

Survey Study of Most Important Diseases Which Infected the Broiler Farms in Samarra City

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ABSTRACT

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This study is designed to diagnose the most important diseases affecting the chicken flocks of in the city Samarra, which included (2073) a pathological cases obtained from the flocks scattered in the city during the period from (9/11/2015 to 15/3/2017), These cases were diagnosed in the poultry laboratory located in the veterinary clinic in Samarra city of the veterinary hospital in Salah al-Din, the results of the study showed the diagnosis of the following cases: Occupied of the Newcastle disease was the highest infection by (819) the cases of ratio (39.5%). There were also the cases of Gumboro reached (209) cases of infection (10.1%) were recorded. the case of Salmonellosis was the number (350) were registered by percentage (16.9%), as well as diagnosed cases of Air sacculitis (248) the cases of the ratio (12%). With regard to the internal parasites, the number of pathological cases was (237) the case of ratio (11.4%) The number of cases of the Nematodes (*Ascaridia galli*) (66), (*Heterakis gallinarum*) (39), the incidence of the Protozoal parasites *Eimeria spp* (83), and Cestoda (*Raillietina Tetragona*) have reached (49). In addition to what has been mentioned, the study has recorded cases of external parasites, the number of such cases (210) and the proportion of (10.1%), represented the Lice (*Cuctogaster heterograbhus*) (68), (*Menopon gallinae*) (55) the Mite (*Dermanyssus gallinae*) (39), and the Soft tick, *Argas Persicus* (48), cases from the total diagnosed of the pathological cases. The study concluded that the incidence of viral diseases had the highest ratio of infection, followed by Salmonellosis and Air sacculitis, was also the cases of internal and external parasites infection had been recorded.

دراسة مسحية لاهم الامراض التي تصيب حقول دجاج اللحم في مدينة سامراء

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الخلاصة

صممت هذه الدراسة لأجل تشخيص اهم الامراض التي تصيب حقول دجاج اللحم في مدينة سامراء حيث شمل (2073) حالة مرضية تم الحصول عليها من الحقول المنتشرة في المدينة خلال الفترة من 9 / 11 / 2015 ولغاية 15 / 3 / 2017 حيث تم تشخيص تلك الحالات في المختبر الخاص بالدواجن الموجود في المستوصف البيطري في مدينة سامراء التابع للمستشفى البيطري في صلاح الدين ، اذ اظهرت نتائج الدراسة تشخيص الحالات الاتية: احتلت الاصابة بمرض النيوكاسل اعلى اصابة اذ بلغت (819) حالة ونسبة (39.5%)، كما سجلت حالات اصابة بمرض الكمورو بلغت (209) حالة بنسبة اصابة (10.1%) ، كما تم تسجيل حالات اصابة بمرض السالمونيلا كانت بعدد (350) حالة بنسبة (16.9%) ، كذلك شخضت حالات مرضية للإصابة بالتهاب الاكياس الهوائية (248) حالة ونسبة (12%) اما فيما يخص الاصابة بالطفيليات الداخلية فقد بلغت عدد الحالات المرضية (237) حالة ونسبة (11.4%) اذ بلغ عدد حالة الاصابة بالديدان الخيطية *Ascaridia galli* (66) حالة، و *Heterakis gallinarum* (39)، الاصابة بطفيليات الاوالي *Eimeria spp* (83)، والديدان الشريطية (*Raillietina tetragona*) بلغت (49). بالاضافة الى ما تم ذكره فان الدراسة قد سجلت وجود حالات اصابة بالطفيليات الخارجية بلغ عدد تلك الحالات (210) ونسبة اصابة (10.1%) متمثلة

الكلمات المفتاحية:

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بالقمل (*Cucltogaster heterograbhus*) (68) , (*Menopon gallinae*) (55) والحلم
(*Dermanyssus gallinae*) (39) والقراد اللين (*Argas persicus*) (48), حالة من مجموع
الحالات المرضية المشخصة. استنتج من هذه الدراسة بأن الإصابة بالأمراض الفيروسية كانت أعلى نسبة
إصابة وتليها الإصابة بالسالمونيلا والتهاب الكياس الهوائية كما تم تسجيل حالات مرضية للإصابة
بالطفيليات الداخلية والخارجية .

Introduction:

Newcastle is undoubtedly one of the most important viral diseases affecting poultry at different ages and in all seasons, and leads to economic losses in the poultry flocks and spread the disease in many countries of the world. There are three main forms of disease depending on clinical signs and these forms are: 1. Digestive 2. Nervous 3. Respiratory . (Hines and Miller, 2012 ; Samour , 2014 and Cappelle *et al.*, 2015).

Gumboro disease is also an important viral disease that affects on the poultry and leads to the enlargement the bursa of fabricius, leading to the cannibalism of infected chickens. (Moraes *et al.*, 2010 and Gao *et al.*, 2011).

