Diagnostically study of the Digestive system Helminthes platyhryncho's platyrhynchos L. in Baghdad and Kut District, IRAQ.*

A.N.Jassim * I.A.Al-Kubttan ** A.J.Mahmoud ***

Date of acceptance 21/12/2002

Summary

A total of 247 specimens of the Mallard (Anas platyrhynchos platyrhynchos) were collected from Baghdad City and Kut City (93 and 154 specimens, respectively). The collection was started from October 1999 to September 2000. The aim of this study was to know the endoparasitic Helminthes in the digestive system of Mallard. The following parasites were observed:-

1. **Trematoda :-**
   Hypoderaum conoideum (Bloch, 1782) Dietz, 1909
2. **Cestoda :-**
   Diorchis stefanskii Czap, 1956
   Hymenolepis mastigopraditae Polk, 1942
   Sobolevicanthus gracilis (Zeder, 1803) Spasskey et Spasskey, 1954
   Fambbiraria fasciolaris Pallas, 1781
3. **Nematoda :-**
   Amidostomum acutum Zeder, 1800

These species were recorded for the first time in Iraq, except *F. fasciolaris and H. Conodicum.*

Introduction

Ducks are the important source of meat and eggs in Iraq. Intestinal helminthes adversely influence the successful rearing of poultry as they are

* Dr- Biology Dept.-College of Science for Women- University of Baghdad
** Dr.-Pathology Dept.-College of Medicin- University of Baghdad

*** Part of M.SC. Thesis

the chief cause of unthriftiness leading to emaciation and decreased egg production (Laballastiere, 1995, Jacob et al., 2001). Knowledge of the identity of the parasites harbored is essential o formulate an effective and control programmers against them. Parasite infecting Duck (Mallard) have reviewed by many workers (Kishor & Sharma, 1991; Kinsella et. al. 1994; Zuchowsha, 1997; Dalimi & Mobedi, 1998) but little is known about the parasites of the domestic duck in Iraq (Al-Maya, 1994; Mahmoud, 2001).

Materials and Methods

The host materials were the domestic duck Anas platyrhynchos platyrhynchos (order Anseriformes) adult. They were obtained from various locations in Baghdad and Kut City during October 1999 to September 2000. The total number of the ducks examined was 247. The proventiculus, gizzard, small intestin, caecum, large intestine and cloaca were separated, opened, and each placed with contents into alabelled bottle containing water. The liver was sectioned, teased and examined, and the gall bladder was opend and examined macroscopically and under a dissecting microscope. The trematodes and Cestodes were washed throughly, and stained with modified carmine and mounted in Canada balsam (Rahife, 1998). The nematodes were washed from the tissue and fixed and cleared in Lactophenol. Classification was based on Yamaguti (1958; 1959; 1961) and Confirmed by the American Natural History Museum.

Results

The numbers of infected ducks, percentage of infection, mean intensity of infection and standard error are shown in Table 1.

The following parasites were recovered:-

1. Cestodes

The rate of infection with cestodes was higher than with nematodes or trematodes (Table 1). The recovered cestodes were:

Diorchis stefanskii Czap, 1956 (Cestoda, Hymenolepidae) (Figs. 1):

Was recovered from the small and large intestine. The infection ranged between 2-9 worms/host with a percentage f infection 1.82% or Baghdad ucks, 3-156 orms/host with a percentage of infection 67.53% for Kut ducks. The length of the worm ranged from 184 to 435 with an average (308.9)mm, the maximum width in the region of the gravid segment ranged 4.6 to 11.6 with an average (8.54)mm, Scolex diameter 1.5-3.9 (2.62) mm, rostellar hooks 0.5-0.6 with an average (0.5)mm in one circle, Sucker diameter 0.8-1.3 with an average (1.1)mm, number of testes 3, number of ovary 1, genital pore in the middle of lateral edge of proglottid.

Hymenlepis mastigopraditae Polk, 1942 (Cestoda, Hymenolepidae) (Fig.2) :

Was recovered from the small and large intestine. The infection ranged between 3-16 worms/host with a percentage f nfection 8.27% n Baghdad ucks nd -57 orms/host with a percentage of infection 40.90% in Kut ducks. The length of the worm ranged from 54 to 87 with an average (67.3)mm. a maximum width in the region of the gravid segment was 4.2 to 9.4 with an average (6.9)mm, number of testes 3, number of ovary 1, genital pore in the middle of lateral edge of proglottid.

Sobolevicanthus gracilis (Zeder ,1803) Spasskey et Spasskey, 1954 (Cestoda,Hymenolepidae) (Figs.3):

Was recovered from the small intestine of Baghdad ducks. The infection ranged between 6-28 worms/host with a percentage of infection 27.95%. The length of the worm ranged from 0.7 to 26 with an average (13-4)mm, maximum width 2.8 to7 with an average (4.01)mm, Scolex diameter 0.7-1.1 with an average (0.9)mm, rostellar hooks 0.6-0.7 with an average (0.37)mm in one circle, Sucker diameter 0.3-0.7 with an average (0.9)mm, number of testes 3, number of ovary 1, genital pore in the middle of lateral edge of proglottid.

