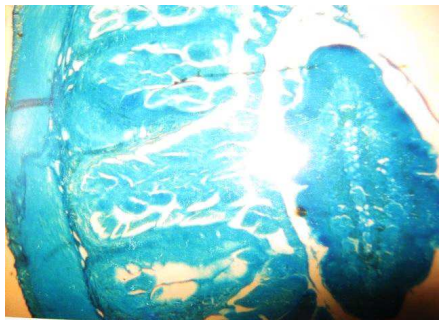

Fig. [B] T.S of Infected stomach with parasite of *Clarias batrachus*

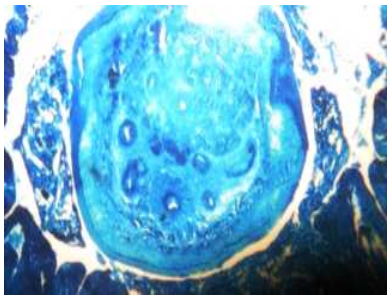

Fig. [C] T.S of Infected Intestine of *Clarias batrachus with degenerated villi*

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