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اثبات حدوث التهاب الكبد الفبريـون
في الدجاج البيض لأول مرة في مصر

بخيت سالم ، طلبه عبدالمطلب ، كمال الزناتي ، علام نفاذي*

في صيف عام ١٩٨٥ تسبب مرض التهاب الكبد الفبريوني في خسائر في مزرعة متوسطة الحجم لانتاج البيض (وكان نوع الدجاج هاى سكس وعمرها ستة شهور وعدد الدجاج في حدود ٧٤٠ طائر). وقد تم عزل عترة (الشامبيلوباكتر جورجيناى) وتم تعريفها كاملا . وأجريت كذلك اختبارات الحساسية لتلك العترة الضارية وتم تطبيق أحسن دواء للسيطرة على الوباء في المزرعة المصابة.

وبعمل العدوى الصناعية في الكتاكيت أمكن استحداث المرض مرة أخرى وتسبب في وفيات عالية وصلت نسبتها الى ٨٣.٣%.

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بسم الله الرحمن الرحيم
الحمد لله رب العالمين
والصلاة والسلام على سيدنا محمد
النبينا والهادي

والله اعلم بالصواب
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**A FIRST RECORD OF AN OUTBREAK OF VIBRIONIC HEPATITIS
IN LAYING HENS IN EGYPT**
(With Two Tables and One Figure)

By
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SUMMARY

In summer 1985, vibronic hepatitis causing severe losses with mortality rate of 19% in moderate size laying poultry farm, (high sex, 6th month age, about 740 bird) campylobacter jejuni was recorded, identified and experimentally the isolate in baby chicks resulted in high mortality rate (83.3%), sensitivity test was conducted to resolve the problem.

INTRODUCTION

Avian vibronic hepatitis (Campylobacter Hepatitis, Campylobacter jejuni infection) is a contagious bacterial disease of young and mature chickens characterized by low mortality, high morbidity, and chronic course. Campylobacter were isolated from 83% of intestinal tracts of freshly slaughtered broilers GRANT *et al.* (1980), from 100% of 600 cecal cultures taken from turkeys at a processing plant LUECHTEFELD and WANG (1981).

The present work was designed to cover the following items:-

- Isolation and identification of campylobacter isolate.
- Experimental infection of baby chicks with the isolated organism.
- Testing the sensitivity of the isolate to different antimicrobial agents.
- Field trials to control the losses in this farm.

MATERIAL and METHODS

1- **Samples** : dead and diseased laying chickens were collected from native Assiut farm, subjected to clinical, postmortem and bacteriological examinations.

2- **Thirty**, one day old baby chicks obtained from the Faculty of Agriculture Poultry Farm were used for the pathogenicity test.

3- **Sensitivity discs** : Mono - discs produced by oxoid laboratories, include, Chloramphenicol (30 ug.), Penicillin G. (10 unit.), Cephalixin (30 ug.), Ampicillin (10 ug.) Colistin sulphate (10 ug.), Erythromycin (15 ug.), Furazolidone (50 ug.), Streptomycin (10 ug.) Neomycin (30 ug.), Tetracyclin (30 ug.), Doxycycline hydrochloride (30 ug.), Lincomycine (2 ug.) and Nalidixic acid (30 ug.) were tested against the isolate.

Isolation and identification of the causative organism :-

Dead and sacrificed laying chickens were subjected to post-mortem examination, and cultures were made from liver and bile on 10% sheep blood agar, incubated at 37°C under reduced oxygen tension (Gas pak system) for intervals 24, 48 and 72 hours. Smears were made

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from suspected colonies and stained with carbol fuchsin.

The behaviour of the organism was checked for :-

1- **Oxygen requirement** : the isolate was subcultured on sheep blood agar plates and incubated at aerobic and anaerobic conditions.

2- **Nitrate reduction test.**

3- **Motility test.**

The following tests were used for identification of its species :-

a- **Growth temperature** : two sheep blood agar plates were inoculated and one incubated at 25°C and the other incubated at 42°C for 3 days.

b- **Sensitivity test** : sheep blood agar plate was divided in half, and a heavy inoculum streaked across the plate at right angles to the dividing line, reagent strips of the sensitivity reagents were placed along the dividing line placed directly on the streaks, the plate was incubated in a microaerophilic atmosphere at 37°C for 3 days.

c- **Hydrogen sulphide production test** :

1) Fresh sheep blood agar slopes were inoculated, lead acetate papers were suspended above the medium and incubated in a 37°C microaerophilic atmosphere.

