

## دراسة على الطيور المصابة بالأكواريا هاميلوزا

م . محمد هـ سهير سكر

وجدت الاصابة الطبيعية بالطفيل في عدد ٧ طيور عند تشريحها ، ولقد تبين أن الجزء الأمامي من هذه الدودة كان مخترقا لجدار القونسه ، بينما الجزء الخلفي منها موجودا في تجويف القونسه . كما شرحت الصورة الباثولوجية لقونسه الطيور المصابة بالطفيل المذكور .

Dept. of Microbiology,  
Faculty of Vet. Med. Baghdad University,  
Head of Dept. H.A. Shehata.

NEW OBSERVATION IN CHICKENS NATURALLY  
INFECTED WITH ACUARIA HAMULOSA  
( With 3 Figures )

By  
M.A. MOHAMMED and S.M. SOKKAR

(Received at 5/4/1979)

SUMMARY

Natural infection with Acuaria "Choilospirura" hamulosa was described in 7 of 12 chicken at necropsy.

Only the anterior ends of these worms were found penetrating the wall of the gizzard while most of the length of the nematodes were free in the lumen. This was in contrast to previous reports indicating that these parasites were under the horny lining of the gizzard embedded in soft reddish-yellow nodules. The gross and histopathological appearance of the lesions were described.

INTRODUCTION

Nematodes of the genus Acuaria parasitize the upper parts of the digestive tract of various species of birds in many parts of the world.

Acuaria hamulosa or Choilospirura hamulosa (SOULSBY, 1968) has been recorded from the gizzards of fowls and turkeys. It was reported to be located underneath the thick stratified squamous epithelium lining that organ. In that location the parasites were described to produce nodules of soft consistency in the musculature (SOULSBY, 1968 and LAPAGE 1968). It was therefore of interest to investigate some new appearance and



lesions in field cases where only the anterior ends of A.hamulosa were embedded into the lining of the gizzard while most of their length was free in the lumen of that organ.

#### MATERIAL AND METHODS

The material of this investigation consisted of 12 native adult birds raised within a back yard flock. Their age was 23 months. Seven of these birds were found to have cylindrical reddish worms penetrating the thick stratified epithelium lining embedded in the wall of their gizzard.

After thorough washing of these gizzards in successive changes of physiological saline solution some worms were freed by careful dissection and examined following fixation in 70% alcohol.

The infected gizzards were fixed in 10% formol saline, embedded in paraffin and 5-6 micron thick sections were prepared and stained with haematoxylin and eosin for histopathological examination.

#### RESULTS

The stratified squamous lining of the gizzard was ulcerated in parts where the worms were embedded. No gross nodules were seen and none were palpated on the surfaces of the gizzards or upon cutting through the tissue.

A total of 68 worms (41 males and 27 females) were collected from the birds examined. The males were 13-19 mm and the females 17-35 mm in length. Their cuticle had a double ridge along most of the length of their bodies. The ridges were not



## ACUARIA HAMULOSA IN CHICKENS

- 117 -

recurrent. The vulva was near the middle of the body of the females while the males had four pairs of precloacal and six pairs of postcloacal papillae. Eggs of these parasites were detected in smears prepared from the intestinal contents of the infected birds. These eggs were identical to those obtained from the uteri of the female worms.

Sections prepared from the gizzards showed collections of worms and groups of eggs embedded in the different layers of the organ sometimes reaching the serous coat (Fig. 1). Several cross sections of the worms were observed in the lumen of the organ. These sections showed that the outer layer of the cuticle had a beaded appearance followed by deeply eosinophilic homogenous layer. The eggs appeared ovoid with deeply basophilic followed by homogenous eosinophilic layered wall while the center was occupied by large basophilic granules (Fig. 2). Larvae in different developmental stages were seen in some eggs. Surrounding the worms a reactive zone was seen consisting of dilated engorged blood capillaries and very large number of eosinophils intermixed with some lymphocytes and plasma cells. In some cases the parasites were surrounded by proliferated connective tissue (Fig. 3). Pressure atrophy was observed in the muscle fibers surrounding the parasites.

