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التغيرات الباثولوجية في الكلاب نتيجة الإصابة
بديدان الهيلوركس بمبيليو

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اجري البحث على عدد ٥٠ كلب بمدينة أسيوط ، ولقد وجد أن نسبة الإصابة بهذه
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في الكلاب •

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**PATHOLOGICAL CHANGES ASSOCIATED WITH
HAPLORCHIS PUMILIO (LOOSS, 1896);
AN INTESTINAL TREMATODE OF DOGS
(With 8 Figures)**

By

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SUMMARY

Among fifty dogs examined for parasitic enteritis, three dogs were found infected with *Haplorchis pumilio* (LOOSS, 1896). All cases were diagnosed histopathologically. The parasite was observed in between the villar epithelium of the duodenum. The parasite was associated with chronic catarrhal duodenitis, in which eosinophil and lymphocytic cells reaction were prominent. The micromorphology of the parasite was described and the results were discussed.

INTRODUCTION

Heterophid flukes inhabit the small intestine of fish eating birds and mammals including man (BEAVER *et al.*, 1984). They attach themselves to the intestinal mucosa or are embedded deep among the villi. Many of these parasites are human e.g. *Heterophyes heterophyes* while others are accidental parasite of man e.g. *Haplorchis pumilio* and other allied species (MALEK, 1980). While the intestinal lesions of *Heterophyes heterophyes* has received much attention, little is known about pathogenesis of other heterophyids. A common heterophyid of Egyptian dogs is *Haplorchis pumilio* (FAHMY and SELIM, 1959; KALIFA *et al.*, 1977 and FAHMY *et al.*, 1984). This work was done to throw some light on the pathogenesis of this parasite and describe the intestinal lesions produced.

MATERIAL and METHODS

During postmortem examination of dogs sent to the department of pathology, faculty of Vet. Med. Assiut University, fifty samples of the intestine suspected to be affected with parasitic enteritis were collected. The gross pathological changes in this samples were recorded. Small pieces of it were fixed in 10% neutral buffer formalin and processed for histopathological studies. Sections of 6 micron thickness were prepared, stained with H&E and periodic acid schiff.

RESULTS

Grossly, the intestinal wall was thick and firm. Small focal areas of congestion were observed in the mucosa. Small shreds of tenacious mucous were sometimes observed adherent to the mucous membrane or mixed with the ingesta. The duodenum was the mostly affected part of the intestine.

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M.K. IBRAHIM *et al.***Histopathological findings :**

The changes were confined to the mucosa and sometimes extend to the muscularis mucosa. The villi of the intestine were thickened, tall and showed increased number of goblet cells (Fig. 1). The capillaries in C.T core of the villi were severely congested. The core of the villi and the depth of the mucosa were heavily infiltrated with abundant amount of eosinophil cells and lymphocytes (Fig. 2). Not infrequently the muscularis mucosa was also infiltrated with the same cells. Prominent desquamative changes were observed in the mucosal epithelium. The desquamated epithelial cells were seen accumulated in the lumen of the intestine intermixed with other component of the exudate (Fig. 3). The parasite with its characteristic ova not infrequently observed among the different element of the exudate (Fig. 4). Masses of tenacious mucous entrapping inflammatory cells were observed on the mucosal surface (Fig. 5).

Parasitological findings :

The sectioned parts of the parasite examined were found to have the following characters.

- 1- Oval to pyriform in shape (Fig. 6).
- 2- With one big circular testis near the posterior third of the body.
- 3- Body is covered with sharp spines which are more abundant anteriorly, posterior third is smooth and spineless (Fig. 7).
- 4- Uterine loops contain small yellowish operculated eggs with a characteristic knob at the opposite side (Fig. 8).
- 5- The ventrogenital sac is surrounded by incomplete ring of minute hooks.

DISCUSSION

Although it is difficult to identify parasites from cut sections (MULLER, 1975), yet the present parasites were identified as adults of *Haplorchis pumilio* (LOSSE, 1896) which belong to Trematoda : Heterophyidae. The most important feature helping in diagnosis was the armature of the ventrogenital sac (PEARSON, 1964). Pathological lesions produced by *Haplorchis pumilio* during the present work were found to comparable to those described for *Heterophyes* parasites in man by KHALIL (1932). The microscopical alterations of the villi revealed hyperplastic as well as metaplastic changes. These pathological findings are attributed to the mechanical effect in association to toxicity of *Haplorchis pumilio* which evoked the reactions in the form of increasment and transformation of the non secretory epithelial lining to mucous secreting cells. According to the available literature, this is the first study of the pathological lesions of *Haplorchis pumilio* in dogs. AFRICA and GRACIA (1935) and AFRICA *et al.* (1935, 1937) found egg of *haplorchis pumilio* in cardiac lesions of persons dying from cardiac failure. Also, eggs tentatively diagnosed as those of *Haplorchis pumilio* were found by AFRICA (1937) in sections of spinal cord with loss of motor and sensory function at the levels where the lesions were located. Hence further studies are needed to confirm such extraintestinal invasion in dogs.

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LEGENDS OF FIGURES

- Fig. (1):** Showed increased number of goblet cells H&E (x25).
- Fig. (2):** Showing cellular reaction in the core of the velli H&E (x16).
- Fig. (3):** Showing exudate & desquamation of the epithelium H&E (x16).
- Fig. (4):** Cross section of the parasite between crypts of the velli H&E (x16).
- Fig. (5):** Masses of tenacious exudate on the mucosa H&E (x16).
- Fig. (6):** Cross section of the parasite showing testes H&E (x25).
- Fig. (7):** Showing posterior third of the body spinless H&E (x25).
- Fig. (8):** Showing egg of the parasite H&E (x40).







