Concurrent Infection of Cestodes with Trichomoniasis in Domestic and Wild Columbides Birds in Babylon Province

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Summary

The research was carried out in Babylon province on 138 domestic and wild columbide birds were collected during the period from April to June 2012. Fresh saline smears samples (wet mount) were taken from mucosa of buccal cavity, pharynx ,esophagus and crop of each bird, then examined by wet mount looking for Trichomoniasis, then the intestine opened longitudinally examined looking for helminthes which examined grossly and after fixative staining with carmine stain for identification. The results of wet mount for *Trichomonus* technique revealed that the total rate of infection was 43(31.5%). Asignificant differences were recorded in the rates of infection regarding the species of birds. The highest rate of infection was recorded with *Trichomonus gallinae*, in wood pigeon 16 (53.33%) followed by Rock pigeon, Domestic pigeon, Collared dove and palm dove 12(40%), 9 (30%), 4(13.34%) and 2(11.12 %) respectively. The results revealed that the total rate of infection was 80 (57.97%), with cestodes parasite. Asignificant differences regarding the type of the birds, the highest prevalence was recorded in wood pigeons 27 (90%) followed by rock pigeon, collared dove and domestic pigeons in prevalence rate 25 (83.34%), 12 (40%) and16 (26.67%) respectively, while no cestods recorded in palm dove. Asignificant differences regarding the type of cestodes parasite. Out of 123 collected cestodes, 79 (64.23%) were geuns *Raillietina (*18.69%*) were geuns Aporina*, and (17.07%) were *geuns Cotugnia*.

Keywords: Columbide birds, Trichomoniasis, Cestods infection, Babylon.

Introduction

The columbides are the most ancient domesticated animals in the world, they are occur in all contents particularly Asia (1). Domestic pigeons live close to man and bird as a source of protein, hobby, symbol and recently as laboratory animals (2). Both domestic and wild members of columbides family are not harmless birds, they may serve as silent potential reservoirs too many human diseases as well as it may transmitted parasitic diseases for animals and poultry (3). Many authors suggested that the pigeon and dove were commonly infected with internal and infested with external parasite due to feeding sources and behavior (4-6). The present study was designed to search for the cestodes infection and trichomoniasis in domestic pigeon compared to four columbides members including rock pigeon, wood pigeon, collared and palm dove.

Materials and Methods

The research was carried out in Babylon province during the period from April to June 2012. One hundred and thirty eight domestic and wild columbides birds were collected. The domestic pigeons were purchased from local market, while the wild birds were captured at night in grain stores. The details of collected bird were presented in (Table, 1).

Table, 1: The number and species of columbides birds.

Common name of columbides species	Scientific name	No. of Male	No. of Female	Total No.
Domestic pigeon	***Columbia livia domestica***	**15**	**15**	**30**
Rock dove	***Columbia livia***	**18**	**12**	**30**
Wood pigeon	***Coulumbu palambus***	**13**	**17**	**30**
Collared dove	***Streptopelia decacoto***	**15**	**15**	**30**
Palm dove	***Streptopelia senegalensis***	**13**	**5**	**18**
Total		74	64	138

For diagnosis of trichomoniasis ,the fresh saline smears (wet mount) were taken from mucosa of mouth and throat of bird (buccal

cavity, pharynx, esophagus and crop), was examined in the Labrotory of parasitology department in the College of Veterinary Medicine of Al- Qasim green University by using a light microscope at 400× magnification (7). The protozoa *Trichomonas* were identified when appeared motile and flagellated observed in the field of microscope according to (8).

After decapitation, the abdominal cavities were opened and the entire gastrointestinal tract was removed and opened longitudinally to evacuate the content in the container containing physiological saline. The helminthes were isolated and grossly exanimate then placed in alcoholic formaldehyde, acetic acid as fixative solution, after staining with carmine stain, all cestodes helminthe were identified by aprofitinal teacher in the Labrotory of parasitol department in the College of Veterinary Medicine of Baghdad University and according to keys mentioned by Soulsby (9) Statistical Analysis were done by Chi-square test (x^2) for analytic assessment between infection rates. The differences were regarded statistically significant when the P value less than 0.05 (10).

