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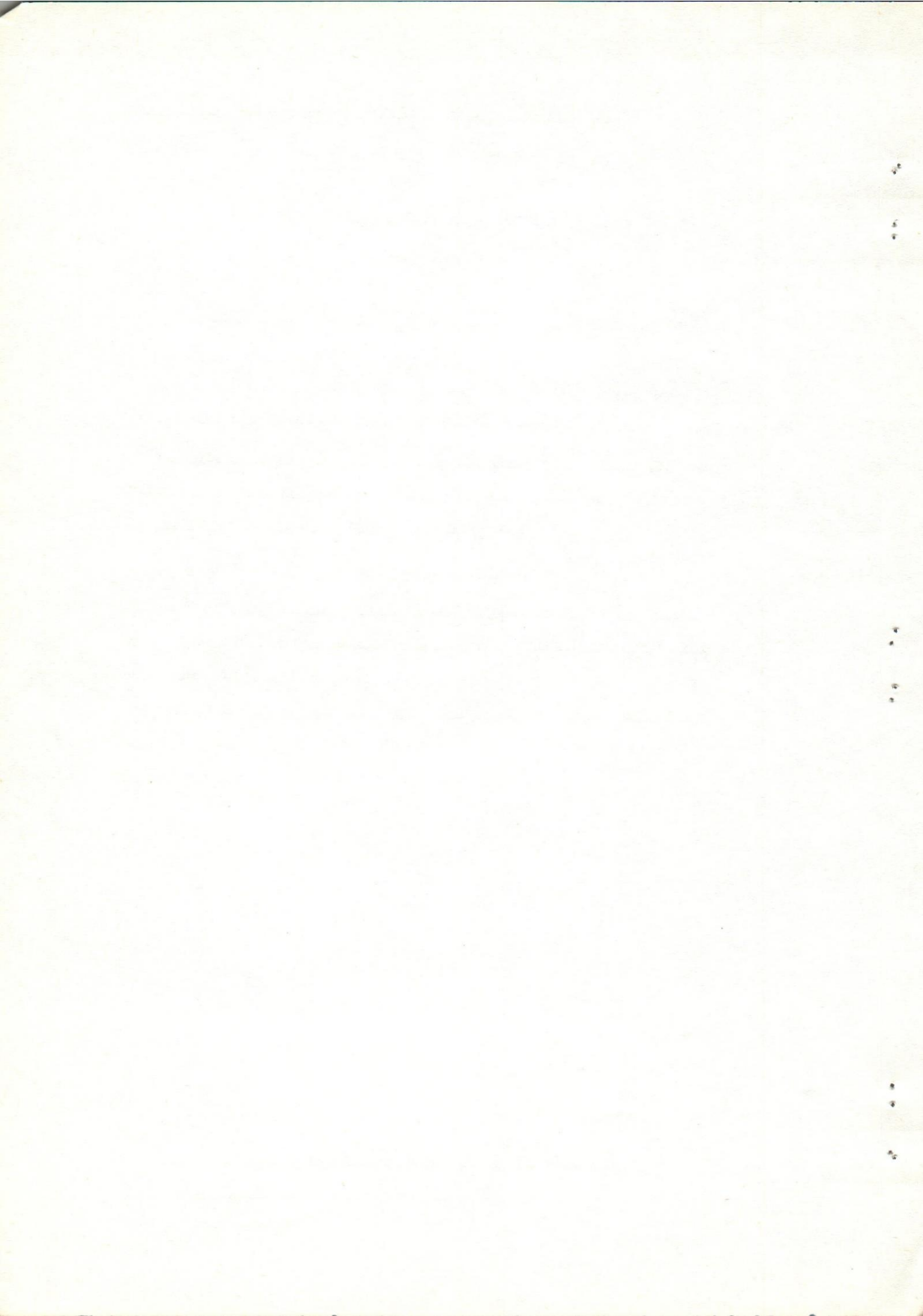
البكتريا المعزولة من حالات التهاب غشاء الرحم
المزمن فى الأبقار والجاموس

