

معهد بحوث صحة الحيوان - أسيوط
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دراسة بكتريولوجية عن التهاب الضرع في اناث الاغنام والماعز

عادل حلمي ، سمير ناشد

تم فحص عينات لبن من ٣٢ انثى غنم ، و ٣٠ معزة مصابة بالتهاب ضرع واضح
وأمكن عزل الميكروبات المسببة الآتية : الميكروب العنقودي الذهبي بنسبة ٢١,٨٧% ،
٢٦,٦٧% والميكروب العنقودي الذهبي والميكروب العنقودي الابيض بنسبة صفر ، ٦,٦٧%
والميكروب السبحي اجالاكثيا بنسبة ٢١,٨٧% ، ٢٠,٠٠% والميكروب الكوريني بيوجين
بنسبة ٢٨,١٣% ، ٣٣,٣٢% ، والميكروب الكوريني اوفس بنسبة ٩,٣٧% ، ٣,٣٣% والميكروب
القولوني بنسبة ١٥,٦٣% ، ١٠,٠٠% على التوالي .

أمكن عزل ميكروب الكلبيللا من ألبان اغنام مصابة بنسبة ٣,١٣% فقط .

تمت دراسة حساسية الميكروبات المعزولة ل ٦ مضادات حيوية متيسرة .

تمت مناقشة النتائج .

Animal Health Research Laboratory Assiut,
Director Prof. Dr. S.N. Nashed.

**BACTERIOLOGICAL STUDIES ON MASTITIS IN
EWE'S AND SHE-GOATS**
(With Two Tables)

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SUMMARY

Milk samples were collected from 32 ewe's and 30 she-goats clinically show mastitis for the isolation and identification of causative organisms. The organisms isolated were Staph. aureus 21.87%, 26.67%, Staph. aureus and Staph. albus 0.0%, 6.67%, Strept. agalactia 21.87%, 20.00%, C. pyogenes 28.13, 33.33%, C.ovis 9.37%, 3.33%, E. coli 15.63%, 10.00% respectively, klebsiella organism was isolated in 3.13% from ewe's milk. The sensitivity of isolated organisms to 6 available antibiotics were tested. The results were discussed.

INTRODUCTION

Mastitis in dairy herds is a serious economic and animal health problem, it reduce the milk yield and adversely affect the quality of milk, it cause permanent damage to one or two halves of udder. It may end fatally as a result of the toxæmia in cases of gangrenous mastitis. The disease occurs both sporadically and enzootically in several farms depending on the causative organism. In both acute and chronic form of mastitis, physical, chemical and bacteriological changes in milk occurs. It is the result of interplay between infection of the udder by specific microorganism and stress factors. It may take the sub-clinical form which is considered the serious form with no obvious symptom and the milk looks apparently normal for long time.

In recent years, several studies in the world have focused attention on the causative agent of mastitis in ewe's and she-goats (KALRA, et al. 1962; JAIN and SHERMA, 1964; BOZHILOV, et al. 1967; RAO and SEITHARAMAN, 1967; IBRAHIM, 1968; ROSSIS, 1972; SMITH and ROGUINSKY, 1977 and MANDAL, et al. 1977.

Concerning sheep and goats in Egypt such studies were carried out by FARRAG and OAF, 1966; EL-GHOOL, et al. 1968; YOUSEF, 1981; EL-SERGANY, et al. 1982; ISMAIL, et al. 1984 and SHOUMAN, et al. 1986.

Sensitivity of the isolated microorganism from mastitic milk samples of ewe's and she-goats were discussed by several workers (KUNTER, 1963; KORUKOV, 1968; OSTASHEVSKII and OBRAZISOV, 1968 and EL-SERGANY, et al. 1982. The lack of information concerning incidence of mastitis and pathogenic responsible for it in Upper Egypt draws the attention of the authors to carry out this studies also antibiotic sensitivity were done on isolated microorganisms.