2. Nematoda

Amidostomum acutum Zeder, 1800 (Nematoda, Amidostomidae) (Figs.4):

This parasite was recovered from the gizzard, The number of parasites found ranged from 2-29 worms/host with a percentage of infection 22.5% in Baghdad ducks, 2-37 worms/host with a percentage of infection 37.01% in Kut ducks. The mean length of the male was 8 to 14 with an average (10.8)mm and the width of bursa was 3.6 to 4.3 with an average (3.88)mm. The female was larger than male, it measured 14 to 21 with an average (15.6)mm long.

Table 1 - Helminths recovered from the alimentary tracts of 242 ducks examined during October 1999 to September 2000

Class	Name of the parasite	No. of infected hosts	% of infection	mean	S.E.	City
Trematoda	*H. commodum*	0	0	0	0	Baghdad
		22	14.28	1.4	0.67	Kut
Cestoda	*H. mastigopraditae*	17	18.28	6.05	0.93	Baghdad
		63	40.9	13.84	0.89	Kut
	D. stefanskii	11	11.82	4.27	1.06	Baghdad
		103	67.53	38.98	2.6	Kut
	S. gracilis	16	17.95	20.19	1.56	Baghdad
		0	0	0	0	Kut
	F. fasciolaris	0	0	0	0	Baghdad
		9	5.84	1.66	1.15	Kut
Nematoda	*A. acutum*	21	22.58	6.04	0.92	Baghdad
		57	37.01	11.36	0.71	Kut

Discussion

Since there are no previous works on the parasites of duck in Iraq. Most of the species of parasites recorded have also been found by workers in other countries, e.g., Avery (1966b) in United Kingdom, Kinsella (1973) & Kinsella et al. (1994) in Florida (U.S.A) Birova et al. (1990) in Germany, Kishor & Sharma (1991) in India and Dalimi & Mobedi (1998) in Iran. As shown in the results, the most dominant animal food is ants. This may be correlated to high intensity of Cestodes, which comprise 30.10% in Baghdad ducks, 67.53% in Kut ducks. Ants perhaps serve as intermediate host of these parasites. The cestoda Diorchis stefanskii; Hymenolepis mastigopraditae and Sobolevicanthus gracilis were reported from Wild duck (Mallard) in Mid Wales, United Kingdom, America (Owen, 1951; Avery, 1966; Kinsella et al., 1994). The nematode Amidostomum acutum were the only helminths with direct life cycle found in this study, and lives usually in the gizzard of wild and domesticated duck (Birova et al., 1990). The most sever infevtion in the present work was by cestodes, this is similar to the results eported y l-Hadithi & Mustafa (1991). The reasons are perhaps related to the different feeding patterns of hosts,

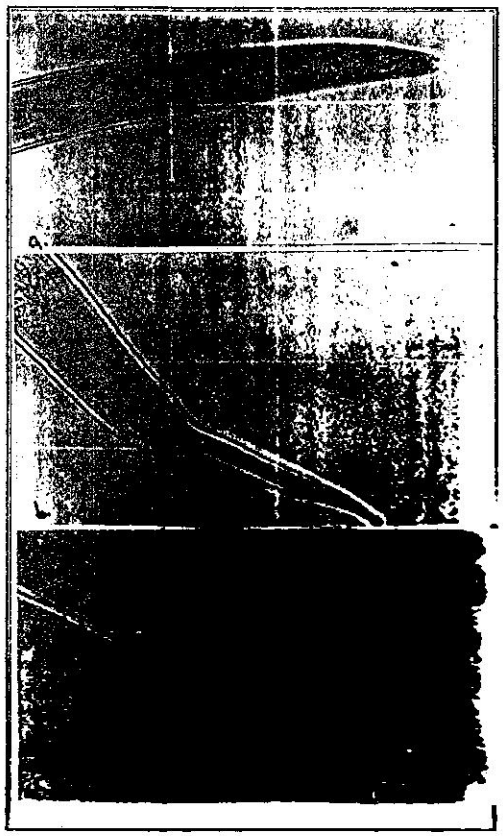
Acknowledgment

My grateful are due to Prof. F. T. Mahisen, College of Education, Univ. of Baghdad, and Prof. M. Kinsella, American Natural History Museum, for confirming the diagnosis of the helminthes recovered in this work. Sincere thanks are extended also to Dr. B. F. Ismail for his capable assistance.

