

Some Studies On Bacteria Isolated From Respiratory System Of apparently Healthy Camels In Qulybia Governate

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ABSTRACT

This Study was carried out on 70 slaughtered camels in Qulybia abattoirs. two hundreds and ten samples (70 each of tracheal swabs lung and lymph nodes) for bacteriological examination. Bacteriological examination revealed that 112 (53.33%) were positive for bacterial isolates, distributed as 30 (42.85%), 38 (54.28%) and 44 (62.85%) of tracheal swabs, lung and lymph nodes, respectively. The isolates includes 78 (69.64%) Gram-positive bacteria and 34 (30.35%) Gram-negative bacteria. The main bacterial isolates were *Staph aureus*, 23 (20.53%), *Staph albus*, 18 (16.07%), β -hemolytic *Streptococcus* 16 (14.28%), *C. pyogenes* 21 (18.75%) *K. pneumoniae* 22 (19.64%) and *Pseudomonas aeruginosa* 12 (10.71%). The *in vitro* antibiotic sensitivity tests for each type of isolated bacteria were determined. The results showed that, most of the isolated strains were sensitive to Norfloxacin, Cefoperazone, Gentamycin and Chloramephenicol while they were resistant to Flucloxacillin, Penicillin, Neomycin and Ampicillin.

INTRODUCTION

Camel is an animal of considerable importance in Egypt since it is one of the major sources of meat production where its meat represents 66.46 % of total meat obtained from the imported animals for slaughter purposes (1). The camel also plays vital socioeconomic roles and supports the survival of millions of people in Asia and Africa. It is being used as a source of protein, milk, hide as well as quite and effective mean of transport (2).

Respiratory diseases of camels continue to be a major cause of economic loss and adverse on animal. Stress of cold weather, rain, bad hygiene and high humidity rate were incriminated to increase the respiratory infection. Respiratory affection is the main cause of death among camel calves all over the world (2,3).

Most bacterial affection of the lung were previously recorded in slaughtered camels by some authors (4) pointed out that the most predominant bacterial isolates from pneumonic camel lungs were *Klebsiella sp.*, *Streptococcus sp.*, *E. coli* and *Pseudomonas aeruginosa*. On the other hand *Staphylococcus*

aureus, *Corynebacterium spp.*, *Micrococcus spp.* and *Citrobacter* were the most prevalent isolates from pneumonic lung of slaughtered camels (5).

Several species of organisms could be isolated from both apparently healthy and affected respiratory tract of camel as *Staphylococci sp.*, *Streptococci sp.*, *Corynebacterium sp.*, *E. coli sp.*, *Pasteurella sp.* and *Klebsiella sp.* (6-11).

Hence, the present work was aimed to investigate the bacterial causes of respiratory affection in camels and *in-vitro* antibiotic sensitivity against the isolated strains.

MATERIALS AND METHODS

Sampling

A total of 210 samples including 70 each of tracheal swabs, lungs and thoracic lymph nodes. Tissue were collected under aseptic condition from 70 slaughtered camels in Qulybia abattoirs. All samples were transported as quickly as possible to laboratory on ice box for bacteriological examination.

Bacteriological Examination

Each sample was cultured into nutrient broth and aerobically incubated at 37°C for 24 hours. A loopful was taken and cultured onto

each of the following solid media; Blood agar media (nutrient agar base Oxoid (M3 + 5 - 10 % defibrinated sheep blood)), MacConkey bile salt lactose agar medium (Oxoid, CM7), Nutrient broth (Oxoids, CM1), DSA medium (Crystal Violet - Cobalt agar) and Mannitol salt agar medium (Oxoid CM85). After incubation aerobically at 37°C for 24 - 48 hours, single colonies were picked up, purified onto nutrient agar slants for identification morphologically and biochemically (12,14).

In-vitro antibiotic sensitivity test

The disc diffusion technique was performed on isolated bacteria from infected cases (15). Thirteen chemotherapeutic discs kindly supplies by Oxoid and namely Norfloxacin, Rifamycin, Cefoperazone, Amikacin, Flucloxacillin, Penicillin, Neomycin, Cefadroxil, Keflex, Amoxicillin, Ampicillin and Erythromycin. The degree of sensitivity was determined and interpreted (16).

RESULTS

Table 1. Prevalence of positive bacterial isolates from respiratory tract of slaughtered camel samples.

Types of samples	No.	Positive	
		No.	%
Tracheal Swabs	70	30	42.85
Lung	70	38	54.28
Lymph	70	44	62.85
Total	210	112	53.33

Table 2. Prevalence of different bacterial isolates recovered from respiratory tract of slaughtered camel samples.

Types of microorganisms	Total no. of isolates		Tracheal swabs samples		Lung samples		Lymph nodes samples	
	No.	%	No.	%	No.	%	No.	%
Gram positive								
<i>Staph aureus</i>	23	20.53	8	7.14	3	2.6	12	10.71
<i>Staph albus</i>	18	16.07	4	3.57	5	4.46	9	8.03
β -hemolytic <i>Streptococcus</i>	16	14.28	2	1.78	6	5.35	8	7.14
<i>C. pyogenes</i>	21	18.75	8	7.14	8	7.14	5	4.46
Gram negative								
<i>K. pneumoniae</i>	22	19.64	5	4.46	10	8.92	7	6.25
<i>Ps. aeruginosa</i>	12	10.71	3	2.67	6	5.35	3	2.67
Total	112	100	30	26.78	38	33.92	44	39.28

*The percentage was calculated according to the number of positive samples (112).