MATERIAL and METHODS

The present studies was carried out on (32 ewes and 30 she-goats) which showed clinical manifestation of mastitis. Each animal was subjected to clinical examination and about 15 ml. of milk sample either from unilateral or bilateral affected halves were collected in

a sterile MacCartney bottle under aseptic condition and subjected to bacteriological examination. The udder was washed with water and every teat was cleaned with a piece of cotton soaked with alcohol before collecting the sample. From each sample 0.1 ml was streaked into the surface of blood agar plates and MacConkey agar plate incubated aerobically at 37°C for 48 hours, identification of the isolates were done by colonial morphology, smear examination and other biochemical activity according to CRUICSHANK, *et al.* 1970; COWAN, 1974.

The remaining milk samples were centrifuged at 3000 r.p.m. and smears were prepared from the sediment and stained by Gram's stain. The different bacterial isolates of the affected udder were tested against penicillin 1.5 i.u., streptomycin 10 ug, terramycin 10 ug, chloramphenicol 10 ug, neomycin 10 ug and gentamycin 10 ug using sensitivity disc [Difco] (CRUICSHANK, *et al.* 1970).

RESULTS

Table (1)
The incidence of isolated microorganisms from
mistitic milk of 32 ewes and 30 she-goats

Organism isolated	32 ewes		30 goats	
	No.	%	No.	%
Staphylococcus aureus	7	21.87	8	26.67
S.aureus, S.albus	-	-	2	6.67
Streptococcus agalactia	7	21.87	6	20.00
Corynebacterium pygenes	9	28.13	10	33.33
Corynebacterium ovis	3	9.37	1	3.33
E. coli	5	15.63	3	10.00
Klebsiella	1	3.13	-	-
	32	100	30	100

Table (2): Antibiotic sensitivity to isolated microorganisms from mastitic 32 ewe's and 30 she-goats milk.

Isolated microorganism	Antibiotic used		Streptomycin	Terramycin	Chloramphenicol	Neomycin	Gentamycin
	Penicillin						
Staphylococcus aureus	E 7	6 1	1 5 1	2 5 -	1 6 -	1 5 1	- 3 4
	G 10	1 6 3	1 6 3	1 8 1	2 7 1	1 6 3	- 2 8
Staph. albus	E -	- 2 -	- 2 -	- 1 1	- 1 1	- - 2	- - 2
	G 2	- 2 -	- 2 -	- 1 1	- 1 1	- - 2	- - 2
Streptococcus agalactia	E 7	- 2 5	- 3 4	1 3 3	- 3 4	- 4 3	- 2 5
	G 6	- 3 3	- 3 3	- 2 4	- 4 2	- 3 3	- 2 4
Corynebacterium pyogenes	E 9	- 2 7	- 3 6	2 5 2	1 6 2	- 7 2	- 7 2
	G 10	- 2 8	- 4 6	2 6 2	1 6 3	1 7 2	- 7 3
Corynebacterium ovis	E 3	- 2 1	- 2 1	- 2 1	1 1 1	- 3 -	- - 3
	G 1	- 1 -	- 1 -	- 1 -	- 1 -	- 1 -	- - 1
E. Coli	E 5	4 1 -	4 1 -	1 3 1	5 5 -	- 4 1	- 2 3
	G 3	2 1 -	3 - 1	1 2 1	2 1 2	- 3 -	- 1 2
Klebsiella	E 1	1 - -	1 - -	1 - -	- - 1	- - -	- - 1
	G -	- - -	- - -	- - -	- - -	- - -	- - -

E.: Ewe's
-: Resistant

G.: she-goats
++: sensitive less than 2 cc
+++ sensitive more than 2 cc.

DISCUSSION

It was noticed that the mastitic udder of 32 ewe's and 30 she-goats was either unilateral or bilateral. The swelling of the affected halves varied from slight oedema to hard feverish painful enlargement (2 to 6 times the size of normal half). Some affected udder showed different signs of wound. The milk secretion often was scanty, has the appearance of serum, tinged with blood or may be changed to whey with some flakes of coagulated casein. History of anorexia and depression was often accompany acute cases.