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اختير فى هذا البحث ٧٣ حالة من الأبقار والجاموس المصابة بالتهاب غشاء الرحم المزمن وقد قسمت هذه الحيوانات الى مجاميع حسب تاريخ الاصابة ودرجة التهاب غشاء الرحم . كانت نتيجة الفحوص الجرثومية لهذه الحالات هى وجود حالتين فقط من ٣٤ حالة أبقار سلبية للفحص الجرثومى ، بينما وجدت ٤ حالات سلبية من ٣٩ حالة جاموس . هذا وقد تم عزل ٢٧٠ عترة بكتيرية منها ١٥١ عترة عزلت من الجاموس و ١١٩ عترة من الأبقار . وقد تم تمييز هذه العترات المعزولة الى سبع مجاميع بكتيرية هى .
المكورات الدقيقة ، مكورات سبحية ، عصيات وتدية سلبية الجرام ، عصيات شبيهة الجمرة خمائر وفطريات . كانت أهم الأنواع المرضية التى عزلت من الأرحام المصابة بالتهاب غشاء الرحم المزمن سواء وحيدة أو مخالطة للأنواع أخرى غير مرضية وهى .
مكسورة عنقود ذهبية ، م . سبحية قبحية ، عصية وتدية فيحية وعصية وتدية غنمية ، عصية القولون ، عصية القيق الأزرق وكلبيلا تناسلية .

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BACTERIA ISOLATED FROM COWS AND BUFFALOES SUFFERING FROM CHRONIC ENDOMETRITIS

(With 3 Tables)

By

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SUMMARY

Uterine samples from 73 bovines (34 cows and 39 buffaloes) showing chronic endometritis were bacteriologically examined. The diseased animals were classified according to the breeding history and different degrees of endometritis.

The 119 isolates recovered from 32 positive cow samples (90.0%) and 151 isolants isolated from 35 positive cases from buffaloes (89.7%) were differentiated biochemically into seven bacterial groups: Micrococcus, Streptococcus, Corynebacterium, Gram-negative bacilli, Anthracoides, Yeasts and Moulds. Among the most pathogens encountered in bovine chronic endometritis are: Staph. aureus, Str. pyogenes, C. pyogenes, C. ovis, E. coli, Ps. aeruginosa, K. genitalium and some species of Proteus, Yeasts and Moulds.

INTRODUCTION

MILLAR and RAS (1952) stated that chronic endometritis in varying degrees is accompanied by symptoms with various features differed from animal to another. While ROBERTS (1956) concluded that a large proportion of failure of conception could be attributed to varying degrees of chronic endometritis. The author believed that this inflammation had either toxic effect on sperms or changed the hydrogen ion concentration of uterus so that it became harmful to sperms or even to fertilized ova. On the other hand, RUSSEL *et al.* (1960) claimed that chronic endometritis is characterized by an increase in the thickness of the uterus.

In Egypt, SHOKEIR (1958) and EL-SAWAF and FOUAD (1964) in their study on slaughtered buffaloes reported that the incidence of chronic endometritis was 4.5%, while ZAKI *et al.* (1963) in their clinical investigation, recorded an incidence of 7-13.8% in breeding farm buffaloes. EL-WISHY (1965) in his clinical study on the causes of infertility in buffaloes and cows showed that the incidence of chronic endometritis was 4.74%. on the other hand, BARR and HASHIM (1968) claimed that 24.5% out of 3330 infertile female buffaloes suffered from endometritis.

The aim of this work was to study the incidence of the different microorganisms associated in cows and buffaloes suffering from chronic endometritis as an aid for treatment of such cases.

MATERIAL and METHODS

Thirty four cows and 39 buffaloes (5-9 years) suffering from chronic endometritis were included in this work. These animals were presented to the Vet. Clinic at Batanon, Manofia, Egypt, for infertility diagnosis and trials of treatment.

The diagnosis and classification of endometritis was accomplished according to RICHTER (1938), ROBERTS (1956) and ABO-EL-ATA (1973).

Swabs from the external os were taken from these animals before any treatment for bacteriological examination. The uterine swabs were treated as mentioned by ABO-EL-ATA (1973). The isolates were identified morphologically, cultural character and biochemically according to ABDEL-MALEK and GIBBSON (1948), SEELEMANE (1954), BREED *et al.* (1957), WILSON and MILES (1964), COWAN and STEEL (1965), MERCHANT and PACKER (1967) and EDWARD and EWING (1972).

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RESULTS

According to the rectal and vaginal examinations together with the breeding history of cases examined, six different types of obstetric history were registered in both cows and buffaloes; 17 cases (23.29%) were suffering from difficult birth accompanied with birth help, 20 cases (27.40%) had abortion, 16 cases (21.92%) were affected with retention of the placenta, 6 cases (8.22%) suffered from prolapse of vagina, 3 cases (4.11%) delivered dead foeti and 11 cases (15.07%) with unknown case history as shown in Table 1.

Table (1): Breeding history of cows and buffaloes suffering from chronic endometritis.