Table 3. The antibiogram of isolated bacteria recovered from examined samples.

Tested isolate	NOR (10 µg)	CFP (75 µg)	AK (30 µg)	FL (5 µg)	P (10 µg)	N (30 µg)	CFR (30 µg)	CL (30 µg)	AX (25 µg)	AM (30 µg)	E (30 µg)	GM (10 µg)	C (30 µg)
<i>Staph aureus</i>	R	R	R	R	R	R	R	R	R	R	R	S	R
<i>Staph albus</i>	R	R	R	R	R	R	R	R	R	R	R	S	S
β-hemolytic <i>Streptococcus</i>	R	R	S	I	R	R	R	R	I	R	I	S	S
<i>C. pyogenes</i>	S	S	I	R	R	R	R	R	R	R	R	S	S
<i>K. pneumoniae</i>	S	R	R	R	R	R	I	I	R	R	I	S	R
<i>Ps. aeruginosa</i>	I	I	R	R	R	R	R	R	R	R	R	S	S

NOR : Norfloxacin, CFP : Cefoperazone, AK : Amikacin, FL : Flucloxacillin, P : Penicillin, N : Neomycin, CFR : Cefadroxil,
 CL : Keflex, AX : Amoxicillin, AM : Ampicillin, E : Erythromycin, GM : Gentamicin, C : Chloramphenicol.
 R : Resistant I : Intermediate S : Sensitive.

DISCUSSION

Bacterial infection of the respiratory tract of camels represent important problems confronting animal production. The present study deals with the bacteria in the respiratory tract of slaughtered camels.

The results recorded in Table (1), showed that bacteriological examination of 70 tracheal swab 70 lymph node samples and 70 lungs samples collected from 70 slaughtered camels revealed that 30 (42.85 %), 38 (54.28 %) and 44 (62.85 %) respectively were positive for bacterial infection. The isolates included 78 (69.64 %) Gram-positive bacteria. These results indicated a variety of Gram-negative and Gram-positive microorganisms that had been isolated from infected respiratory tract of camels. Stress factors such as changes in the hygienic environmental and climatic conditions play a role in the onset of pneumonia (17).

These results nearly agree with those previously recorded isolates where Gram-positive and Gram-negative bacteria from camel were with an incidence of 45 (56.96 %) and 34 (43.04 %), respectively (10).

The obtained results (Table 2) revealed a wide variety of pathogenic isolates from the examined samples. These organisms were as follows: *Staph aureus* 23 (20.53 %), *Staph albus* 18 (16.07 %), β -hemolytic *Stertococcus* 16 (14.28 %), *C. pyogenes* 21 (18.75 %), *K. pneumoniae* 22 (19.64 %) and *Ps. aeruginosa* 12 (10.71 %) respectively. These results nearly similar with those reported in several studies in Assuit (4,8,11) and Cairo (5) Governorates, Egypt.

In vitro, the susceptibility of isolated bacteria to different antibiotic is represented in Table (3). Most of the isolates were highly sensitive to Norfloxacin, Cefoperazone, Gentamycin and Chloramphenicol while they were resistant to Flucloxacillin, Penicillin, Neomycin and Ampicillin, those finding are partially agreement with those mentioned by several investigators (4,11, 19- 21).

The resistance of bacterial isolates to some antibiotics may be attributed to wrong

dosage, duration of treatment and route of administration (22).

Finally, more efforts must be done to overcome respiratory disorders problem, such efforts as periodical clinical and bacteriological examination of apparently healthy animals to avoid misuse of antibiotics. Also adequate hygienic measures as well as proper management of animals would reduce the degree of exposure of animals to disease producing agent.

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الملخص العربي

بعض الدراسات على البكتيريا المعزولة من الجهاز التنفسي في الجمال السليمة ظاهريا

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اجريت هذه الدراسة على عدد 70 جمل مذبوح فى سلخانات محافظة القليوبية واشتملت الدراسة على 210 عينة (70 عينة من كل من مسحات من القصبة الهوائية ، الرئة والغدد الليمفاوية) لفحصها بكتريولوجيا وعند الفحص البكتريولوجى وجد ان 112 من هذه العينات (53.33%) ايجابية للعزل البكتيرى وصنفت هذه العترات البكتيرية الى 78 (69.64%) ايجابية لصبغة الجرام و 34 (30.35%) سالبة لصبغة الجرام وتم عزل كل من الميكروب العنقودى الذهبى 23 (20.53%) والميكروب المتكور العنقودى الأبيض 18 (16.07%) والاسترينوكوكس 16 (14.28%) والكورينى بكتريم الصديدى 21 (18.75%) والكليسيلا نيمونى 22 (19.64%) والسيدوموناس ايرجينوزا 12 (10.71%) وتم اجراء اختبار الحساسية لكل من العترات البكتيرية المعزولة ولقد وجد ان معظم العترات البكتيرية المعزولة شديدة الحساسية لكل من النورفلوكساسين والسيفورازون والجنتاميسين والكلورامفينيكول ومقاومة لكل من الفلوكسيلين والبنسلين والنوميسين والأمبسلين.