قسم: طب الحيوان وأمراض الدواجن.
كلية: الطب البيطرى - جامعة أسيوط.
رئيس القسم: أ. د. إبراهيم سحن سكر.

بعض المشاهدات على الإصابة بالميكروب القولوني
في الدجاج البيضاء

عرض عبد الحافظ محمد، مصطفى عبد المطلب

ظهرت أعراض المرض عام 1982 في واحدى مزارع الوادى الجديد على
قطيع دجاج من سلالة الهجرد.

وكان النتائج 4% في الدجاج عمر ستة أشهر بالفحص.

E. Coli البكتيريولوجي للدجاج النالف، تم عزل 14 عطرة من الميكروب
تقنيط إلى المجموعة السيروجية رقم (3) أثبتت النتائج التجريبية ضراوة
الميكروب لجميع أمراض الدجاج.

أجريت الدراسات المعزولة تجريبياً لتأثير النيتروفسانين والكليورا
مضينكول والثنائيين.

أعطي مركب فيورن والكلورامفينيكول في كل الشرب لمدة 7 أيام
لمقاومة المرض.
SOME OBSERVATIONS ON COLISEPTICAEMIA OF LAYING CHICKENS
(With 5 Tables)

By
A.A. IBRAHIM and M.A. SHAHATA
(Received at 22/11/1982)

SUMMARY

An acute infection characterized by septicaemia and daily mortality of about 4% six-months-old, Hubbard chickens was recorded during "1982" at El-Wadi El-Gadid, Poultry Farm. Bacteriological examinations of dead birds revealed the recovery of "14" E.coli isolates belonging to "3" serotypes. Experimental infections proved that the isolates were pathogenic to different ages of chickens.

The isolated strains were sensitive to Nitrofurantoin, Chloramphenicol and Neomycin. According to the previous result Furaltadone and Chloramphenicol were used in drinking water for 7 days to control the infection.

INTRODUCTION

Colisepticaemia of chickens appeared to be one of the most common diseases that affect poultry industry all over the world. Infections by different E.coli strains were known to be associated with a number of disease conditions in chickens "Colisepticaemia, Salpingitis, Omphalitis, Coli-granuloma and Chronic respiratory disease" [YADAV & MALIK (1971)].

The problem of Colisepticaemia had been studied in Egypt by AWAAD (1972) who isolated 25 strains of E.coli out of 290 diseased chickens.

During the year 1982 about 9000 laying chickens "six-months-old, Hubbard-breed" at El-Wadi El-Gadid, suffered from acute infection characterized by septicaemia, low egg production and daily mortality of about 4%.

The present work was planned to solve the problem according to the following items:
- Isolation & identification of the causative agent which may be responsible for the condition.
- Trial to reproduce the disease experimentally in susceptible chickens using the possible isolates.
- Testing the sensitivity of the isolates to different chemotherapeutic agents.
- Field trial to control the losses in this farm.

MATERIAL and METHODS

Isolation & identification of causative organism:

126 freshly dead, Hubbard chickens of six-months-old were subjected to post-mortem examination, followed by culturing from heart-blood, liver, spleen, oviduct and bone marrow on nutrient-broth, Selenite F. broth and Tryptose-broth, incubated at 37°C for an over-night. Subculturing
were then made on blood-agar, MacConkey-agar, S.S.-agar and Dextrose-starch-agar plates, incubated for 24-48 hours at 37°C. Suspected colonies were subjected to further biochemical and serological identification.

**Experimental infections:**

Three groups of chickens (Fayomi), one-day-old, six-weeks-old and six-months-old, each of 45 birds supplied from Buni-Mur Poultry Farm, Assuit Province were used in this experiment.

5 birds of each group were taken randomly slaughtered, subjected to post-mortem and bacteriological examinations, which proved that the birds were healthy. Chickens of each group were divided into "4" subgroups, of which the first three were inoculated with 24-hours-broth-cultures of different E.coli strains "20 x 10 organisms/bird" via the oral route, while the remaining birds of each group were similarly inoculated with sterile-broth. The infected chickens were kept under observations for 4-weeks. Clinical signs, p.m. pictures were recorded and trial for reisolations of inoculated organism were conducted.

**Sensitivity test:**

The test was carried-out after KOLMER, et al. (1951) using the paper disc-technique. Mono-discs produced by Oxoid-Laboratories included: Neomycin (30 ug.), Ampicillin (10 ug.), Oxytetracycline (30 ug.), Erythromycin (15 ug.), Streptomycin (10 ug.), Penicillin G (10 units), Chloramphenicol (30 ug.), Sulphamethoxazole (25 ug.) and Nitrofurantoin (300 ug.) were used in this study.

**Drugs:**

Chloramphenicol (20%) and Furaltadone (20%) produced by Ceva Company, were used in controlling the field infection.

**RESULTS**

The naturally infected chickens showed lowered appetite, cyanosis of comb, wattles and drop of egg production, while P.M. examinations of dead birds revealed pericarditis, air-sacculitis, congested liver, spleenomegaly, oophoritis and salpingitis. On bacteriological examinations of affected chickens E.coli was the only isolated organism. Identification of suspected isolates were carried out after EDWARDS and EWING (1972).