An important disease affecting poultry, which also has an impact on public health, is salmonellosis, which is one of the most important infectious bacterial diseases that affect on both humans and animals alike, which are a bacteria negative generosity , in the form of sticks. (Fearnley *et al.*, 2011; Chotinun *et al.*, 2015 and Dalai *et al.*, 2015).

Air sacculitis is a common disease that affects in the poultry and it's incidence due to the poultry herds are exposure to many pathogens such as *Mycoplasma* , *Escherichia coli* , other pathogens causes and poor management in poultry herds can be considered as a key factor in providing conditions for the occurrence of this pathological conditions. (Silva *et al.*, 2011; Khalda *et al.*, 2012 and Landman *et al.*, 2014).

Poultry fields are exposed to external parasites and include (Tick, Lice, and Mite) which suck the blood from the host, which lead to anemia as well as mechanical vectors for some viral and bacterial pathogens. (Eslami *et al.*, 2009 ; Randolph , 2010 and Usman *et al.*, 2012), and that Poultry are also susceptible to internal parasites, consisting of Nematodes, Cestoda and protozoal parasites (*Emiria spp*). Where the incidence of these parasites will leads to swelling of the intestines combined with the presence of haematology and leads to a decrease in the productive efficiency of chicken (Nagwa *et al.*, 2013 ; Naphade and Chaudhari , 2013 and Butcher *et al.* , 2015).

Materials and methods:

The study aimed at diagnosing the most important pathological cases that affected on the broilers flocks in the city of Samarra, which included the study (2073) of a pathological cases collected from the fields random in the city of Samarra during the period from 9/11/2015 to 15/3/2017. The diagnosis of the pathological cases occurred in the poultry laboratory in the Veterinary Clinic in Samarra city , so that they diagnosed the pathological cases for each of the Newcastle disease, Gumboro and Air sacculitis depending on the appearance of clinical signs and autopsy as well as a Heamagglutination test and Hemagglutination inhibition test was performed for blood samples taken from the infected chickens by torticollis as well as the pathological cases that were suffered from the presence the hemorrhage at the summit of secretory glands in the proventriculus for diagnosed Newcastle disease. The Selenite broth has been used to activate the Salmonella, as the culture media was incubated for 24 hour at 37 °C and then taking 1 ml of bacterial commentator and culture the bacteria on the agar (*Salmonella Shigella (SS) Agar*) which produced by Becton Dickinson company) for 48 hour at 37 °C for the detection of the salmonella infection , with regard to the detection of external parasites, the feathers and skin were examined through used the naked eye and the magnifying lens to the diagnosis the Lice, Tick and the Mite, while the digestive tract of chickens were taken after slaughter and washed it by

physiological saline for collected the worms are presented in the intestines based on the method conducted by the researcher (Al-Hubaity, 1979), and the samples were taken from the feces of birds and gastrointestinal tract contents and underwent laboratory test through the use of a tramping method to search for the presence of the Nematodes and Cestoda based on the modus operandi by researcher (Charles, 1998), with regard to the cases of *Emiria spp* infection, has been examined by using the microscope when checking the samples of the intestinal contents according to the researcher way (MAFF, 1977).

Diagnosis of Pathological cases:

The Pathological cases diagnosed in the laboratory of Poultry diseases which located in the Veterinary Clinic in Samarra city of the Veterinary hospital in Salah al-Din.

Results and Discussion:

The results of the study showed that the highest incidence of diseases has been were recorded of Newcastle disease, where the proportion (39.5%). of the total pathological cases, followed by Salmonella (16.9%), Air sacculitis (12%), internal parasites (11.4%), the incidence of external parasites (10.1%) and the proportion incidence of Gumboro disease (10.1%). (Table 1).