Results and Discussion

The results of wet mount technique for *Trichomonus* revealed that all columbides species were infected with *Trichomonas gallinae*, which appeared motile and flagellated. The total rate of infection was 43(31.5%). Asignificant differences were recorded in the rates of infection regarding the species of birds. The highest rate was recorded in wood pigeon 16 (53.33%), followed by Rock pigeon, Domestic pigeon, Collared dove and palm dove in rates of 12(40%), 9(30%), 4 (13.34%) and 2 (11.12%) respectively (table, 2). The high prevalence rate of infection due to the parasites which is consider common and widespread between pigeons (11and12) specially in spring or with natural breeding season and this agree with (13).

The results were referred to the highest percentage rate which recorded in wild pigeons comparison with the domestic pigeons, these variation may be back into difference of feeding source and less of hygiene strategies in addition, the routine and regular treatment for wild pigeons, these results were matched with (14) in Lahore, Pakistan, and agree with (15) they reported the prevalence of trichomoniasis in wood pigeon in Spain. Redarding to sex, a significant differences in the infection rate was recorded. In the pigeons males it was 25 (32.89%) higher than in females 18 (28.12%) night be due to the number examined (Table, 3). These agree with (16) in living urban pigeons of Mosul and Iraq. The main clinical findings of trichomoniasis were loss of the body condition with presence of yellowish caseous lesion in buccal cavity, pharynx, esophagus and crop (Fig. 1). The results revealed that the total rate of infection with cestodes parasite in wild and domestic columbides in Babylon province was 80 (57.97%), the highest prevalence rate was recorded in wood pigeon 27 (90%) followed by rock pigeons, collared doves and domestic pigeons 25 (83.34%), 12 (40%) and 16 (26.67%) respectively, while no cestodes recorded in examined 18 palm doves (Table, 4).

This results show relatively high percentage was in close to findings of other authors including (6) in Iran, (17) in Tanzania, (4) in north-East zone of Nigeria and (18) in Nigeria.

The reason of high prevalence night be due to fact that all examined birds were free ranging and access to intermediate hosts particularly in worm months (12). According to the sex of examined birds, the results were revealed no significant difference between the males and females, the rate of infection recorded in female birds were (59.37%) and in the males were (56%) (table, 5). These finding were in agreement with (19) in pigeons of Turkey.The results showed that out of 123 collected cestodes, 79 (64.23%) were genus *Riallietina.* Including *three spiecies, R. cesticillus, R. echinobothrida* and *R. tetragona* while the number (percentage) of genus *Aporina* and *Coutugonia* were 23 (18.69%) and 21 (17.07%) respectively (Table, 6, Fig. 2 - 5 A, B and C). According to genera were recorded, our results were close

to results recorded by many studies in Iraq (20 and 21). The most prevalent genus was *Raillietina* spp. followed by *Aporina* spp. and *Cotugnia* spp. Many authors were recorded that the *Raillietina* spp. as predominant cestodes in pigeon and dove, (17) in Tanzania, (6) in Iran, while the finding of *Cotugnia* spp. and *Aporina* spp were agreement with the findings of (22) in Iran and (23) in domestic dove in Chile. Among infected bird, 46 birds were infected with cestodes only and 9 were infected with *Trichomonus*, while the rest show mixed infection were recorded in 34 birds (table, 7).

Table, 2: The rate of infection with trichoimoniasis in columbides.

Bird spices	No. of examined	No. of infected	%
Domestic pigeon	30	9	30
Rock pigeon	30	12	40
Wood pigeon	30	*16	*53.33
Collared dove	30	4	13.34
Palm dove	18	2	11.12
Total	**138**	**43**	**31.5**

Table, 3: The prevalence of trichomonoasis according to sex.