The results of present investigation revealed that the main causative microorganism of 32 ewes mastitis were *Staphylococcus aureus* (7 cases, 21.87%), *Streptococcus agalactia* (7 cases, 21.87%) *Corynebacterium pyogenes* (9 cases, 28.13%), *Corynebacterium ovis* (3 cases, 9.37%), *E.coli* (5 cases, 15.63) *Klebsiella* (1 case, 3.13%) also the incidence of organism isolated from 30 she-goats mastitic milk were *Staphylococcus aureus* (8 cases, 26.67%) mixed infection of *Staphylococcus aureus* and *Staphylococcus aureus* (2 cases, 6.67%) *Streptococcus agalactia* (6 cases, 20.00%) *Corynebacterium pyogenes* (10 cases, 33.33%), *Corynebacterium ovis* (1 cases 3.33%), *E.coli* (3 cases, 10.00%). These results nearly similar to those reported by KALRA et al.; JAIN and SHERMA, 1964; BOZHILOV et al., 1967; RAO and SEITHARAMAN, 1967; IBRAHIM, 1968; ROSSIS, 1972; SMITH and ROGUNSKY, 1977 and MANDAL et al., 1977.

Also nearly similar with the results of other studies, FARRAG and OAF, 1966 who examined a flock of goats and found 32 cases of mastitis where *C.pyogenes* encountered for 44%, *C.ovis* was isolated from 15.6%, *Staph-aureus* from 26% and unclassified corynebacterium from 12.5%. EL-GHOOL et al., 1968 examined 100 mastitic ewes and found *Staph. aureus* in 22%, *C. pyogenes* 35%, *C.ovis* 20%, *Klebsiella* 1%, *Pseudomonas* 1%, the rest of samples were negative for bacteriological examination. EL-SERGANY et al., 1982 performed a bacteriological examination of milk samples from mastitic she-goats, found *Staph. aureus* caused 44%, *E.coli* 26.9% *Strepto. agalactia* 7.5% *C. pyogenes* 11.2%, YOSSEF, 1981 examined 39 milk samples from mastitic she-goats and 42 milk samples from mastitic ewe's and isolated *Staph. aureus* in 24.7%, 13.90%, *Strept. agalactia* 10.50%, 17.85%, *Strept. dysagalactia* 2.35%, 2.38% *Strept utsres* 4.50%, 7.14%, *C.pyogenes* 4.50, 4.76%, *C.ovis* 8.60%, 2.38, *E.coli*, 2.35%, 7.14% respectively, *Klebsiella* organism isolated only in 3.57% of mastitic ewe's milk. ISMAIL et al. 1984 examined normal and mastitic she-goats milk with the isolation of *Staph. aureus*, *Strept. agalactia*, *Strept. dysagalactia*, *E.coli*, *Klebsiella*, *C.ovis* and *C.pyogenes* SHUMAN et al., 1986 examined 39 mastitic milk samples of she-goats revealed that Streptococcal infection were relatively high 37.65, with the incidence of specific mastitic Streptococci as *Strept. agalactia* 10.58%, *Strept. dysagalactia* 2.35%, *Strept. ubris* 4.70% also 19 strains of *Corynebacteria* in an incidence of 22.3%, where *C.pyogenes* was 4.70%, *C.ovis* 8.24% unidentified corynebacteria 9.41% also examined 42 mastitic ewe's milk samples, revealed *Strept. agalactia* 8.33%, *Strept. dysagalactia* 2.68, *Strept. ubris* 7.14% While the incidence of *C. pyogenes* 4.76%, *C.ovis* 2.38%, *C.bovis* 2.38% and unidentified *Corynebacteria* were 5.95%.

The result of sensitivity test showed that most of the isolated microorganisms were sensitive to moderate or high degree to penicillin, streptomycin, chloramphenicol, neomycin, gentamycin with the exception of *E.coli* and *Klebsiella* organisms which were resistant to penicillin and streptomycin (Table 2). This results were similar to that reported by KUNTER, 1963 OSTA-SHEVSKII and, OBREZISOV, 1968 and KORUKOV, 1968 and EL-SERGANY et al., 1982.

From aforementioned studies, it is important therefore that the clinical examination and history of animal to be treated should be considered in parallel with information on bacterial sensitivity to protect udder from inactivity, lost of function as well as to save the animal life.

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