The glands in the gizzard mucosa were atrophied. They were separated from each other by masses of cellular infiltration consisting mainly of lymphocytes and plasma cells. The epithelium of some glands was undergoing necrosis and their lumen contained eosinophilic secretions and some inflammatory cells. The cornified horny layer was markedly eroded and ulcerated.



The muscle layer had areas of prominent Zenker's necrosis, ecchymotic haemorrhages, aggregation of lymphocytes and plasma cells and dilated engorged blood vessels. In other instances there were thickening in the tunica media of the blood vessels with thrombus formation.

#### DISCUSSION

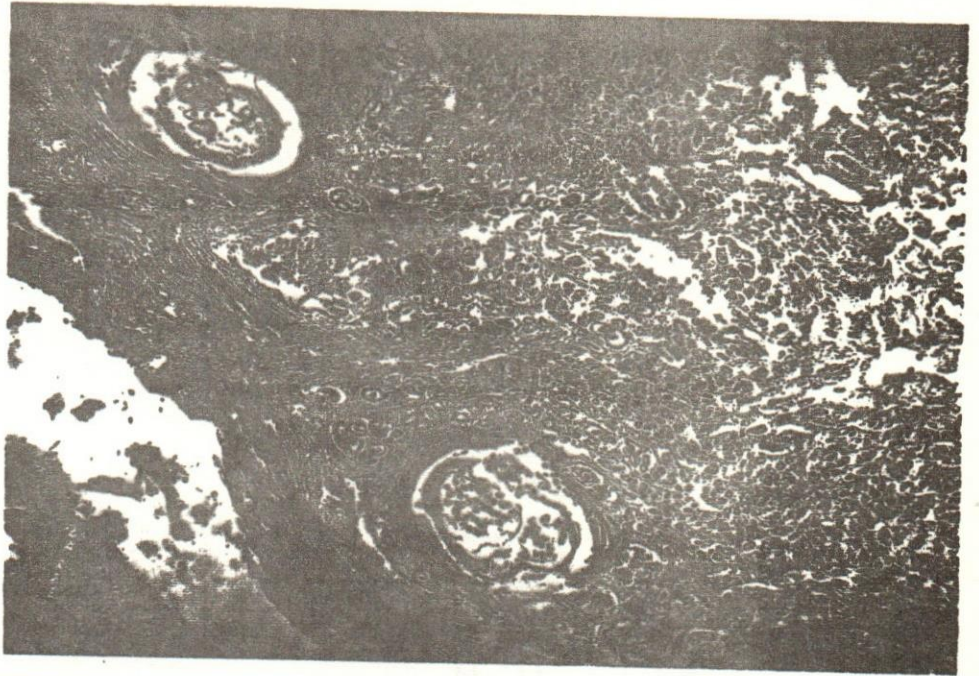
The morphological features recorded for the nematodes were in agreement with those given for A. hamulosa (LAPAGE, 1968 and SOULSBY, 1968). The embedding of the anterior ends of these worms in the musculature of the gizzards of the infected birds while the remainder of their length being free in the lumen disagree with the same reports. Both stated that A. hamulosa was observed exclusively embedded in soft reddish yellow nodules under the horny lining of the gizzard which may be eroded.

The examined specimens were mature worms. It is possible that immature worms develop in the wall of the gizzard and as they mature they extend their end in the lumen. More investigations are needed to clarify this contention.