Breeding history	COWS		BUFFALOES		TOTAL	
	No.	%	No.	%	No.	%
Difficult birth	11	32.4	6	15.4	17	23.29
Abortion	9	26.5	11	28.2	20	27.40
Retained placenta	7	20.6	9	23.1	16	21.92
Prolapse of vagina	3	8.8	3	7.7	6	8.22
Dead foeti	1	2.9	2	5.1	3	4.10
Unknown causes	3	8.8	8	20.5	11	15.07
Total	34	100.0	39	100.0	73	100.00

According to the different degrees of endometritis, it was found that 17 animals were suffering from first degree, 26 animals were included in the second degree and 30 animals reached the 3rd degree of chronic endometritis (Table 2).

Table (2): Incidence of various degrees of chronic endometritis in cows and buffaloes.

Species of animals	Degree of chronic endometritis						Total No.
	1st degree		2nd degree		3rd degree		
	No.	%	No.	%	No.	%	
Cows	8	23.5	12	35.2	14	41.5	34
Buffaloes	9	23.1	14	35.8	16	41.1	39
Total	17	23.29	26	35.61	30	41.09	73

Bacteriological examination of the collected samples revealed that 32 samples of cows (90.0%) had specific organisms as the cause of chronic endometritis, while in case of 39 buffaloe-uterine samples, 35 (89.7%) proved to harbour specific microorganisms. It is worthy to mention that no relation exhibited between the bacteria isolated and the degree of endometritis.

From 34 cow samples, 119 isolates were differentiated into 7 groups of bacteria. The most predominant groups were; Streptococci, Gram-negative bacilli (25 isolants of each in an incidence of 21.1%), Micrococci, Anthracoides (22 isolates of each with an incidence of 18.4%) and Corynebacterium (15 strains) in an incidence of 12.6%. The details of all groups isolated, its species and their incidences in cows and buffaloes are recorded in Table 3. The most important species recovered which could be considered as the cause of chronic endometritis in cows were; *Ps. aureuginosa* (11 isolates), *Str. pyogenes* (10), *Staph. aureus* (8), *E. coli* (7), *C. pyogenes* (6), *C. ovis* (4), and *K. genitalium* (2 isolates). These organisms might be present alone or mixed with other types of bacteria.

In cases of buffaloes, 151 isolates were recovered from 39 examined samples. They were belonged to the following bacterial groups; Streptococci (31 isolants constituted 20.5%), Gram-negative bacilli (27 strains in

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an incidence of 17.8%), Micrococci (26 isolates as 17.2%), Corynebacteria (24 in an incidence of 15.9%), Anthracoides (19 isolates as 12.7%), yeasts (13 as 8.7%) and moulds (11 as 7.2%). The most important species isolated from buffaloes were; *Staph. aureus*, *C. pyogenes*, *Str. pyogenes*, *Str. zymogenes*, *C. ovis*, *E. coli*, *Ps. aeruginosa*, *K. genitalium* and *Sarcina lutea*. The other isolated species were registered in Table 3.

Table (3): Species of organisms isolated from cows and buffaloes showing chronic endometritis.

Bacterial species	COWS		BUFFALOES		TOTAL
	No.	%	No.	%	No.
MICROCOCCUS SPECIES					
<i>Staph. aureus</i>	8	6.7	13	8.6	21
<i>Staph. epidermidis</i>	6	5.0	2	1.3	8
<i>Sarcina lutea</i>	5	4.2	4	2.6	9
<i>M. luteus</i>	-	-	2	1.3	2
<i>M. caseolyticus</i>	-	-	1	0.7	1
<i>M. flava</i>	1	0.8	1	0.7	2
<i>Gaffkya tetragena</i>	2	1.6	3	2.0	5
STREPTOCOCCUS SPECIES					
<i>Str. pyogenes</i>	10	8.4	9	5.9	19
<i>Str. zymogenes</i>	-	-	9	5.9	9
<i>Str. unclassified</i>	4	3.4	5	3.4	9
<i>Str. bovis</i>	5	4.2	3	2.0	8
<i>Str. alpha-haemolytic</i>	4	3.4	3	2.0	7
<i>Str. faecalis</i>	2	1.7	-	-	2
<i>Str. durans</i>	-	-	2	1.3	2
CORYNEBACTERIUM SPECIES					
<i>C. pyogenes</i> (typical)	4	3.4	11	7.3	15
<i>C. pyogenes</i> (atypical)	2	1.7	2	1.3	4
<i>C. ovis</i>	4	3.4	7	4.6	11
<i>C. bovis</i>	3	2.5	2	1.3	5
<i>C. equi</i>	1	0.8	1	0.7	2
<i>C. unclassified</i>	1	0.8	1	0.7	2
GRAM-NEGATIVE BACILLI					
<i>E. coli</i>	7	6.0	6	4.0	13
<i>K. genitalium</i>	2	1.7	4	2.6	6
<i>Pr. vulgaris</i>	3	2.5	4	2.6	7
<i>Pr. mirabilis</i>	2	1.7	4	2.6	6
<i>Pr. morgani</i>	-	-	3	2.0	3
<i>Ps. seruginosa</i>	11	9.2	6	4.0	17
ANTHRACOIDES SPECIES	22	18.4	19	12.7	41
YEASTS	4	3.4	13	8.7	17
MOULDS	6	5.0	11	7.2	17
Total	119		151		270