Experimentally infected birds showed depression, loss of appetite, congested comb, wattles and diarrhoea. The dead baby-chicks revealed unabsorbed yolk, distended gall-bladder, while congested liver, spleen, air-sacculitis, pericarditis were observed in all ages of infected chickens. Salpingitis and oophoritis were recorded among dead adult birds.

Results of pathogenicity tests in one-day-old, six weeks and six-months-old chickens were tabulated in Tables II, III and IV respectively.

**DISCUSSION**

Colisepticaemia of laying flocks is not so common as in broiler chickens (HARRY, 1964). During 1982, an acute infection characterized by septicaemia and low egg-production was observed in nine-thousand laying chickens at El-Wadi El-Gadid, Poultry Farm, Egypt.

The clinical signs of diseased birds and post-mortem lesions described by the authors in the results of this study were in agreement with the findings of NAGI & KHANNA (1967) and

BISGARD & DAM (1980) who found that diseased chickens showed cyanosis of comb and wattles in addition to general signs while the most characteristic lesions were air-sacculitis, pericarditis, congested liver and salpingitis.

Concerning the bacteriological examinations of dead birds were identified to be belonging to "3" E.coli serotypes. E.coli serogroups 0124K72 (B17) and 0127K70 (B15) detected by the authors were previously isolated by AWAAD (1972) and YOUSEF, et al. (1982) respectively from cases of chickens infected with Colisepticaemia.

Experimental infections in different ages of chickens proved that all the isolates were pathogenic, with mortality rates varied from 10 to 40%. The clinical signs and P.M. pictures recorded by the authors in the present investigation were almost as those described in the field conditions but in more severe form. Our results agreed with the findings of GROSS (1957) who found the same lesions and also with those of AFNAN (1968) who reported that the E.coli 0127 was pathogenic to one-day-old-chicks.

The sensitivity test indicated that the isolates were highly sensitive to Chloramphenicol and Nitrofurantoin, less sensitive to Neomycin, Oxytetracycline and Erythromycin and almost nonsensitive to Ampicillin, Streptomycin, Penicillin G. and Sulphamethoxazole. Similar results were recorded by AWAAD (1972) BUTURA, et al. (1973), FARIS (1979) and SHARMA, et al. (1981) who concluded that the majority of E.coli strains isolated from fowls were sensitive to both Chloramphenicol and members of Nitrofuran groups.

Trial for control the natural infection was carried-out using Chloramphenicol "25 mg./bird" and Furaltadone "25 mg./bird" for 7-days in the drinking water of the affected flocks in addition to general hygienic precautions. The drugs were effective in controlling the condition and stop the deaths, the same results were previously reported by GROSS (1961) and HERBERT, et al. (1969).

REFERENCES


IBRAHIM and SHAHATA


Table (i)
Results of E.coli serotyping were illustrated

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Isolated Serotypes</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0 44 : K 74 (L)</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>0 124 : K 72 (B17)</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>0 127 : K 70 (B15)</td>
<td>4</td>
</tr>
<tr>
<td>Total isolates</td>
<td></td>
<td>14</td>
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Table (ii)
Experimental oral infection in one-day-old-chicks

<table>
<thead>
<tr>
<th>Group No.</th>
<th>Inoculated Serotype</th>
<th>No. of birds</th>
<th>Daily deaths</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>0 44 : K 74 (L)</td>
<td>10</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>0 124 : K 72 (B17)</td>
<td>10</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>0 127 : K 70 (B15)</td>
<td>10</td>
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<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Sterile-broth</td>
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<td>-</td>
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</table>

## Table (III)
Experimental oral infection in 6-weeks-old-chicks

<table>
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<th>No. of birds</th>
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<th>Frequency</th>
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<tbody>
<tr>
<td></td>
<td></td>
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<td>7</td>
</tr>
<tr>
<td>1</td>
<td>044 : K 74 (L)</td>
<td>10</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0124 : K 72 (B17)</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>0127 : K 70 (B15)</td>
<td>10</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Sterile-broth</td>
<td>10</td>
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<td></td>
</tr>
</tbody>
</table>

## Table (IV)
Experimental oral infection in six-months-old-chicks

<table>
<thead>
<tr>
<th>Group No.</th>
<th>Inoculated Serotype</th>
<th>No. of birds</th>
<th>Daily deaths</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
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<td></td>
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<td>7</td>
</tr>
<tr>
<td>1</td>
<td>044 : K 74 (L)</td>
<td>10</td>
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</tr>
<tr>
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<tr>
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## Table (V)
Results of sensitivity test

<table>
<thead>
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<th>Anti-microbial agents</th>
<th>Tested E.coli Strains</th>
</tr>
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<tbody>
<tr>
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<td>044:K74(L)</td>
</tr>
<tr>
<td>Chloramphenicol</td>
<td>+++</td>
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<tr>
<td>Ampicillin</td>
<td>-</td>
</tr>
<tr>
<td>Oxytetracycline</td>
<td>+</td>
</tr>
<tr>
<td>Streptomycin</td>
<td>+</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>+</td>
</tr>
<tr>
<td>Nitrofurantion</td>
<td>+++</td>
</tr>
<tr>
<td>Neomycin</td>
<td>++</td>
</tr>
<tr>
<td>Penicillin G.</td>
<td>-</td>
</tr>
<tr>
<td>Sulphamethoxazole</td>
<td>-</td>
</tr>
</tbody>
</table>
