باستيريليا ملتوسدا في الطيور

1 - تنبؤ عن استيريليا في الدجاج والرومي

أحمد فريد ، حلمي تركي ، محب النمر ، محمد عقيلة ، محمود عزت

تم تجميع عدد 1325 مسحة من الفتحة الأنفية والتجويف الأنفي البلعومي والقصبة الهوائية للدجاج وكذا فرخ الرومي سلالة ظاهريا ومثكرة الأصابه بالباستيريليا وكانت نسبة العزل في كل من الدجاج والرومي معا 11.2% ( 100 عشيرة ) وأظهرت النتائج أن عزل ميكروب الاستيريليا من الرومي أقل بكثير من مثيلاتها من الدجاج ( 8.9% ، 11.8% على التوالي ) .

كما وجد أن نسبة عزل ميكروب الاستيريليا من الحالات المتكررة الأصابه بالمقارنة بعدد العشرات المعزولة من الطيور السليمة ظاهريا ( 147 عشيرة على التوالي ) . وكانت نسبة عزل الميكروب من التجويف الأنفي البلعومي والفتحة الأنفية والقصبة الهوائية كالآتي 3، 25% و 12% و 11% على التوالي .

كلية الطب البيطرى بأدفيتا - جامعة الأسكندرية
STUDIES ON PASTEUR AllA MULTOCIDA OF BIRDS
1- INCIDENCE IN CHICKENS AND TURKEYS
(With 4 Tables & 1 Fig.)

By
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SUMMARY

A total of 1325 swabs were collected from the nasal cleft, nosopharynx and trachea of infected as well as apparently healthy fowls and turkeys of not less than 3 months old.
The incidence of total recovery rate was found to be 11.3% (150 swabs).
The incidence of isolation of P. multocida was significantly lower in turkeys than that from fowls (11.8 versus 8.9%).
The number of positive cases from reported infected birds was higher, in contrary to the lower percentage from healthy birds (143 and 7 strains respectively).
The rate of isolation from the swabs was 25.3, 12 and 1.4 for the nasopharyngeal, nasal and tracheal swabs respectively.

INTRODUCTION

P. multocida causes acute or chronic fowl cholera in domestic birds. The disease is of economic importance in poultry farms. Economic losses due to P. multocida were reported in most countries of the world. Under field conditions, losses due to fowl cholera sometimes occurred even in vaccinated flocks. In addition, the organism may be isolated from the blood and other parts of the body from carrier birds for much longer periods (HENDRICKSON and HILBERT, 1932; PRITCHETT and HUGHES, 1932; HALL, et al. 1955 and HOFSTAND, 1972). Usually, the nasal cleft (PRITCHETT and HUGHES, 1932), and nasal secretions (ILIEV, et al. 1963) are the place where the organism resides in carrier birds. Hence there is a danger of contaminating the surrounding, since the organism remains dormant, but under stress factors, it become virulent and infection occurs (KRECOV, 1976).

In Egypt, great consideration has been given to this disease during the past few years. Thus the purpose of the present work, is to study the prevalence of the incidence of P. multocida among carriers and apparently healthy fowl cholera in chickens and turkeys at Kafr El-Shiekh and Gharbia Governorates. This was conducted by examining nasal cleft, nasopharyngeal and tracheal swabs from such birds.

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MATERIAL and METHODS

1) Samples:

A total of 1325 swabs (Nasal Cleft, tracheal and nasopharyngeal swabs) were collected from alive chickens and turkeys of different ages and sexes of local and foreign breeds of different flocks from Behera, Kafr El-Sheikh and Gharbia Governorates. Some of these were from farms with no history of avian pasteurellosis as well as from farms where the disease had been previously diagnosed with the isolation of P. multocida.

2) Isolation and cultivation of the causative agents:

For the isolation of P. multocida, the swabs were transferred as quickly as possible into a nutrient broth then incubated at 37°C for 4-6 hours. Following this, 0.1 ml from the incubated broth suspension were subcutaneously (S/C) injected into white mice for the isolation. The mice were left under observation for about one week. Those dying after inoculation (Within 18 hours to 3 days) were subjected to P.M. examination. Blood films were prepared from heart, liver and spleen and stained with either Leishman's or Giemsa stain for the detection of the specific bipolarity. At the same time, for the isolation of the organism in pure form, heart blood samples were aspirated, inoculated into nutrient broth, incubated for 18 hours at 37°C, streaked on 5% sheep blood agar plates then incubated for 18-24 hours to avoid over growth of the contaminants. In case of pure isolation of Pasteurella, suspected colonies were furtherly identified for its morphological, colonial and biochemical characters.

3) Stains:

The following stains were used for staining either blood films or culture films for demonstration and differentiation of the morphology of the suspected isolates:

c) Dilute carbol Fuchsin stain (1:15).

4) Laboratory animals:

Adult mice of 7-9 weeks old were used for both isolation and to study the pathogenicity test of the isolated strains. These mice were supplied by the laboratory Animal Unit at the Veterinary Serum and Vaccine Production Institute, Abbassia, Ministry of Agriculture.

RESULTS

1) Samples:

Table (1) summarizes the type and number of swabs collected from both fowls and turkeys.

2) Incidence of P. multocida:

Results of this investigation are presented in tables (2&3) which shows the incidence of positive cases as detected by isolation of the organism, death of injected mice and presence

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...of typical bipolarity in examined smears. In addition, one finds the incidence of isolates from the different examined swabs.

