

Dept. of Animal hygiene,  
Fac. of Vet. Med. Assiut Univ.,  
Head of Dept. Prof. Dr. Nabila A. Gazia

## OCCURRENCE OF CAMPYLOBACTER SPP. IN BROILERS AND LAYING HENS SUFFERING FROM DIARRHEA

(With 2 Tables)

By

M.M. AHMED & F.A. AHMED

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### تواجد ميكروب الكامبيلوباكتر في البدارى والدجاج البياض الذى يعانى من الاسهال

مصطفى أحمد ، فاروق أحمد

بدراسة ثلاثين مسحة من فتحة المجمع تم تجميعها من الدجاج الذى يعانى من الاسهال كأحد الأعراض المرضيه ، عشرون تم تجميعهم من الدجاج البياض من مزرعة عرب العوامر والعشره الباقية من البدارى فى مزرعة بنى مر . أمكن عزل ٣ عترات من الكامبيلوباكتر جوجينائى من الدجاج البياض بنسبة ١٥ % وعتره واحده من الكامبيلوباكتر كولى من البدارى بنسبة ١٠ % .  
وبمناقشة هذه النتائج يمكن القول بأن هذا الميكروب يسبب خسائر اقتصادية وصحية للطيور والحيوان والانسان على السواء .

ويمكن حماية الدواجن والحيوانات والانسان من خطورة الاصابه بهذا الميكروب وذلك باتباع الأسس والقواعد الصحيه فى المزارع وعند استخدام البروتين الحيوانى للاستهلاك الأدمى .

## SUMMARY

More recently *Campylobacter* spp. have been recognised as a common aetiological agent in human diarrhoeas. In many reports chickens have been mentioned as a possible source of infection. The epidemiological factors leading to the infection of chicken with campylobacters have been rather presumptive and the effect of the mere presence of campylobacters in the digestive tract of chicken on poultry production is not well known. In this study, 30 fresh dropping specimens were randomly taken from diarrhoeic broilers and laying hens housed intensively in Bani-Mour and Arab El-Awamer poultry farms. *Campylobacter jejuni* (15%) and *Campylobacter coli* (10%) were recovered from the faecal swabs of 20 laying hens and 10 broilers respectively.

**Keywords:** Occurrence, *Campylobacter* Spp, broilers, laying hens, diarrhea.

## INTRODUCTION

*Campylobacter faetus* subspecies *jejuni* has recently become implicated as a common cause of diarrhea. Primary isolation of this organism was carried on a selective medium containing antibiotics as described by MOHAMED & PETER (1979) and KARMALI *et al.* (1983).

Organisms belonging to *Campylobacter jejuni* and *Campylobacter coli* group have now become firmly established as major enteric pathogens (BLASER *et al.*, 1982 and AHMED *et al.*, 1988). Up till now, however, the pathways involved in the infection of poultry flocks are still unclear. Several factors of infection (GIESSEN *et al.*, 1992). KAZWALA *et al.* (1990) suggested that flocks were most likely infected from the environment of the poultry houses. SIMILARLY, GENIGEORGIS *et al.* (1986) suspected the transmission of *Campylobacter jejuni* from one generation of the chickens to the next via the old litter. Other possible sources include personnel, dogs, cats, flies and rodents. Also the organism may be occasionally present on the shells of freshly laid eggs (BLASER *et al.*, 1983 and DOYLE, 1984).

Since many domestic animals frequently excrete campylobacters in their faeces, the potential for its transmission to human beings is enormous (SVEDHEM and NORKRANS, 1980). In order to maximize the recovery of the suspected

isolates the selective medium was used, in addition, to the established filtering procedure for isolation of *Campylobacter* spp. during the study.

## MATERIALS and METHODS

### 1- Sampling:

Cloacal swabs were randomly collected from fresh cecal-droppings of 30 Arbor-Acres birds suffering from diarrhoea including 10 broilers aged 41 days and 20 laying hens aged 40 weeks. Swabs were put into tubes each containing 5ml of phosphate-buffered saline and transported with a minimum of delay to the laboratory for microbiological examination.

