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STUDIES ON THE MICROFLORA OF THE GALL BLADDER OF APPARENTLY HEALTHY SHEEP

(With One Table & 2 Figures)

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دراسة بكتريولوجية على الحوصلة المرارية لأغنام سليمة ظاهرياً

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تم فحص ٧٠ عينة من الحوصلة المرارية للأغنام بكتريولوجياً وهستولوجياً وأثبت الفحص الهستولوجي سلبية النتائج ووجود عدد من الميكروبات البكتيرية مثل الميكروب القولوني ، الستروباكتري ، البروتيس ، الشيغلا ، سراتيا ، بزمينيا والانثراكويد وقد تبين أن هذه الأنواع من البكتيريا توجد طبيعياً في الحوصلة المرارية .

SUMMARY

A total of 70 gall bladder samples from sheep were examined bacteriologically and histologically. Although the results of histological examination were negative, a variety of organisms was isolated including *E.coli*, *Citrobacter* sp., *Proteus* sp., *shigella*, *Serratia*, *Yersinia*, *Anthraxoid* and *Providencia*. It seems that these organisms were normal inhabitants of the gall bladder rather than pathogenic ones.

INTRODUCTION

In the available literature there are few reports dealing with the study of bacterial flora of the gall bladder in sheep (KARIMOV and ABDUSAMATOVE, 1972; KNOLEAF *et al.*, 1979 and ABD EL-CHANI *et al.*, 1987). This work was designated to isolate and identify some of the bacterial flora of the gall bladder of sheep. Moreover a histological study was conducted to investigate its deleterious effect on the gall bladder and hepatic tissue surrounding it.

MATERIAL and METHODS

A total of 70 gall bladder samples from sheep were collected from Assiut slaughter house, where animals are received from various parts of the adjacent localities. Pre-mortem examination of these animals proved their freedom from abnormal clinical signs. Samples of gall bladder were taken from animals of different sex and age. The time of collection extended from May, 1989 till the end of August, 1989.

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Handling of specimens :

Just after slaughtering and evacuation of carcass, one ligature was applied on the fundic portion of the gall bladder. Each collected material was placed in a sterile jar under aseptic conditions and transported to the laboratory to carry out the different investigations.

METHODS

Bacteriological examination was carried out firstly by sterilizing the surface of the gall bladder using hot scalpel. A point at this area was then punctured and cut in a line then a sterile swab was introduced inside the gall bladder.

The swab was rubbed on the internal surface of the gall bladder. The swabs were then inoculated on to blood agar and MacConkey's agar plate, also inoculated into nutrient broth tubes. All media were incubated at 37°C for 24 hours. From incubated broth, blood agar as well as MacConkey's plates were inoculated and subjected to the same manner. The isolated colonies were picked up and subjected to further identification based on colonial and cellular morphology and biochemical reaction according to CRUICKCHANK *et al.* (1975) and BUCHANAN and GIBBONS (1975). Both internal and external surface of the gall bladder were examined for any obvious macro-morphological changes as inflammation, obstruction, calculi, tumours, congenital abnormalities and traumatic changes.

Then the bile duct was cut, trimmed, labelled and fixed in 10% neutral formalin for histological examination.

Samples were furtherly treated with alcohol and methyl benzate, they were embedded, infiltrated, blocked in paraffine and sections of 5 microns thickness were obtained. They were stained with H&E after Ann Preece (1965) and examined.

RESULTS**Bacteriological results :**

The bacterial isolates from 70 gall bladder from apparently healthy sheep are mentioned in a chronological order: *E.coli*, 30% *Citrobacter* sp. 24.3%, *Proteus* sp. 13.0%, *Shigella* sp. 3.0%, *Serratia* sp. 4.3%, *Yersinia* sp. 4.3%, *anthracoid* sp. 4.3%, *Providencia* sp. 1.4% and mixed infection 21.5% (see table 1).

Pathological studies :

Gross examination of all samples and its related liver tissue revealed no detectable changes. When the gall bladders were examined microscopically they were free from any pathological changes. In one case, the gall bladder showed minute focal area of mineralization (Calcification). This focal area was of microscopic size as it was only detected microscopically (Fig. 1).

The liver tissue surrounding the gall bladder in another case showed mild degree of lymphoid cell infiltration (Fig. 2).

MICROFLORA OF THE GALL BLADDER

Table (1): Bacterial isolates from the gall bladder of 70 sheep.

Bacterial isolate	No.Of cases	Incidence	Bacterial isolate	No.Of cases	Incidence
<u>E. coli</u>	21	30.0%	Yersinia sp.	3	4.3%
Citrobacter sp.	17	24.3%	Anthracoïd sp.	3	4.3%
Proteus sp.	9	13.0%	Providencia sp.	1	1.4%
Shigella spp.	9	13.0%	Mixed infection	15	21.5%
Serratia spp.	3	4.3%			

Fig. (1)

Bile duct showing calcium deposition.

(H&E 10 12.5)

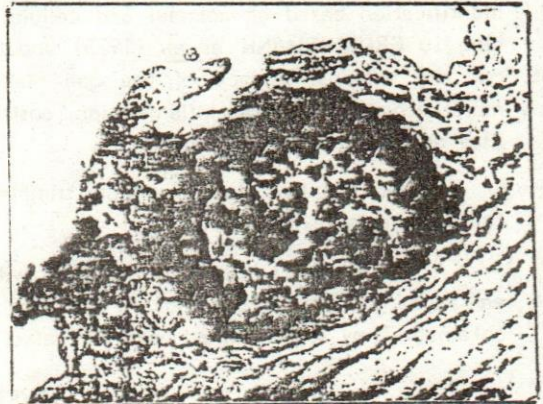


Fig.(2)

Mild lymphoid cells infiltration of the liver tissue around the bile duct.

(H&E 10 12.5)



DISCUSSION

In this study microbiological investigation of the gall bladder from 70 sheep slaughtered in Assiut slaughter house, demonstrated that, E.coli was isolated from 30% of the case. However, mixed infection, Citrobacter sp., Proteus sp., Shigella, Serratia, Yersinia, Anthracoïd and Providencia were isolated from 21.5%, 24.3%, 13%, 13%, 4.3%, 4.3% and 1.4% respectively.

The negative results obtained upon the gross and histological examination of these samples indicated that, all the isolated organisms had no harmful effect on the gall bladder.

ABD EL-GHANI et al. (1987) isolated Samonella from the gall bladders of slaughtered sheep. Campylobacter jejuni was also isolated from cattle gall bladder by TAYLOR and BRYNERT (1984).

KNOLEAF et al. (1979) examined 509 gall bladders of slaughtered sheep bacteriologically. they isolated a vibrio-like organism, with morphological cultural and biochemical characters not unlike those of Campylobacter fetus intestinalis, from the bile of five gall bladders.

KARIMOV and ABDUSAMATOV (1972) stated that bacteriological examination of the liver, spleen, gall bladder, mesenteric lymph nodes, small intestinal wall and bone marrow of 122 cows, 73 pigs, 34 fowls and unspecified number of sheep at the Tashkent meat plant yielded S.typhi from the gall bladder of two cows, S.urbana from the bile of another two cows and S.paratyphi from the gall bladder content of a fowl.

However, in all these studies histological investigation were not conducted. This fact rolled out the possibility that these organisms were pathogenic rather than normal inhabitant of these organs.

From the present microbiological and histological investigation, it is concluded that E.coli, Citrobacter sp., Proteus, Shigella, Serratia, Yersinia, Anthracoïd and Providencia may be considered as normal inhabitants of the gall bladder of clinically normal sheep.

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