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**CONTROL OF SUBCLINICAL MASTITIS IN A BUFFALOE DAIRY
HERD USING A FIELD MASTITIS CONTROL PROGRAMME**
(With 4 Tables)

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مقاومة التهاب الضرع تحت الاكلينيكي
في قطيع من الجاموس الحلاب
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في مزرعة للجاموس الحلاب تم اكتشاف التهاب الضرع تحت الاكلينيكي وكانت نسبة الإصابة 34.3% أما عن الميكروبات المعزولة فهي الميكروب العنقودي الدهبي والميكروب السبحي الاجلكتسي وديجلكتسي والميكروب القولنزي ، وقد أمكن السيطرة على هذه الميكروبات باستخدام نظام التحكم الحقلّي لالتهاب الضرع وهذا النظام يحافظ على صحة الضرع كما أنه يزيد من انتاج اللبن .

SUMMARY

In a dairy buffalo farm, subclinical mastitis was detected in 34.3% of apparently normal quarters. The bacterial status of the herd udders were found to be *Staph. aureus* (47.6%), *Strept. agalactia* (43.9%), *Strept. dysagalactiae* (5.4%) and *E. coli* (3%). Infection has been controlled by field mastitis control programme. This programme maintained the udder health and approach a vertical expansion of milk production.

INTRODUCTION

Subclinical mastitis almost always causes general herd problem, whereas clinical mastitis causes an individual cow problem. Logically, many of clinical mastitis will be prevented if the subclinical form is controlled effectively (PHILPOT, 1969). Moreover, this form of mastitis is considered as the most serious type of the disease where infected udders act as an obscure source of infection (FARID, *et al.* 1981).

The effective control can not be achieved by treatment of acute cases alone. A continuous check system including, identification of suspicious or infected quarters and determination of the etiologic agent are needed primarily for accurate diagnosis and for conducting specific treatment of infected cases (GIBBONS, 1965).

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A various individual methods for controlling udder infection including immunization, selection for genetic resistance, attention to proper milking machine performance and management, eradication of certain hygienic measures, and antibiotic therapy. Combination of these methods is often impractical and complex (ROBERTS, *et al.* 1969). This, then bring us to the subject of this paper, viz, field mastitis control programme and its role in control of subclinical mastitis.

MATERIAL and METHODS**1 - Samples:**

A total of 483 individual milk samples of apparently normal quarters were collected aseptically from 124 dairy buffalo herd belonging to Behera Governorate. Informations, regarding age, number of lactations and stage of pregnancy were taken into consideration.

2 - Bacteriological examinations:

Each milk sample was incubated at 37°C for 12 hours then centrifuged for 5 minutes at 1500 RPM. Loopfulls of the sediment were streaked on blood agar, MacConkey's agar media and Edwards media and incubated at 37°C for 24 hours to 5 days. Pure colonies were identified according to CRUICKSHANK, *et al.* (1975).

3 - Treatment:

Quarters harbouring mastitis producing microorganisms or that reacting positively to the Frieso test were evacuated from the milk, and infused intramammary with 80 mg Gentamycin in 10 ml. normal saline twice daily for 3-5 days. Success of treatment was depending on the negative results of milk culture 14 days post treatment.

4 - Frieso Test:

It is rapid field test used for detection of milk with abnormally high cell counts. Periodic testing of apparently normal quarter milk samples by Frieso test following instruction of the manufacture supplied by Wellcome was carried out to segregate buffaloes according to their scores into: (A) clean groups, those reacting negative to the test (B) Mildly infected group, those reacting the initial two scores to test (C) strongly infected group, i.e. these reacting the higher two scores to the test.

5 - Teat dipping was mainly carried out after each milking by using Iodophor (Crown Chemical Company limited Lamberhurst, Kent M.P.H. Egypt) at concentration of 5000 mg available iodine per liter.

6 - Good management to protect the udder from injury and lessening the liability to infection were attained by supplying animals with comfortable, dry and well bedded stalls.

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RESULTS

Preliminary results of the bacteriological examination of milk samples collected from apparently normal quarters to represent the bacterial status of the herd udder are illustrated in table (1).

Results of treatment of subclinically mastitic quarters are recorded in table (2).

The reliability of the Frieso test and the percentage agreement of its results as compared with the bacteriological findings are recorded in table (3).

