

Prevalence Comparative Study of Infection with *Trichomonas spp* in The Three Types of Birds at The Holy City of Kerbala

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Abstract

The avian Trichomonosis is a parasitic disease caused by *Trichomonas gallinae*. This parasite lived in the bird's mouth and digestive tract, and can caused a granulomatous lesions in the lumen which lead to death of bird because of severe starvation. The results of the current study for the purpose of conducting a field survey and the extent of the spread of infection in the three types of birds (*Bird toilet decorations, Bird pigeon, Broiler bath decorations*). The field of study was in the holy city of Karbala, which is located in south-west Baghdad, and is 100 km long and has a moderate temperament. During the course of the study (345 birds were tested). This is the study of 170 decorative samples, 150 samples of the pigeon bath and 25 samples of after the samples were taken. 15-day-old bathroom bath with 25 samples of *Broiler bath decorations*). Use eye and laboratory examination to examine the symptoms. The results showed that 7, 10.3 of the bath pigeons had an ornamental pigeon and an infection rate of 4.11 in these birds 6,6 & 12 respectively.

Keywords: *Trichomonas, Birds, Holy Kerbala.*

Introduction

The avian Trichomonosis is a parasitic disease caused by the protozoan called *Trichomonas gallinae*. This parasite lived mainly in the bird's anterior digestive tract, so it can caused a granulomatous lesions include the lumen of esophagus and lead to death of bird because of severe starvation. However, it's well known that virulence of this parasite is vary among strains, so it can reached to the parenchymatous organs causing a generate necrotic foci ^{1,2}. Columbidae is known as a parasite's main host, particularly the domestic pigeon (*Columba livia*), which has been considered the responsible to the worldwide spread of *T. gallinae*². Despite of the parasite preference for pigeons and doves, *T. gallinae* can affect a wide range of bird families, and infections in bustards ³, psittacine birds ^{4,5}, fowl ⁶ and passerine birds ⁷ also have been reported. The preyed of birds (diurnal and nocturnal) are also recorded frequently to infected by these flagellated protozoans, especially those species that usually feed on doves or bird carcasses ⁸⁻¹¹. Data on prevalence found in Columbidae with different authors throughout the world vary greatly, ranging from

5.6% cited by ¹² in mourning doves ¹³ to 95% detect. This parasite has been reported throughout the year, but most outbreaks occurring which seen in spring, summer and autumn ^{14,15}. This study is aimed to detect rates of inflection with *Trichomonas spp* in three types of birds (*Bird toilet decorations, pigeon and Broiler bath decorations*) at Holy Kerbala City and compared between them according to the rates of inflection.

Material and Method

The samples of parasite cultures (oral swabs) were taken from the oral cavity of inflected pigeon and putting in tryptone/yeast extract/maltose medium, then supplemented with 10% foetal calf serum (Sigma Chemical Co., St Louis, Missouri, USA) and incubated at 37°C (16).

These cultures were observed over three consecutive days for checking the growth of these parasites. The positive samples were frozen in tryptone/yeast extract/maltose medium which containing about 5% dimethyl sulphoxide. Necropsies were executed on euthanized or dead birds to determine the macroscopic lesions. 65

grams were suspended in 1000 ml distill water, then heat to boiling to melt the medium completely, Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes finally mix well and pouring in sterile petri dish.

Fungi were the first microorganisms recognized because some of the fruiting structures such as the mushrooms are large enough to be seen without a microscope. Fungi can be grouped simply on the basic

of morphology with yeasts or molds and it's used for isolation and differentiation from yeast and molds.

Fetal Calf Serum (FCS or FBS) consider as a common supplement for animal cell media culture, it is has free database part (3Rs programme database) the assembly function for record allows researchers to discuss them^{13,16}.



Figure 1: Method for taking swap from oral cavity from infected bird.

Results

The results showed infected at about 20 birds from all types of birds (345) which used in this study. Table 1 show the results with a percentage of total rates 14.7%.

Table 1: The rates and severity of infection with Trichomonas spp in the three different types of birds

Sequence	Type of bird	Number of animals	Injury	
			Number	%
1	Bird toilet decorations	170	7	4,11
2	Bird pigeon	150	10	6,6
3	Broiler bath decorations	25	3	12
Total		345	20	14,7

The highest rate of infection with *Trichomonas spp.* was recorded in the Bird pigeon which reached to 2,8%, while the lower rate was in the Broiler bath decorations which reached to 0.02% (Table 2).

Table 2: The rates of infection with *Trichomonas spp.* in the three different types of birds

Numbers of Tested birds	Type of tested birds	The symptoms	
		Number	%
345	Bird toilet decorations	7	2,2
	Bird pigeon	10	2,8
	Broiler bath decorations	3	0,02

Discussion

A number of researchers studied the distribution of this disease in Iraq and show that the prevalence of this disease has increased in the areas of birds breeding in recent time due to the lack of frequent test for the pages and poor health care for the bite birds so this disease is endemic . In Iraq the disease found in the all field and agree with⁵⁻⁸

The results of the current study showed that the incidence rate of the Trichomoniasis about 0.17% from the total number of examined birds; this result that record in germane (2,3) .where others pointed to that the percentages of infection ranged from 61.04%, 72.36% and 70.40%; as well as this result was differed with some other previous studies that recorded a higher rates of infection with this parasite ⁴ .

A ratio of 2.08% of infection in different birds approaching from the previous results (2,3) . As well as this result were differed from some previous studies that recoded a higher rates of infection with this parasite ¹⁻⁴ .

The differences in the infection rates return to several reasons, including the number of samples where the studied number give real representative results, as well as the period of study whenever the longest study period will reflect a comprehensive picture of the disease in the conducted region of study, moreover the geographical location of the area and the surrounding environmental conditions where temperature and humidity are considered important factors affecting the life cycle of the this parasites ¹³ .

Also pollution disparity affect the growth and activity of parasite and the ways of spared of these parasite in the different areas ¹¹ . Besides lack of health control and prevention the condition to growth the parasite

Also the percentage of the infection in bird toiler decorations with Trichomoniasis recorded 4.11% and this approximated from that record by researcher ²

The differs from the percentages referred to by others⁴

Also the percentage of infection of bird pigeon with Trichomoniasis recorded 6.6 and this approximated from the other researcher ⁸ . In Iraq the ratio differ from the percentages referred by Amin *et al.*, (4)the differences in the infection rate was caused by environmental conditions and geographic location where the environmental condition of kerbala city characterized by high temperatures for most of the year, the occurrence of drought in the summer and the end of spring and the beginning of autumn, and this parasite cannot live outside the body of the body for a long period of time, because of conditions of heat, moisture and nutrients are not available and is consistent with the study ^{11,13}

The percentage of infection of broiler bath decorations total 12% it is agree with ⁹ and this percentage in fact use this result depend on the condition and out or free condition and this disease depend on the environmental and the geographic location and size.

The results of this field study were based on the pigeonhole of the pigeon decorations and the results were recorded at 12%. This corresponds with Amin *et al.*,⁴. This result differs from one location to other depending on environmental conditions,

In this way the spread of this disease is reduced to small by mothers or through fodder, where the studies prove that this parasitic disease was spread in UK and then spread to the rest of Europe and we can control this disease by depriving one of the factors of growth and spread, Fresh feed and non-exposure to contaminants this adjusts ^{9,11} .

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the University of Kerbala and all experiments were carried out in accordance with approved guidelines.

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