2) In iron-bisulphite - pyruvate medium (FBP): A large loopful of overnight sheep blood agar growth is inoculated as a lump into FBP medium and left at room temperature for 4 hours and examined for blackening around the lump of the growth.

d- **Catalase test.**

e- **Sensitivity to glycine** : 1% and 1.5 glycine Albimi brucella broth (ABB) was inoculated and incubated at 37°C for 3 days, for the presence of growth.

Pathogenicity test :

Two groups of one-day old chicks each contained 12 birds, the first group inoculated intramuscularly, the other via the oral route with $1 \text{ ml. } (9 \times 10^7)$ bacteria.

Six birds were left separately as controls.

RESULTS

The naturally infected laying chickens showed listlessness, diarrhea in individual birds, while PM examination of dead birds revealed batches of liver necrosis in all the parenchyma of the livers, hydropericardium, with some haemorrhages in the intestine in the form of linear petechial haemorrhages.

Results of bacteriological examination revealed that small, moist, round, smooth-edged, raised, almost transparent non haemolytic colonies on sheep blood agar were noticed.

Stained smears from 24 hours incubated cultures showed gram negative, curved rods while coccoid in shape after 72 hours incubation.

Biochemical activities of the isolated organism are tabulated in Table (1).

All the intramuscularly infected birds with the isolated strain were died within 24 hours while 8 birds only were died within this period after the oral route.

VIBRIONIC HEPATITIS IN HENS

The PM picture was similar to that seen in naturally infected birds but with small sized areas of necrosis in the liver (Fig. 1) and septicemic picture in the internal organs.

The sensitivity of the isolate to antimicrobial agents is illustrated in Table (2).

Table (1)
Biochemical activities of suspected campylobacter jejuni

| Test | Results |
|---|---|
| (1) Catalase | positive. |
| (2) Growth at 25 °C | no growth. |
| (3) Growth at 42 °C | present growth. |
| (4) Sensitivity to glycine 1%. glycine 1.5%. | present growth. present growth. |
| (5) H ₂ S production :- a) Normal media. b) iron bisulphite pyruvate medium. | positive. negative. |
| (6) motility :- | motile with a characteristic corkscrew kind of movement. |

Table (2)
The sensitivity of the isolate to antimicrobial agents

| Anti-microbial agent | Sensitivity of <i>C. jejuni</i> |
|--------------------------------|---------------------------------|
| 1- Nalidixic acid (30 ug). | (+++) |
| 2- Tetracycline (30 ug). | (+++) |
| 3- Chloramphenicol (30 ug). | (++) |
| 4- Ampicillin (10 ug). | (++) |
| 5- Penicillin G. (10 unit). | (++) |
| 6- Furazolidone (50 ug). | (+) |
| 7- Streptomycin (10 ug). | (+) |
| 8- Erythromycin (15 ug). | (+) |
| 9- Neomycin (30 ug). | (+) |
| 10- Colistin sulphate (10 ug). | (-) |
| 11- Lincomycin (2 ug). | (-) |

grading (+++) = sensitive.
(++) = moderate.

(+) = slight.
(-) = negative.

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DELAPLANE et al. (1955) were the first to record vibronic hepatitis with reproduction of the disease in chicken. Concerning this disease in laying hens, the birds suffered from diarrhea with drop in egg production and batches of necrosis in the liver with hydropericardium were noticed in necropsied birds.

Some Key characteristics for campylobacter jejuni were observed as catalase-positive, no growth at 25°C, growth at 42°C, growth in 1%, 1.5% glycine, hydrogen sulphide positive on normal media and negative on iron bisulphite pyruvate medium. These observations are more or less in agreement with SIMBERT (1978).

The experimentally infected one day old chicks showed 100% mortalities within 24 hours through using the intramuscular route while 66.6% via the oral one, but RUIZ-PALACIOS et al. (1981) found 32% mortalities in three day's old infected chicks using the oral route after 72 hours.

The sensitivity of the isolate to different antibiotics and chemotherapeutic agents revealed that Nalidixic acid and tetracycline were the most effective drugs while Chloramphenicol, Ampicillin, Penicillin were of moderate efficacy, on the other hand Furazolidone, Streptomycin, Erythromycin and Neomycin of less effect.

Tetracycline showed the highest efficacy among all the tested drugs, so it was recommended for field application with good result, this is in agreement with WINTERFIELD et al. (1958).

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Fig. (1)