The influence of the application of a field mastitis control programme on the udder health of the herd are illustrated in table (4).

DISCUSSION

Results obtained from studies on mastitis in this contribution and others (KHALIL, *et al.* 1972), emphasized the essential need for the incorporation of organised field programme constituting good management and sanitation associated with periodic testing and proper treatment to control subclinical mastitis and approach vertical expansion in milk production of the herd. On the long run of the problem, a high percentage of subclinically mastitic quarter in examined dairy buffaloes, led to a drop in milk production. The infection was mainly Staph. aureus and Streptococci Spp. (table 1). To clear up the infection from the herd, the proposed system of treatment was carried out by Gentamycin which was properly selected on the basis of the history of the previous mastitic treatment applied on the farm and type of pathogens isolated from different quarters. Our results indicated that Gentamycin is an effective drug against various types of microorganisms isolated (table 2). These results agree with those obtained by MAHMOUD (1988). Moreover, the superior effect of Gentamycin might be due to the fact that it is seldom used as a treatment of mastitis. On the other hand, despite the incidence of mastitis can be reduced in dairy herd by systemic testing and treatment, yet, this is not the answer to the problem unless it is combined with good sanitation and management to protect the udder from injuries and spread of infection (KHALIL, *et al.* 1972).

In our present study a comparison between Frieso test and culture examination indicated a high correlation between Frieso test scores and udder infection (table 3). Consequently the use of such test, initiated the quick detection of pathological changes associated with inflammation in the quarter from which tested milk was drawn and thus the application of this test offer a potent tool to aid in selection of buffaloes for either production or therapy. Moreover, the use of periodic testing of apparently normal quarter milk samples to segregate animals in the barn into negative, suspicious

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and infected groups, to milk them in such order was recommended by LITTLE and PLASTRIDGE (1946), to protect negative quarter from infection. Control of number of pathogenic microorganisms remaining on the teat and new intramammary infection was also seriously considered. The use of an efficient disinfectant such as Iodophor at concentration of 5000 mg. available iodine per liter after each milking, as teat dipping, showed and effective results when strictly regarded. The use of these techniques were recommended by NEAVE, *et al.* (1969), O'SHEA, *et al.* (1975), PHILPOT and PANKEY (1978), and SHELDRAKE and HOARVE (1980).

The proper stall management requires the floors under the udder to be kept clean, dry and well supplied with plenty of good litter. This reduces the opportunity for chilling congestion and injury of the udder. Thus reduces the possibility of infection occurring in healthy udders.

The final results obtained from the application of the programme (Table 4), showed excellent control of subclinical mastitis. All members of the herd were considered to be clean within 6 weeks.

It is concluded that the mastitis control programme described here is relatively simple, practical, and inexpensive. This programme maintained the udder health and approach vertical expansion of milk production of the herd.

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Table (1): The bacterial status of the herd udders.

No. of examined samples	No. of infected samples	Percentage of Infection	Types of Infection	No. of samples with percentage
483	166	34.3	Staph aureus	79
			Strept. agalactiae	73
			Strept. dysagalactiae	9
			E. Coll	5
				47.6
				44.0
				5.4
				3.0

Table (2): Results of treatment of subclinically mastitic quarters.

Isolated organisms	Antibiotic	No. of infected quarters	Curd quarters post treatment. No.	%
Staph. aureus	Gentamycin	79	75	94.9
Strept agalactiae	Gentamycin	73	69	94.5
Strept dysagalactiae	Gentamycin	9	6	66.7
E. Coll	Gentamycin	5	5	100.0

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Table (3): Reliability of Erlsen test as compared to bacteriological results.

Scores	No. of samples	Bacteriological results		Agreement %
		+ve	-ve	
-	295	10	285	96.6
+	55	23	32	41.8
++	60	60	-	100.0
+++	73	73	-	100.0
Reliability (%)				
- negative		+ weak positive	++ moderate positive	+++ strong positive

Table (4): Influence of the application of a field mastitis control programme on the udder health of the herd.

Period of test	No. of tested animal	No. of tested quarter	No. of blind or non functioning quarters	Reaction of quarter expressed in scores	+	++	+++
At the beginning of the programme	124	483	13	295	55	60	73
After week from application of the programme.	124	472	24	391	43	26	12
After 4 weeks.	124	472	24	446	15	9	2
After 6 weeks.	124	472	24	469	3	-	-