Bird spices	Male			Female		
	Examined	Infected	%	Examined	infected	%
Domestic pigeon	15	6	40	15	3	20
Rock pigeon	18	7	38.88	12	5	41.66
Wood pigeon	15	9	60	15	7	41.17
Collared dove	15	3	20	15	1	6.66
Palm dove	13	0	0	5	2	40
Total	76	*25	32.89	64	*18	28.12

*Non.Signifigant

Table, 4: The infection rates with cestodes in different columbides.

Bird	No. of examined	No. of infected	%
Domestic pigeon	30	16	26.67
Rock pigeon	30	25	83.34
Wood pigeon	30	*27	*90
Collared dove	30	*12	*40
Palm dove	18	0	0
Total	138	80	57.97

Table, 5: The prevalence rates of cestodes infection according to sex.

Birds / Sex	Male			Female		
	examined	Infected	%	Examined	Infected	%
Domestic pigeon	15	7	46.66	15	9	60
Rock pigeon	18	18	100	12	7	58.33
Wood pigeon	13	10		17	17	100
Collared dove	15	7	46.66	15	5	33.33
Palm dove	13	0	0	5	0	0
Total	74	42	56	64	38	59.37

Table, 6: The number and percentage of cestode genera in columbides

Cestodes	No. of infected bird (average of parasite/birds)					
	Domestic Pigeon	Rock Pigeon	Wood Pigeon	Collared dove	Palm Dove	Total
***Raillietina* spp.**	**16 (5.6)**	**25 (4.3)**	**26 (2.25)**	**12 (1.4)**	**0**	**79**
***Aporina* spp.**	**6 (3.1)**	**5 (1.4)**	**9 (2.23)**	**3 (2.34)**	**0**	**23**
***Cotugnia* spp.**	**8 (1.61)**	**5 (2.6)**	**8 (3.87)**	**0**	**0**	**21**

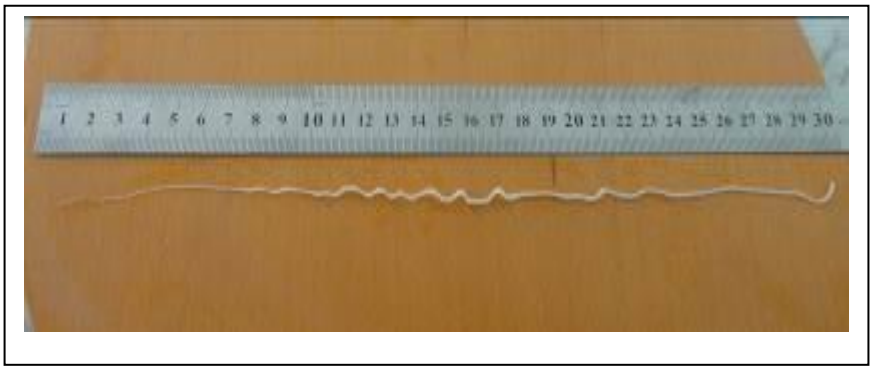
*Significant differences the P values less than 0.05

Table, 7: The concurrent infection with cestode and trichomoniasis in columbides.

Type of infection	Domestic Pigeon	Rock pigeon	Wood pigeon	Collred dove	Palm dove	Total
Cestodes	8	17	13	8	0	**46**
Trichomonas	1	3	2	1	2	**9**
Mix infection	**8**	**9**	**14**	**3**	**0**	**34**