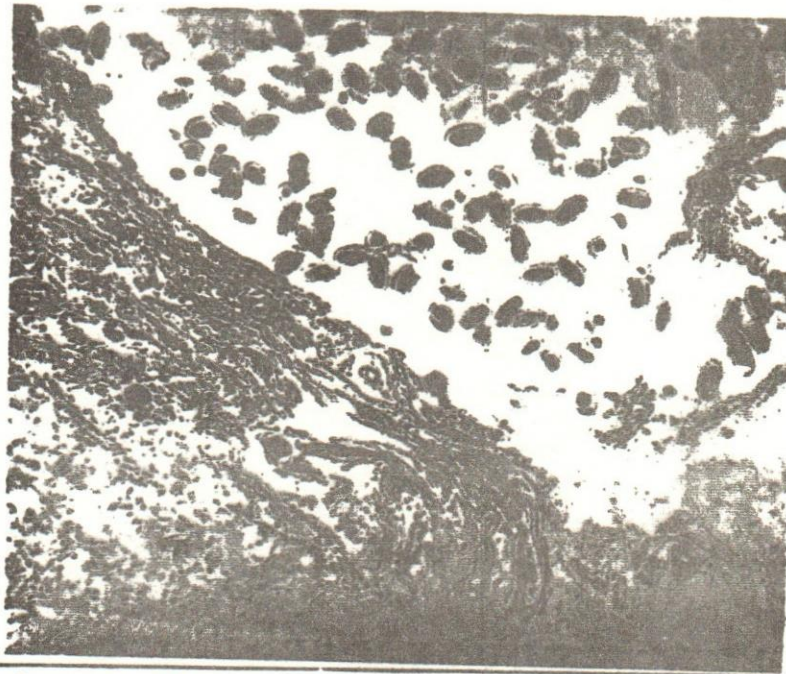
#### REFERENCES

- Lapage, G. (1968): "Veterinary Parasitology" 2<sup>nd</sup>. Ed., Oliver and Boyd, Edinburgh.
- Soulsby, E.J.L. (1968): Helminths, Arthropods and Protozoa of domesticated animals. Sixth Ed., Bailliere, Tindall and Cassell, London.

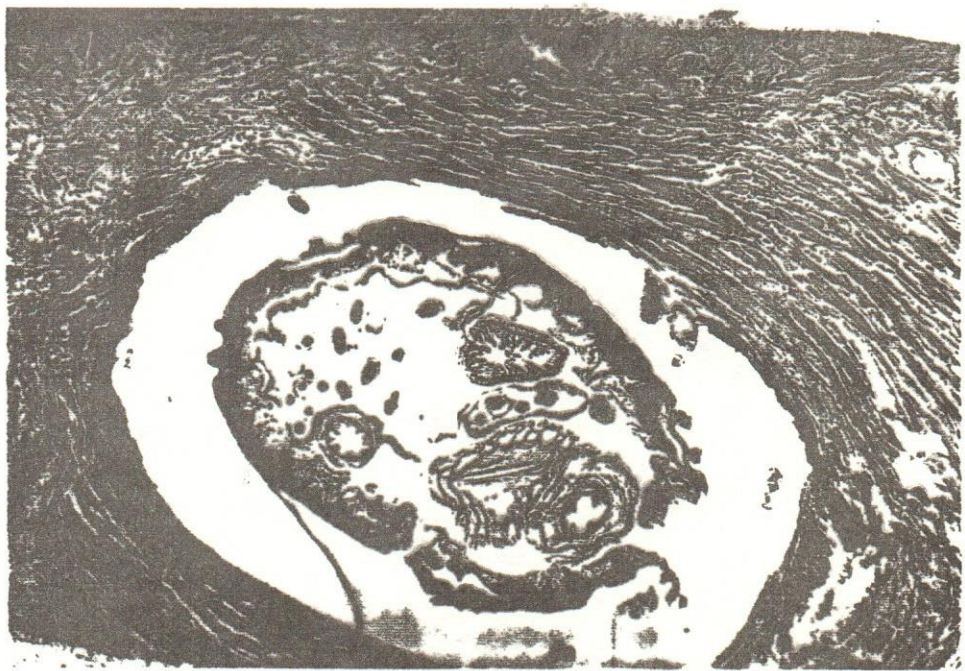




**Fig.1:** Worms embedded in the gizzard wall



**Fig. 2:** Groups of eggs between the muscle bundles



---

Fig.3: Section in a female *A. hamulosa* surrounded with proliferated connective tissue.