The number of the cases for Newcastle disease was the highly percentage, with the clinical signs which composed of from greenish diarrhea, sneezing and coughing, as well as present the mucous secretions from the nostrils in addition to the recording of the neck twisting cases this is consistent with what the researchers have pointed out (Cattoli *et al.*, 2011 and Kim *et al.*, 2017) They indicated that these signs were visible when Newcastle, in addition to the foregoing that the Newcastle infection is accompanied by the onset of bleeding on the summit of secretory glands, which was agreed by Researchers (Susta *et al.*, 2011 ; Wang *et al* 2016 and Zhang *et al.*, 2017) They showed that Newcastle infection can lead to bleeding at the top of those glands, and the study also reported the incidence of the Gumboro disease, which consisted of enlargement the bursa of fabricious, with presence of gelatinous material covering the bursa, which was agreed with the researchers (Mutinda *et al.*, 2013 ; OIE, 2016 and Bedaso *et al.*, 2017) .They noted that the incidence of the Gumboro was accompanied by the enlargement of the bursa. Salmonella cases were found represent the existence of yellow diarrhea, as well as the presence of necrotic foci on the surface of the liver. In addition to the occurrence of the Typhlitis, which agreed with the researchers (Temelli *et al.*, 2010 ; Chotinun *et al.*, 2015 and Thung *et al.*, 2016). For the purpose of confirming the diagnosis of Salmonellosis, which occurred by culture bacterial commentator on the *Salmonella shigella* (SS) agar, as the result of the culture showed the presence of bacterial colonies with black on the surface of this media, which correspond to what the researchers have confirmed (Rakibul *et al.*, 2010 ; Chen *et al.*, 2015; Teferi and Nejash, 2016 and Borges *et al.* , 2017), which explained that when *Salmonella* was cultured in the media (*Salmonella Shigella* (SS) Agar), the colonies were appear by black color because production of H₂S gas, which would be responsible for the appearance it. The cases of Air sacculitis were diagnosed depending on respiratory signs such as sneezing, difficulty breathing and inhalation, and when the in conducting the autopsy for the infected cases was observed membrane chapel which covered the air sacs in addition to its congestion which was agreed with what the researchers pointed out (Butcher *et al.*, 2015 ; Roussan *et al.*, 2015 and Michiels *et al.*, 2016). The study also recorded infected cases by internal parasites, such as the Nematodes, *Ascaridia galli*, *Heterakis gallinarum*, Cestoda (*Raillietina tetragona*) and Protozoal parasites (*Eimeria spp*), as these worms affect the intestines of infected chickens leading to present the hemorrhage in the intestinal walls because of the attack the parasites on the intestine which lead to appearance destroyed on the lining of this intestine and that's agreed with the referred to researchers (Macpherson, 2008 ; Gary and Richard, 2012 ; Adang *et al.*, 2014 ; Hailu and Addis, 2015 and Wannoruhuda *et al.*, 2017). , In addition to that the infection by these parasites would lead to an enlarged of the infected intestine, that agreed with mentioned by researchers (DAR and Tanveer, 2013 ; Jatoi *et al.*, 2013 ; Angyiereyiri *et al.*, 2015 and Assefa *et al.*, 2017) They indicated that the infestation with internal parasites leads to the swelling of the intestines, and the study showed the occurrence infected by

external parasites, including Lice. Tick and Mites, it works to sucking the blood from the host which lead to occurrence anemia in the infected chickens, that fact is consistent with what has been reported by researchers (Tolossa and Tafesse, 2013; Sparagano *et al.*, 2014; George *et al.*, 2015; Odeno *et al.*, 2016 and Kebede *et al.*, 2017). They reported found the anaemia caused by external parasitic infection. There were also recorded, present the infection with the soft tick (*Argas persicus*) in chicken prepared the study, although the number of infected chickens (58) cases but has this parasite importance through its effect on the health of the chickens result from sucked the blood from the chickens as cause of emaciation the infected chickens (Montasser *et al.*, 2011; Malann *et al.*, 2016 and Mohammad *et al.*, 2016). It could also play an important role in the transfer of many of the causes of other sick chickens for example the transfer of bacteria (*Borrelia anserin spirochetes*), which are the mainly cause of Spirochaetosis. (Aslam, *et al.*, 2013; Elahi *et al.*, 2014; Bilal *et al.*, 2015 and Shayeghi *et al.*, 2016). In addition to disease caused by (*Aegyptianella pullorum*) (Dezfoulia *et al.*, 2011; Kalani *et al.*, 2015; Koc *et al.*, 2015 and Lawal *et al.*, 2016). It's possible to play an important role in the transfer of the bacteria which responsible for the incidence of tuberculosis in Chicken (Klimburg *et al.*, 2010; Fernandes *et al.*, 2010; Zhu *et al.*, 2016 and Jallailudeen *et al.*, 2017). In addition, when an increase in the amount of these parasites which lead to a paralysis the infected bird through the toxins which produced by the tick, in addition, the death of some of the birds due to loss of large amounts of the blood (Angyireyiri *et al.*, 2015; Moyo *et al.*, 2015 and Zeba *et al.*, 2016).

Recommendations:

This study recommends should be great attention to vaccination of the poultry farms against viral diseases, especially Newcastle and Gumboro, In addition to following a set of procedures and preventive health measures for the protection of poultry farms from the entry and spread of the pathogens.

Table 1- The Pathological cases diagnosed, number and incidence of cases and morbidity rate.

Pathological cases diagnosed	Number and incidence of cases	Morbidity rate (%)
Newcastle disease	819	39.5
Gumboro (Infectious bursal disease)	209	10.1
Salmonellosis	350	16.9
Air sacculitis	248	12
<u>Internal parasites:-</u>	237	11.4
<u>**Nematodes</u>		
- <i>Ascaridia galli</i>	66	
- <i>Heterakis gallinarum</i>	39	
<u>**Protozoal parasites</u>		
- <i>Eimeria spp</i>	83	
<u>**Cestoda</u>		
- <i>Raillietina tetragona</i>	49	
<u>External parasites:-</u>	210	10.1
<u>**Lice</u>		
- <i>Cuculogaster heterograbhus</i>	68	
- <i>Menopon gallinae</i>	55	
	39	
<u>**Mites(<i>Dermanyssus gallinae</i>)</u>	48	
<u>**Soft ticks (<i>Argas persicus</i>)</u>		
grand total	2073	%100

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