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HISTOPATHOLOGY OF RAT INTESTINE INFECTED BY *TRICHINELLA SPIRALIS*

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ABSTRACT
The Trichinosis being human zoonotic disease has been subject of current research all over the world. *Trichinella spiralis* also infect rats and mouse is excellent model system in the present case. The work has been revealed that parasite causes severe damage to the various tissue and organs of the host. The damage has been visualized through histopathological observation through microtomy of the infected and non-infected intestine.

KEY WORDS: Histopathology, rat, *Trichinella spiralis*,

INTRODUCTION

Nematodes live in very hap hazard environment as there is continuous movement of gut lining, the food present in the gut and the nature of its related glands hence they require the organ of attachment for the nourishment. Among the invertebrates phyla Aschelminthes also encompass a group of free living and parasitic forms the nematode. Right from Aristotle's time, the nematodes have been studied morphologically because of the disease produced by them in cattle and human being. In recent time it is noticed that parasitologist have started probing in the structure and interaction of molecules of living system of parasite thus provide better understanding their function. Since past, few decades much importance has been given to the aspects of physiology, biochemistry, histopathology, neuroendocrinology of the parasite. The physiological condition in a particular vertebrate, the host gut with regards to PH or other physiochemical characteristics may provide favorable of unfavorable site for metabolism of particular species. The diet of the host also have profound effect on the growth of nematodes, may be lacking in nutritional factor essential for the parasite development.

The host parasite relationship is a complex one, involving interactions between at least two genetically systems, namely of the parasite, its host. Thus a nematode has to survive, it must be suitable and adapted with morphology, physiology, immunology and ecology of its host. The relationship between animal host and nematode is discussed by Pozio et al (1962), Niphadkar S. M. (1973) and Bird and Wallace (1969). The establishment of parasite in a particular host varies widely from species to species. The degree of response by each host during this establishment is related to the nature of the tissue site invaded, the intimacy of the host parasite contact and the stage of development of the invading parasite, weather it is an adult or larva. During early phase of *Trichinella* infection, the worm burrows into the mucosa of the host. Although the mechanism of their burrowing is not understood. During this phase, the host show rather marked symptoms, inflammatory character into the gut. It might be thought that they would possess some enzymatic factors entering in the intestine. There is good evidence that the presence of worm interferes in digestion of protein and absorption of sugar and calcium from digestive track. *Trichinella spiralis* causes disease of the brush border of the vertebrate intestine. The symptom of trichinosis is very hazardous. On the ingestion of viable cyst, encapsulated larvae are subjected to digestive enzyme. They escape from the cyst wall at the level of duodenum and rapidly penetrate the intestinal mucosa and villi.

MATERIAL AND METHODS

The intestine of rats were dissected and observed to see the degree of infection. The infected and non – infected intestine pieces were fixed in Bouin's fluid. Later on the tissue were taken out from the fixative, washed with distilled water, dehydrated clear in xylene and embedded in paraffin wax (M.P. 58 - 60°C). The blocks were cut at 7 mμ and slides were stained in Mollory's triple stain.

OBSERVATION AND DISCUSSION

Trichinella spiralis destroyed the intestinal villi at the attachment site. The worm is successfully reaching to the innermost layer of the host intestine. At the site of infection inflammation of intestine occurred. The parasite destroyed intestinal tissue increases blood supply to the affected area, vessel wall become thick. The worm is not only adhere host tissue but also successful to enter into intestine forming ulceration into intestinal wall, some in lumen and later approaching to intestinal villi. It also damages intestinal wall and mesenteric lymphnodes.

Thus, it can concluded that, the parasite damage the intestine of rat. The parasite is successful in maintaining good histopathological relationship with the host.

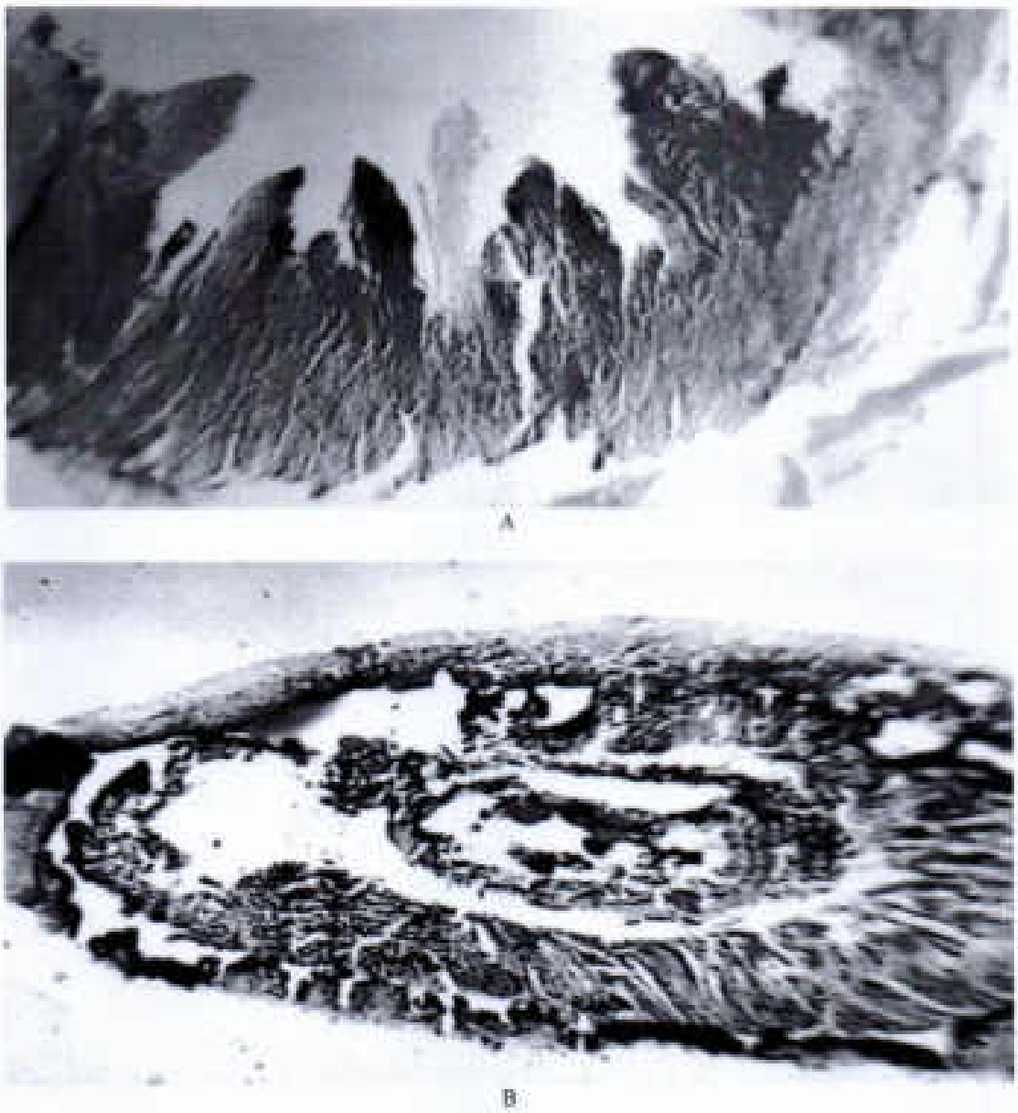

Figure 1. Histopathology of Rat Intestine with *T. spiralis*
A. Non infected intestine B. Infected intestine

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