

أستبيان عن اصابة حادة بوباء السالمونيلا (جالينيرم - بللورم) في الدجاج البالغ

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ممهذ بحوث الانتاج الحيوانى - وزارة الزراعة

سجل فى هذا البحث اصابة حادة بوباء السالمونيلا (جالينيرم - بللورم) فى الطيور البالغة بمزرعة الدقى للدواجن ، وقد استخدم فى هذا البحث ثلاثة أنواع من الطيور : الرود أيلند ، الدقى ، والدندراوى . وقد عزل الميكروب المسبب للمرض (سالمونيلا جالينيرم - بللورم) من الدم ومن براز الطيور البالغة المصابة ومن مختلف أعضاء الطيور الناقطة والمذبوحة ، وأيضا من الدباب والفرشة والأرض المبللة المحيطة بأوانى الشرب والاكل للطيور المصابة. وقد ارتفعت نسبة النفوق خلال شهر من الاصابة بينما انخفضت نسبة انتاج البيض والتفريخ .

وقد عملت كل الاحتياطات الصحية اللازمة لحصر المرض وشملت التطهير الكامل لكل البيوت ، والأحواش ، وأوانى الشرب والاكل وأيضا أجرى اختبار القطيع بصفة دورية للاسهال الأبيض الى أنه تم التخلص من المرض .

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INVESTIGATION ON AN OUTBREAK OF ACUTE SALMONELLA GALLINARUM-PULLORUM INFECTION IN ADULT CHICKENS

By

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SUMMARY

1. In this study an acute outbreak of *Salmonella gallinarum-pullorum* infection in adult birds in a poultry farm was recorded 3 breeds namely Rhode Island Red, Dokki, and Dandarawi were under this investigation and the causative agent was isolated from blood, droppings of sick adult birds, different organs of sacrificed and dead ones, from bedding and wet earth around waterers and from feeders of the diseased birds.
2. Mortality rate during one month of the outbreak raised while egg production and hatchability were reduced.
3. Control measures including thorough disinfection of all houses, yards, waterers, feeders and frequent pullorum testing of the flock were conducted.

INTRODUCTION

Infection of baby chicks with *Salmonella gallinarum-pullorum* during the first two weeks of their life is known to assume an acute course while adult birds manifest the chronic form of the disease. However, data concerning acute affection with the disease among adult chickens are few (HART and HUNGERFORD, 1936, KHERA *et al.* 1965). This investigation deals with a description of an acute infection of adult fowls with *Salmonella gallinarum-pullorum* at Dokki Poultry Farm belonging to Animal Production Research Institute, Ministry of Agriculture.

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MATERIALS AND METHODS

A disease among 1189 adult chickens (18 months old) of different breeds at Dokki Poultry Farm took place.

Symptoms of general depression, listlessness, greenish yellow diarrhoea, accompanied by loss of appetite, intense thirst and lowering of egg production which reached in Rhode Island Red (14%) in Dokki, (12%), and in Dandarawi (13%) with mortality rate of (23.6%), (8.5%) and nearly zero in the same breeds respectively were observed. Hatchability was reduced by 20-25 % among those breeds.

Post-mortem examination on dead birds revealed myocarditis with greyish nodules of varying size, enlargement and congestion of liver, spleen, with pinheaded greyish necrotic foci, congestion and enlargement of kidneys, catarrhal enteritis and ureters were distended with urates. The ova were misshapen, pedunculated or cystic, with oily or cheesy like contents. Egg peritonitis was not uncommon. In male birds, the testis showed multiple small abscesses and the lumens of the vas deferens were filled with a dense homogenous exudate. Trails for bacterial isolation were carried out from heart blood, gall bladder, liver, spleen, ovarian follicles, testicles and droppings in selenite broth media incubated at 37°C for 18-24 hours, followed by plating on MacConkey agar and incubated for another 24-48 hours. Suspected colonies were then identified both biochemically and serologically according to Kauffman-White scheme. Trials for isolating the causative organism from the wet earth, beddings and from the premises were also performed.

Rapid whole blood stained antigen agglutination test was conducted near the end of the outbreak to eliminate the carrier birds. As comparison blood samples from 564 birds positive with the whole blood agglutination test were collected in separate tubes for performing the standard tube agglutination test by using serial 2 fold dilutions beginning from 1/40 up to 1/1280. The antigens and the known positive sera were kindly supplied by the Serum Institute at Abbassia, Cairo.

Treatment : Nephtin was given as a flock treatment at a level of 400 gm/ton of feed on the 3rd day of commencement of outbreak and continued for 10 days. Treatment at this level checked mortality within one week which began to rise within 3-4 days after withdrawal of drug in

spite of the strict hygienic measures adopted, this may be due to the bacteriostatic action of nephtin.

RESULTS

Bacteriological Characteristics : The inocula from selenite broth cultures obtained from all organs and dust revealed pin pointed colourless colonies on MacConkey agar plates. Culture characteristics and biological reactions coincided with those of nonmotile salmonellae.

Serological tests : The slide agglutination test with the suspected colonies was only positive with O poly-valent salmonella antiserum, the organism was positive with factors, 1, 9 12 (1,2,3) hence the typing as *sal. gallinarum-pullorum* according to the Kauffmann White scheme.

The flock was tested for pullorum by the rapid whole blood test after giving a treatment of nephtin for 10 days. The test was conducted one month after the appearance of the outbreak. The percentage of reactors among different breeds were 41% (Rhode Island Red) 61% (Dokki₄) and 22% (Dandarawi). 564 blood samples from birds which were positive by this test were retested by the slow tube agglutination test on the same day. Only 9 samples were negative. Thus whole blood test was of 97.5% accuracy (BRIELY *et al.*, 1932, BASSIOUNI *et al.*, 1965).

DISCUSSION

Acute outbreaks of salmonella gallinarum-pullorum infection in adult Fowls are not so Common as in baby chicks and only few observations were described (HART and HUNGERFORD, 1936 and KHERA *et al.*, 1965). The present study deals with an additional description of an acute outbreak of Salmonella Gallinarum - pullorum at Dokki Governmental Farm.

Sal. gallinarum-pullorum was isolated from the liver, gall bladder, intestine, ovary, testicles, spleen, and blood of diseased and dead birds and dust in their surroundings. These results agreed with those of McKemey 1933, Marthedal, 1952, HOFSTAD *et al.*, 1972 and KEAST *et al.*, 1966.

The birds in the farm in which this outbreak had taken place were yearly tested for pullorum disease before the beginning of the hatching season by the rapid whole blood test. No positives were detected for five successive years before the beginning of this outbreak. The last test was conducted

six months before the appearance of infection in the farm. No single case of isolation of *Sal. gallinarum* - *pullorum* organisms from either the infertile eggs, dead in shells or dead birds at different ages during the same period was detected.

The average mortality rate among adults reached up to 16.5% during 6 weeks after infection. This is in partial agreement with plastride and Rettger, 1930 who stated that it reached 25% during an acute outbreak among adults.

Egg production during this acute maladie was reduced by 14.9% this agreed with RUNNELS (1929), Doyle (1925) and DEARSTYNE *et al.*, (1929). Hatchability was also affected. It was reduced by 22.5% (BEAUDETTE *et al.*, 1923, a, 1923 b, BUSHNELL *et al.*, 1926. DEARSTYNE *et al.*, 1929 and RUNNELS 1929).

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