Animal Health Reseearch Institute.
Assiut Laboratory.
Director of Lab.:Prof. Dr. S.M. Nashed.

SOME MICROBIAL STUDIES ON LUNG OF CLINICALLY HEALTHY AND RESPIRATORY INFECTED CAMELS (CAMELUS DROMEDARIUS)

(With 3 Tables)

By

A-EL-R- THABET

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بعض الدراسات الميكروبيه على رئة الجمال السليمه ظاهرياً والمصابه بأمراض الجهاز التنفسى

عبد الراضى ثابت

أجريت هذه الدراسه على عدد ١٠٢ عينه رئه منها ٦٣ عينه ثبت بالفحص الظاهرى عليها وجود التهابات رئويه بينما ٣٩ عينه منها بدت سليمه ظاهرياً.

أعطت ثمانية وثمانون عينة نتائج ايجابيه للعزل الميكروبى من بينهم ٢٦ من عينات الرئه السليمه ظاهرياً ، وكانت أهم الميكروبات المعزوله كالآتى:

السبحى الصديدى ٥٧ر ٢١٪ والعنقودى الأبيض ٦٣ر ١٨ والمكورات الرئويه ٦٥ر ١٧٪ والكلابسيلا ٧٨ر ١٠٪ والقولونى ٨٠ر ٩٪ والسودمونس ايروجونوزا ٨٢ ر ٨٪ والكانديدا الباكنز ٨٤ ر ٧٪ والسالمونيلا ٩٤ ر ٢٪ والباستريلا ٩٦ ر ١٪.

ولقد تم عمل اختبار الحساسيه للمضادات الحيويه بالنسبه للميكروبات ووجد أن الجاراميسين هو أنسب المضادات الحيويه معملياً ضد البكتريا المعزوله وأكثر تأثيراً عليها.

SUMMARY

This study was carried out on 102 lung samples, of which 63 showed gross lesion of pneumonia and 39 apparently normal. 88 samples were culturally positive for microorganisms (60 and 28 from infected and normal lung samples respectively). Bacteriological and mycological examination revealed that the main isolates were *Strept. Pyogens* (21.57%) *Staph albus* (18.63%). *Diplococcus pneumonia* (17.65%). Klebsiella species (10.78%). *E.coli* (9.80%) (O126/B6); *Pseudomonas auregenes* (8.82%), *Candida albicans* (7.84%) Salmonella species (2.94%) and Pasteurella species (1.96%). Antibiotic sensitivity tests for the isolated bacteria revealed that Garamycin is the best sensitive antibiotic of choice.

INTRODUCTION

Camel is a very important animal in Egypt and other countries of Africa and Asia. It has a great economical values among other farm animals (*GOBRIAL, et al., 1991).* Respiratory infections in camels are varying from very mild or symptomless form as snuffles to severe serious pneumonia *(GHOWI, 1978).* A list of microogranisms were detected in cases of camel pneumonia *(MAHMOUD et al., 1988).*

Streptococci, Staphelococci, *E.coli,* Mycoplasma and klebsiella species were shown to be predominant isolates from the respiratory tract infection in camels (ARORA and KALRA, 1973, SHIGIDI, 1973, ABU EL-SOUAD, 1974 and HAFEZ *et al., 1991).* However, respiratory infection caused by Pasteurella species takes acute from and the species has been isolated from cases of pneumonic camels *(HAFEZ et al., 1991).*

Another microorganisms, *Candida albicans,* Salmonella species were isolated from lungs of sloughtered camels *(ZAKI, 1956, HAMADA et al., 1963 and REEM et al., 1984)*

The aim of this work is to define the microbial causes of lung infections in camels under local environmental circumstances. Antibiogram of these isolates as well was also aimed to know the best antibiotic for the treatment.

MATERIAL and METHODS

One hundred and two lung samples were collected from different camels slaughtered in Bani Adi abattoir. Sixty three samples have gross lesions of pneumonia (swelling, congestion

and conslidation) and 39 normal smaples. the samples were collected and transported in a clean ice bag using a sterile technique for microbiological examination. The collected samples were cultured into nutrient broth at 37°C for 24 h. and then subcultured into the followings:- (Difico) nutrient agar, 5% sheep blood agar, MacConkey agar, SS agar, XLD agar, as well as sabauroud's agar.

Obtained isolates were identified according to *BAILY and SCOTT, (1974) and CRUICKSHANK* et al. *(1975).* Serological characterization of isolated strains of *E.coli* were done. Antibiotic sensitivity tests were done for bacterial isolates using antibiotic disks (Biomerieux) of Ampicillin (10 μg), Chloramphenicol (30 μg), erythromycine (15 μg), garamycin (30 μg), Kanamycin (30 μg), neomycin (30 μg), oxytetracycline (10 μg), spictinomycin (20 μg), trimethoprin, sulfametoxiazol (1.25 ± 23.7 μg), and tetracyclin (30 μg).