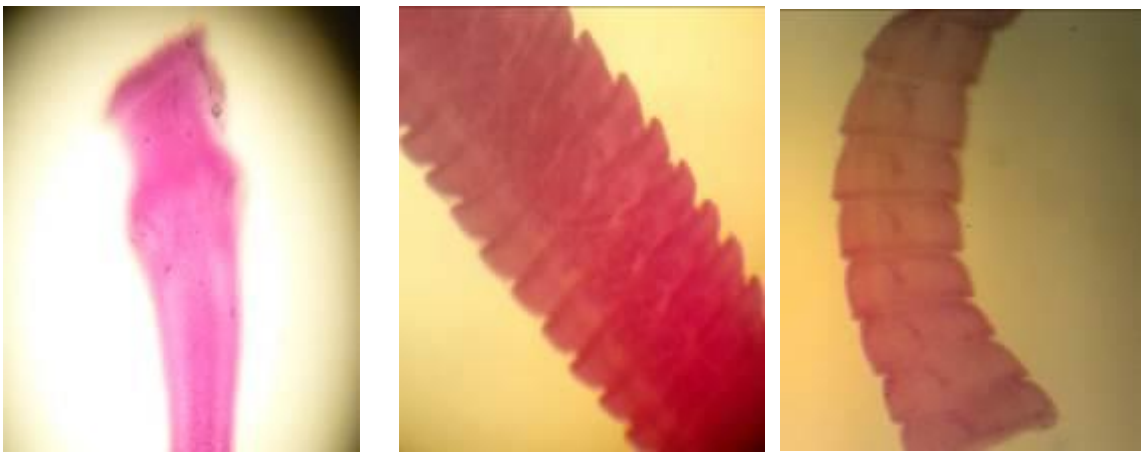
Figure, 1: characteristic lesion of trichomoniasis

Figure, 2: The parasitic burden of one domestic pigeon



Figure, 3: *Raillietina* worm in pigeon

Figure, 4: *Cotugina* worm in pigeon



A B C

Figures, 5: A- the scolex of *Raillietina cesticillus*
B - Mature segment of *Raillietina cesticillus*
C- Gravid segment of Raillietina *echinobothrida*

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الإصابة المشتركة لداء المشعرات والشريطيات في الحمام المستأنس والبري في محافظة بابل

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الخلاصة

تم اجراء البحث في محافظة بابل على 138 من الحمام المستأنس والبري جمعت خلال الفترة من نيسان حتى حزيران للعام 2012. جمعت المسحات الرطبة التى اخذت من التجويف الفمى, الحنجرة, المرئ, الصدروالقانصة وفحصت لاجل البحث عن داء المشعرات ثم فتحت الامعاء طوليا وفحصت للبحث عن الديدان.تم تثبيت الديدان وصبغها بصبغة الكارمين لاجل تميز الديدان . أظهرت نتائج طريقة المسحةالرطبة ان النسبة الكلية للاصابة بطفيلي الترايكومونس كاليني كانت 43(5 .31 %)سجل البحث فرق معنوي في نسب الاصابة بالنسبة لنوع الطيور فقد سجلت أعلى نسبة في الطبان 16(53.33%) ثم الحمام الطوراني ، والحمام المنزلي، الفاخته المطوقة و يمامة النخيل وبمعدل 12(40%)، 9(30%)، 4(13.34%) و2 (11.12%) على التوالي. بين البحث ان النسبة الكلية للاصابة بالديدان الشريطية كانت80 (57.97%)، سجل البحث فرق معنوي بالنسبة لنوع الطيور فقد سجلت أعلى نسبة اصابه في الطبان27(90%) يتبعها الحمام الطوراني، الفاخته المطوقة والحمام المنزلي وبمعدل 25(83.34%)، 12(40%), 16(26.67%) عى التوالى بينما لم تسجل أي إصابة في يمامة النخيل. كما سجل البحث فرق معنوي بالنسبة لنوع الديدان فمن بين 123دودة شريطية عزلت منها79(64.23%) تمثل جنس الريليتينا و(18.69%) جنس الابورينا و(17.07%) تمثل جنس الكوتكونيا.

الكلمات المفتاحية: الحمام، داء المشعرات، الشريطيات، بابل.