Table (1)
Distribution of various samples collected from reported infected and apparently healthy fowls and turkeys

<table>
<thead>
<tr>
<th>Type of samples</th>
<th>Fowls</th>
<th>Turkeys</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reported infected</td>
<td>Apparently healthy</td>
</tr>
<tr>
<td>Nasal Cleft.</td>
<td>600</td>
<td>40</td>
</tr>
<tr>
<td>Tracheal.</td>
<td>250</td>
<td>35</td>
</tr>
<tr>
<td>Nasopharynx.</td>
<td>150</td>
<td>25</td>
</tr>
<tr>
<td>Total number</td>
<td>1000</td>
<td>100</td>
</tr>
</tbody>
</table>

Table (2)
Incidence of positive cases from collected samples

<table>
<thead>
<tr>
<th>Species of birds</th>
<th>Total Number of examined samples</th>
<th>Positive cases</th>
<th>Negative cases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Fowls</td>
<td>1100</td>
<td>11.8</td>
<td>970</td>
</tr>
<tr>
<td>Turkeys</td>
<td>225</td>
<td>8.9</td>
<td>205</td>
</tr>
<tr>
<td>Total number</td>
<td>1325</td>
<td>11.32</td>
<td>1175</td>
</tr>
</tbody>
</table>

Table (3)
Rate of isolation of P. multocida from different examined swabs

<table>
<thead>
<tr>
<th>Type of samples</th>
<th>No. of samples</th>
<th>No. of positive cases</th>
<th>No. of negative cases</th>
<th>Isolation rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal cleft.</td>
<td>739</td>
<td>89</td>
<td>650</td>
<td>12.04</td>
</tr>
<tr>
<td>Nasopharynx.</td>
<td>221</td>
<td>56</td>
<td>165</td>
<td>25.34</td>
</tr>
<tr>
<td>Tracheal.</td>
<td>365</td>
<td>5</td>
<td>360</td>
<td>1.37</td>
</tr>
<tr>
<td>Total number</td>
<td>1325</td>
<td>150</td>
<td>1175</td>
<td>11.32</td>
</tr>
</tbody>
</table>

3) Distribution of positive cases in healthy and reported infected birds:

Results of this study are found in Table (4) and Fig. (1). This shows that the incidence of *P. multocida* in turkeys was significantly lower than that in fowls. At the same time, the incidence in reported infected birds was higher than that from healthy birds.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Fowls</th>
<th>Turkeys</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Healthy birds</td>
<td>Reported infected</td>
</tr>
<tr>
<td>Reported infected</td>
<td>Rate +ve (%)</td>
<td>No. of Rate +ve</td>
</tr>
<tr>
<td>No. of Total</td>
<td>(%)</td>
<td>No. of Total</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------</td>
<td>--------------</td>
</tr>
<tr>
<td>Nasal clift. swabs</td>
<td>600</td>
<td>72</td>
</tr>
<tr>
<td>Tracheal swabs</td>
<td>150</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
<td>125</td>
</tr>
</tbody>
</table>

DISCUSSION

Since infection of poultry and other animals with *P. multocida* may be endogenous in nature (BIBERSTEIN, et al. 1960 and HARRY, 1962), thus it has been imperative to investigate the incidence of *P. multocida* in both repeatedly infected and apparently healthy chickens and turkeys.

Out of a total of 1325 swabs, 150 swabs were positive for *P. multocida* with an incidence of 11.3%. From these positive samples, 89 were from the nasal cleft swabs, 56 from the nasopharyngeal swabs and 5 from the tracheal swabs with an incidence of 12, 25.3 and 1.4% respectively. These results agreed with those found by PRITCHETT, et al. (1980 a,b) as well as PRITCHETT and HUGHES (1932) who found many birds harbouring the organism in their nasal clefts. Furthermore, NOBREGA and REIS (1937) demonstrated that the fluorescent variant of *P. septica* could survive for 15 months in the nasal passages of fowls. Moreover, NOBREGA and BUENO (1944) could isolate *P. septica* from the oral mucous of hens, while the agglutination test failed to detect these carrier hens. HALL, et al. (1955) found that although the mortality rate in the chronic form of fowl cholera was low, yet the infection persisted for four years.

Recently, MUSHIN, et al. (1980) found the incidence of *P. haemolytica* in the respiratory tract of healthy chickens to be 97% versus a very low incidence in healthy turkeys (3%) CURTIS and OLLERHEAD (1981) by studying the carrier state of *P. multocida* in healthy chickens and turkeys, could not isolate the organism from normal healthy flocks but from some alive chickens in infected flocks and from dead turkeys in an infected farm.

Concerning the rate of isolation of *P. multocida* from reported infected as well as apparently healthy fowls and turkeys, the results demonstrated that in reported infected fowls a rate of 12,32 and 2% was obtained for the nasal cleft, nasopharyngeal and tracheal swabs respectively. On the other hand, in healthy cases, the rates were 7.5, 8 and 0% for the nasal cleft, nasopharyngeal and tracheal swabs. With respect to turkeys, the respective rates in carrier cases were 13, 5 and 0% versus, 1, 1 and 0% in healthy cases for the nasal cleft, nosopharyngeal and tracheal swabs respectively.

These findings demonstrate that the rate of isolation from nasopharynx was the highest, followed by the nasal cleft and finally the trachea which is in agreement with AOUAD (1978). In addition, the rates of isolation from chickens were higher than in turkeys which was as those reported by MUSHIN (1979).

REFERENCES


A.H. FARID, et al.


Figure (I). Incidence of *P. multocida* isolated from swabs collected from healthy as well as from reported infected birds.