RESULTS

From 102 lung samples, only 88 were culturally positive (60 and 28 from infected and normal lung samples respectively). Microbiological isolates, and antibiogram of the isolated bacteria were demonstrated in Tables 1 and 3. From table (2) it is clearly evident that bacterial isolates were identified as one isolate or in mixed forms. Serological characterization of 10 *E.coli* isolates revealed that 3 isolates (*E.coli* O126/B6). were toxoginically positive.

DISCUSSION

A variety of microorganisms have been isolated from 88 infected and normal lung samples including *Strept.pyogens* 22 isolates (21.57%), *Staph-albus* 19 isolates (18.63%), *Diplococcus Pneumonia* 18 isolates (17.65%), klebsiella 11 isolates (10.78%), *E.coli* (O126/B6) 10 isolates (10.78%), *Pseudomonas auregenes* 9 isOlates (8.82%), *Candida albicans* 8 (7.84%), Salmonella 3 isolates (2.94%) and pasteurella species 2 isolates (1.96%).

These results nearly coincided with those previously recorded by *CHEYNE* et al. *(1977) and GHOWI (1979)* who isolated Staph., Klebsiella, Salmonella species and toxogenic *E.coli* from pneumounic lung camels.

On the other hand, the obtained results not agreed with those of *MAHMOUD* et al., *(1988),* who reported that proteus, citrobacter and Micrococcus were the main isolates from infected lung camels. *HAFEZ* et al. *(1991)* also mentioned that pasteurella multocida was the probable cause of most cases of camel pneumonia.

The obtained results of isolation of different types of microorganisms from 28 out of 39 apparently normal lung samples were similar to those recorded ny *GOBRIAL* et al. *(1991)* who isolated *Staph. albus, Diplococcus pneumonia,* klebsiella and *E.coli* from apparently healthy camels.

Antibiotic sensitivity tests for the isolated bacteria revealed that garamycin was the best sensitive antibiotic for the isolated bacteria while *CHEYNE* et al. *(1977)* reported that an apparent improvement of the pneumonic camels following intramuscular injection of oxytetracyclin.

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Table (1): The isolated microorganisms of both apparently normal and pneumonic lungs of camels.

Isolated microorganisms	Total number of isolates	% from total number of isolates	Isolaties from apparently normal lungs		Isolates from pneumonic lungs	
			No.	% from the total number of isolates	No.	% from the total number of isolates
Strept.pyrogens	22	21.57	9	8.82	13	12.75
Staph.albus	19	18.63	6	5.88	13	12.75
Diplococcus pneumonia	18	17.65	6	5.88	12	11.77
Klebsiella species	11	10.78	5	4.90	6	5.88
E.coli	10	9.80	3	2.94	7	6.86
Pseudomonas auregenes	9	8.82	-	-	9	8.82
Candida albicans	8	7.84	3	2.94	5	4.90
Salmonella species	3	2.94	-	-	3	2.94
Pasteurella species	2	1.96	-	-	2	1.96
	102	100%	32	31.37%	70	68.63%

Table (2): The isolated microorganisms from samples either in one isolate or in mixed form

Type of sample	Number of lung samples	Sample Positively culture		No. of isolates	Samples with only one isolate		Samples with mixed isolates (two isolates)	
		No.	%		No.	% from total number of samples	No.	% from total number of samples
Apparently normal lungs	39	28	71.80	32	24	85.71	4*	14.29
Pneumonic lungs	63	60	95.24	70	50	83.33	10**	16.67

* 2 staph.albus + Diplococcus pneumonia
2 Staph.albus + E.coli

** 2 E.coli + candida albicons
3 E.coli + staph.albus
3 Strept.pyogens + candida albicans
2 Strept.pyrogens + klebsiella.

Table (3): Antibiogram of the isolated bacteria

Isolate	Tetra-cycline 30 g	Erythro-mycin 15 ug	Chlora-mphenicol 30 ug	Kamamycin 30 ug	Neomycine 30 ug	Garamycin 30 ug	Oxytetra cyclin 30 ug	Ampicillin 10 ug	Trimethoprin+ Sulfamtoxazol 1.25+23.7 ug	Spectino-mycin 20 ug
Streptpyogens	+	+++	-	-	-	+++	++	+++	-	-
Staph-albus	+++	+++	-	+	-	+++	+++	+++	-	-
Diplococci pneumonia	++	++	-	-	-	+++	++	+++	+	+++
Klebsiella species	-	-	-	+++	-	+++	-	-	++	+
E.Coli	-	-	-	+++	+	+++	-	-	++	+
Pseudomonas auregenes	-	-	-	+	+	+++	-	+	-	-
Salmonella species	-	-	++	+++	+	+++	-	-	+	+
Pasteurella species	+	-	-	-	-	+++	++	+++	-	-