SECTION - B
HISTOPATHOLOGY
LIPID HISTOCHEMISTRY
NEUTRAL LIPIDS
HISTOPATHOLOGY OF CESTODE INFESTED INTESTINES OF

*Gallus domesticus* and *Clarias batrachus*.

Histopathology appears to be a very sensitive parameter and is crucial in determining cellular changes that may occur in the target organs.

In the present communication histopathological changes, caused by cestode parasites in the intestine of *G. domesticus* (Hen) and *C. batrachus* (Fish) was studied and observations have been made more meaningful by simultaneous study of infested and non-infested tissues of both, by determining the cellular changes.

**MATERIALS AND METHODS**

Two intestines of both *G. domesticus* and *C. batrachus* were dissected in laboratory. A heavy infection was observed in *G. domesticus* in both. Most of the parasites were attached to the wall of intestine shown in figure, these portions of intestine were cut into small pieces and fixed in Bouins solution, while uninfested intestines also, cut into pieces and were fixed in Bouins solution, parasites which were free from intestine, flattened on the slides and fixed in
4% formaline, washed in distilled water, stained in Harris haematoxylin, passed through graded alcohol, mount in D.P.X. and preserved for anatomical identification on closed observations these cestodes turned out the *Cotugnia* and *Lytocestus*.

The pieces of intestines which were fixed into Bouins fluid, after 24hrs., washed with tap water, till upto total fixative was removed, dehydrated in graded alcohol, cleared in xylene and embedded in paraffin wax, blocks were cut at 6μ. sections were stained with Mallory’s triple stain and slides were assessed for histopathological changes, such as congestion Oedema, haemorrhage, necrosis and erosions and was also expressed on comparative scale i.e. infested and non-infested intestine histology.

**OBSERVATION**

The intestines of both *G. domesticus* and *C. batrachus* were adversely affected by worms (fig. 2) and intestines were thicken by oedema, haemorrhage and desquamation on the alimentry tract, diameter of lumen reduced in *G. domesticus* and a large whole was seen in the inner side of *C. batrachus* where the number of parasites were attached.
Fig. 2: Intestine of *Gallus domesticus* with cestode parasites
In the microscopic observation of *G. domesticus* intestine, it was observed that the villi destroyed by cestode and were swollen. In some portion it is covered by mucous and necrosis of vertex of villi have noticed. The cellular infiltration occurs at the point of attachment by the release of a pharmacologically active agent, a histamine from the mass cells, dilation occurs by increase of blood supply to the affected area.

The injury was assessed by microscopic observation. *G. domesticus* (fig. 4) showed that shallow damage of intestinal wall by cestode parasites, which was not exceeding upto mucosal depth but in *C. batrachus* (fig. 5) deep damage of intestinal wall reaching beyond 75% of mucosal depth. Villi were swollen, its vascular congestion and necrosis of vertex of villi was observed in *G. domesticus* (fig. 4). On the other hand in *C. batrachus* (fig. 5) villi were erosed by cestodes and dilation occured in the affected area. Essentially significant difference was noticed in infested and non-infested intestines.

Histology of non-infested intestine showed normal results like nuclei stained red or collagen blue and mucous stained blue or orange while infested intestine showed poor staining of these parts.
Fig 3: T.S. of non-infected intestine of *Gallus gallus domesticus* (H. & E.) x 100

Fig 4: T.S. of infected intestine of *Gallus domesticus* (Mallory’s triple stain) x 100
Fig. 5: T.S. of Infected Intestine of *Clarias batrachus* viii erosed by parasites, Mucous stain red. (Mallory’s triple stain) x 100
DISCUSSION

The effect of cestode on their host has been little studied aside from clinical aspects of parasite-caused diseases. In addition to causing diseases, it also disrupts the host's metabolism. Becker (1926) and others have reported that there may be an increase and decrease in the potassium and iron levels. In most cases adult tapeworms have little visible effect on their host. The present result was also agree with this. *G. domesticus* intestine wall had shallow damage and not reaching up to the mucosal depth. But acute catarrhal enteritis was observed in digestive tract and wall of intestine was thin, transparent in *C. batrachus*. The (fig. 4) showed that necrosis of vertex of villi and were swollen. Hawn (1937) also reported these evidence in some host.

Villi were covered by thick layer of mucous may be due to presence of free or partially embedded adult worms. (Askanazy, 1950; Gould, 1943; Ribas-Mujal, 1965; Stryker, 1946). The parasites never pierce the muscularis mucosa (Romanvitch, 1912). Helmmert-Halswick, 1934 was observed that the intestinal changes are not due to direct mechanical irritation of the parasites, but they are secondary,
due to presence of toxic or metabolic products originating either in the parasites or in the altered mucosa. Similar findings were reported by author in the present study.

In the present study *C. batrachus* intestine was infested by cestode and it was found that mucosa of host’s intestinal tract was deeply damaged, but Thomas Cheng (1986) observed that invasion by intestinal parasites other than cestodes develops immunity, only if the mucosa of host’s intestinal tract is damaged or invaded and antigenic substances are introduced there in, Read and Voge (1954) but cestode lack an alimentary track, and do not introduced antigenic substance during feeding process.

From the above results it was concluded that not all hosts are equally susceptible to certain cestode infections but the growth of cestode is influenced by the difference in host species.