### 2- Isolation of campylobacters:-

Collected swabs were inoculated into campylobacter supplement (Oxoid SR 98) and incubated at 42 °C for 48-72 hours under reduced oxygen tension (BBL Gas Pak Anaerobic System).

Streaking out directly on campylobacter blood agar plates. A small drop was taken 7m.m. below the surface of each enrichment broth culture and streaked on campylobacter blood agar plate (C.B.A.P.). In addition, a filtered drop of the enrichment broth culture through membrane filter of 0.65 milimicron pore size (G A 4-S, Modified polysulfone, Gelman Sciences Inc., U.S.A.) was streaked on other plate. The inoculated plates were incubated under microaerophilic condition using anaerobic jar.

### 3- Identification of the suspected cultures:-

The cultured plates were subjected for morphological, microscopical and biochemical tests as described by SKIRROW and BENJAMIN (1980) including oxidase, catalase, nitrate, H<sub>2</sub> S (lead acetate), hippurate hydrolysis, nalidixic acid, cephalothin, motility and growth at 42 °C.

## RESULTS

Are presented in Tables 1-2.

## DISCUSSION

*Campylobacter jejuni/coli* were isolated from some diarrhoeic broilers and laying hens housed intensively in two different farms at Assiut Governorate.

*Campylobacter jejuni* was recovered from 3 (15%) out of 20 laying hens 40 weeks old.

*Campylobacter coli* was only recovered from one (10%) out of 10 cloacal swabs obtained from broilers as recorded in Tables (1&2).

The significance of *Campylobacter jejuni* infection in broiler and laying flocks is considered as the potential for human infection through the food chain (NORKRANS and SVEDEM, 1982). Many studies have shown that, the organism is an important cause of diarrhea (BLASER *et al.*, 1979 and BUTZLER & SKIRROW, 1979).

*Campylobacter jejuni* is responsible for many economic losses. Although it is a primary cause of human enterocolitides (SHANE & MONTROSE, 1985 and TAUXE *et al.*, 1987), the organism may also be associated with extra-in-testinal infections (DAVIDSON and ABBOTT, 1987). Several domestic and wild mammals as well as avian species including chickens, turkeys and ducks serve as reservoirs of *Campylobacter jejuni* (GARCIA *et al.*, 1983; KASRAZADEH and GENIGEORGIS, 1987).

Transmission of *Campylobacter jejuni* seems to be occurred by faecaloral route through direct contact with faecal material from infected (SVEDHEM & NORKRANS, 1980) and healthy animals which act as carriers for campylobacters including cattle, sheep, goat, horse, monkey, dog and cat (ATHERTON and RICKETTS, 1980; PRESCOTT and BARKER, 1980 and TRIB & FRANK, 1980).

The introduction of *Campylobacter* spp. into poultry houses takes place several sources including contaminated water, feed, litter, farm personnel and wild birds (NEILL *et al.*, 1984 and ENGVAL *et al.*, 1986).

*Campylobacter jejuni* is not part of the normal chicken flora and some broiler flocks appear to stay free of this organism. Therefore strategies to prevent contamination of poultry flocks are the most effective measure in controlling campylobacter enteritis. They must ultimately be based on better understanding of the reservoirs, epidemiology and pathophysiology of the infection among broiler chickens. Strict hygiene combined with efficient cleaning and disinfection of poultry houses can be effective. Maintenance of disinfection barriers, meshes on the windows and restriction of entry of pets into poultry farms are the most obvious and simple modifications which could reduce the amount of infective material introduced to the broilers and laying hens by farmers and vectors from the contaminated environment. The emphasis on proper hygiene measures is of a particularly importance in the case of developing countries.

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Table(1): Incidence of Campylobacter species in some diarrhoeic broilers and laying hens

Sit of farm	Age of birds	No. of examined samples	positive cases	Incidence
Bani-Mour	41 days	10	1	10%
Arab EL-Awamer	40 weeks	20	3	15%

Table(2): Frequency distribution of Campylobacter jejuni/coli in examined poultry specimens

Farm locality	Ex.No. of specimen	No. of isolates	Campylobacter spp.		Frequency
			C. faetus sub spp. jejuni	C. faetus sub spp. coli	
Bani-Mour	10	1	-	1	10%
Arab EL-Awamer	20	3	3	-	15%