DISCUSSION

Bacteriological examination of 34 uterine samples from cows suffering from chronic endometritis showed that 32 cases were due to specific organisms (90.0%), while out of the 39 samples from buffaloes, only 35 cases (89.7%) proved to be bacteriologically positive. These findings nearly coincided with those of GUNTER *et al.* (1955) who indicated that bacterial infection, either clinically apparent or not apparent may be responsible for any causes of uterine infection. On the other hand, BARTLETT (1949), HINZE (1952), HERRICK (1955), ROBERTS (1956) and GIBBONS (1957) stated that non-specific causes of chronic endometritis such as functional disorders, endocrine dysfunctions, mal-nutrition, excessive milk production and heredity have certain effect not less than that of the bacteria in producing chronic endometritis in bovine.

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According to the case history and clinical examination, it was noticed that the history of difficult birth with outer help, abortion, retained placenta, vaginal discharge in addition to failure of conception were the most prevalent signs in the examined cows and buffaloes suffering from chronic endometritis. These observations are in accordance with the findings of MILLER and RAS (1956), ROBERTS (1956) and ARTRUR (1975).

In this investigation, it was found that out of 34 cows suffering from endometritis, 14 were in the third degree, 12 were suffering from second degree and 8 complaining from first degree, while in buffaloes (out of 39 cases) 16, 14 and 9 were suffering from the first, second and third degrees respectively. Some investigators observed that chronic endometritis cases were mostly in the first degree (RATTENSTEN and KIERKEGAARD, 1954 and DEANE and NAYADU, 1957), while other workers recorded that all cases were in the second degree as THYGESEN (1948) and MAC WILLIAN (1954). Meanwhile, BOLLER (1954) remarked that all examined cattle with chronic endometritis were in the third degree of involvement. Furthermore, DAWSON (1960) stated that cases with chronic endometritis were in the second and third degrees. The higher incidence of the third degree of chronic endometritis reported in this work may be due to the carelessness and ignorance of the farmer who do not call for veterinary help unless it becomes too late and the prognosis and recovery are questionable.

From the results of bacteriological examination, it was found that the species of streptococcus were the most prevalent in cows and buffaloes. The most common members were; *Str. pyogenes*, *Str. bovis* (in cows) *Str. zymogenes* and *Str. durans* (in buffaloes). These findings agreed with those of GENEDEL (1955) who demonstrated that streptococci were present in an incidence of 18% from cases of bovine endometritis. The most predominant gram-negative bacilli isolated were; *E. coli*, *Ps. aeruginosa*, *K. genitalium* and Proteus species. This correlated with SYKORA (1932) who reported gram-negative bacteria in 16% of the isolated strains. *C. pyogenes*, *C. ovis* and *bovis* were recovered in this work, nearly the same species were recorded from cows with endometritis by RUMGE (1942), DAWSON (1949) and RIZNER and HEZSIG (1959). Also BARAKAT (1965) recovered a high incidence of corynebacteria (53.9%) from diseased uteri. The most predominant micrococci species isolated were: *Staph. aureus* in high incidence, this nearly coincided with the results of AZIZUDDIN (1948) and DAWSON (1949).

In this work, it was reported that yeasts and moulds had an incidence of 5.0% and 3.4% respectively in cows and 8.7% and 7.2% in buffaloes. This seems to agree with the observations of GILMAN and BITAH (1925) and JENGER (1935) who reported that mould and fungi acted as a factor causing retention of placenta and abortion in cattle, followed by certain degree of endometritis. Meanwhile, BAZSIG *et al.* (1963) isolated yeasts in an incidence of 1.69% from cows and heifers, some of which had endometritis.

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