Fig.1: *Diorchis stefanskii*
a. Scolex
b. Mature segment
c. Gravid segment

Fig.3: *Sobolevicanthus gracilis*
a. Scolex
b. Mature segment

Fig.2: Mature segment of *Hymenolepis mastigopraditae*



References

1. Al-Hadithi, I. A. & Mustafa, F. A. 1991 Some helminth parasites of two species of Aquatic birds (Anas platyrhynchos and Larus ridibundus) from Basrah, Iraq. Basrah J. Agric. Sci., 4 (1&2): 245-252.
2. Al-Mayah, S. H. 1994 Some Platyhelminth parasites of Aquatic birds in Basrah, Iraq. Basrah J. of Sci., B., 12(1): 1-8.
3. Averry, R. A. 1966a Helminthes parasites of wild fowl from Slimbrige, Gloucestershire I. Parasites of captive Anatidae. J. Helminthol., XI (3/4): 269-280.
4. Averry, R. A. 1966b Helminth parasites of wild fowl Slimbrigs, Gloucestershire. II Parasites of wild Mallard. J. of Helminthol., XI (3/4): 281-284.
5. Birova, V.; Spakulova, M. & Macko, J. K. 1990 Seasonal dynamics of the invasiva cycle of nematodes and acanthocephalans in the wild (Anas platyrhynchos L.) and domestic duck (Anas platyrhynchos F. dom.). J. Helminthol., 27 (4) : 291-301.
6. Dalimi, A. & Mobedi, I. 1998 A survey on the helminth parasites of wild duck in northern Iran. J. the Faculty of Vet. Med., 53 (1-2): 57-59.
7. Jacob, J. P.; Wilson, H. R.; Miles, R. D.; Butcher, G. D. & Mather, F. B. 2001 Factors Affecting Egg Production IN Backyard children Flocks. Cooperative Extension Service Institute of Food and Agricultural Sciences. Univ. of Florida press. Florida. pp: 526.
8. Kinsella, J. M. 1973 Helminth parasites of the American Coot, Fulica americana, on its wintes range in florida. Florida Agri. Exp. Stat. J., 40 (4503): 240-242.
9. Kinsella, J. M.; Forrester, D. J.; Mertins, J.W.; Price, R. D. & Turnbull, R. E. 1994 Parasitic Helminths and Arthropods of Fulrous whistling duck (Dendrocygna bicolor) in Southren Florida. J. Helminth. Soc. Wash. 61 (1): 84-88.
10. Kishore, N. & Sharma, N. 1991 Survey of Nematod Parasites of domestica ducks (Anas platyrhynchos Domesticus) in Bihar. J. Curr. Nem., 2 (2): 197-198.
11. Laballastiere, B. P. 1995 Sanofi animal health Guide to Poultry Management in Ttopical Conditions. Realisatior, Ltd, Paris. pp: 297.
12. Mahmoud, A. J. 2001 Epidemiological and Diagnostical study of the Digestive system of Anas platyrhynchos L. with their Pathological Effects. M.sc. Thesis. Univ. of Baghdad, Iraq.
13. Owen, R. W. 1951 The Helminth parasites of Domesticated Birds in Mid Wales. J. Helminthol., XXV (1/2): 105-130.
14. Rahief. R. H. 1998 Modification in the Preparation classical carmine stain and the Technique used for staining Platyhelminthes. The Veterinarian, 8 (2): 1-8.
15. Yamaguti, S. 1958 Systema helminthum. Vol. I. The digenetic Trematodes of Vertebrates. Intersci. pub., New York. pp: 1075.
16. Yamaguti, S. 1959 Systema helminthum. Vol.II. The Cestodes of Vertebrates. Intersci. pub. New York. pp: 860.
17. Yamaguti, S. 1961 Systema helminthum. Vol.III. The Nematodes of Vertebrates. Intersci. Publ., New York. pp: 1126.
18. Zuchowska, E. 1997 Helminth fauna Anseriformes (Aves) in the Lodz Zoological Garden. J. Parazytol., 43(2): 213-221.

دراسة تشخيصية لديدان الجهاز الهضمي للخضيري في مدينتي بغداد والكوت

*امنة نصيف جاسم **اقبال عبد الحميد قبطان ***اشرف نصيف جاسم

*كلية العلوم للبنات-جامعة بغداد
**كلية الطب
***جامعة تكريت

الخلاصة

تبنت الدراسة جمع ٢٤٧ طيرا من الخضيري المدجن Mallard المسمى علميا *Anas platyrhynchos* ، ابتداء من تشرين الأول ١٩٩٩ ولغاية أيلول ٢٠٠٠ من مدينتي بغداد ٩٣ طيرا والكوت ١٥٤ طيرا، بهدف التعرف على الديدان الداخلية المتطفلة في جهازه الهضمي. وسجلت دودة المثقوبات من نوع *Hypoderaum conoideum* والديدان الشريطية *Hymenolepis Diorchis stefanskii;* و *Fambiraria fasciolaris mastigopradita; Sobolevicanthus gracilic &* والدودة الأسطوانية Amiodostomum acutum في القناة الهضمية للخضيري المدجن ولأول مرة في العراق ما عدا الدودتين *Fambiraria fasciolaris ; Hypoderaum conoideum* فقد سبق تسجيلهما.