Trop. Anim. Hlth Prod. (1978) 10, 223–228

TREATMENT OF THE REPEAT BREEDER COW SYNDROME IN KENYA

E. R. MUTIGA

Faculty of Veterinary Medicine, Department of Clinical Studies, University of Nairobi, PO Box 29053, Kabete, Kenya

SUMMARY

One hundred repeat breeder dairy cows have been studied in detail. Although clinically 60 per cent of them were normal bacteria were isolated from the uteri of the majority (90 per cent). Thirty per cent of these isolates were mixed.

Intra-uterine infusion of the uteri with diluted Lugol's Iodine solution, supplemented in a few cases by antibiotic therapy, resulted in a 62 per cent conception rate compared with 26 per cent in the control group. It is concluded that dilute Lugol's Iodine is a useful treatment for repeat breeder cows under conditions similar to those described.

INTRODUCTION

A repeat breeder cow has been described as one that returns to oestrus at or near regular intervals although she is bred to a known fertile disease-free bull, clinical examination fails to reveal any abnormality (Roberts, 1971).

Eradication of infectious breeding diseases by the use of artificial insemination, has focused attention on this economically important group of cows with breeding problems but no distinct clinical abnormality (Hewett, 1968). A great deal of work has been done in various parts of the world on these types of cows and no attempt will be made to review all the literature here. The reader is referred to work of Casida (1961), Jainudeen (1965), Ayalon, Weiss and Lewis (1967), Hewett (1968), Olds (1969), Roberts (1971), Rhaman, Rahman, Rahman and Ahmed (1975), Namboothiripad and Raja (1976) and de Kruif (1976). It is clear from these references that multiple causes are responsible for this problem and ideally treatment should be varied but this is not always practicable.

The incidence of this condition has been shown to vary from one area to another (Perkins, Olds and Seath, 1959—15·1 per cent; Zemjanis, 1963—6·5 per cent; Hewett, 1968—10 per cent). The former worker has also reported some seasonal incidence.

Repeat services and failure to conceive may be caused by chronic endometritis (Roberts, 1971; Lemke, 1972). It is uneconomical to keep a non-pregnant cow that should have been successfully bred (Roberts, 1971; Blood, 1973; Bennett, 1974) although exact data on the costs involved are not available for Kenya. This situation becomes particularly alarming to the farmer when high producing cows are involved.

Treatment of repeat breeder cows has been attempted with some degree of success (Hinze, 1959, Hjerpe, 1961; Bayer, 1971; Namboothiripad and Raja, 1976). After reviewing the available literature and also from his personal experience Roberts (1971) concluded that dilute iodine solution is as good as any other treatment for these cases.

This paper records the magnitude of the repeat breeder syndrome in exotic dairy breeds under tropical conditions. The clinical findings in 100 such cases and their reproductive response to treatment are reported.

MATERIAL AND METHODS

One hundred dairy cows and heifers were studied from a total breeding herd population of 1,200 animals of mixed breeds and from both large and small herds. The four commonest dairy breeds in Kenya were represented (Friesians, Guernseys, Jerseys and Ayrshires). They all came from the Central Province of Kenya where artificial insemination was the only method of breeding. A cow or heifer was referred to as a repeat breeder when she returned to service for the third time.

High quality semen and competent technicians were used in all these cases. Clients were asked to report any cow or heifer that came on heat after three or more inseminations. Twenty-four hours after such a report the animal was visited. First a detailed history of the animal was taken and then a clinical examination was performed. The latter involved rectal examination to evaluate the condition of the reproductive system. A uterine swab for bacteriological examination and drug sensitivity was taken by a method similar to that described by Minocha, Marion, Gier and McMahon (1964).

After swabbing the uterus, alternate cows were immediately infused with 200 ml of freshly prepared 1 per cent Lugol's Iodine solution while the others acted as controls, and were each similarly infused with 200 ml of sterile physiological saline. An insemination pipette attached to a 200 ml syringe by a rubber tubing was used in all cases. The owner was then asked to get the animal inseminated the next time she came on heat, provided it was after 10 days. If this failed a second attempt was recommended at the following heat but if she came back the third time this should be reported to the clinic.

When any of the cows or heifers came back to service the third time, she was infused with the antibiotic of choice as established by the bacteriological sensitivity results from the original swab. The dose recommended by the manufacturers was infused into the uterus. All animals were pregnancy tested by rectal palpation six weeks after the last service.

RESULTS

History

Thirty-one cases out of the 100 studied had a history of retained foetal membranes at the previous calving; 20 had a history of difficult calving (dystocia), but no retained foetal membranes. On 10 no information was available either because they were recently purchased or no records had been kept. Six were heifers and 33 had no history that incriminated anything in particular.

Of the 20 that had dystocia, six had caesarean section operations, five had foetotomy operations and the rest had the calf manually extracted.

Inseminations ranged from three to ten in number, an average of five. The infertility time in cows ranged from six months to two years with the majority of cases between six and twelve months. Records were not available as to the regularity of oestrous cycles.

Clinical findings

The results of the diagnosis as established by rectal palpation are shown in Table I.

Purulent endometritis/pyometra was characterised by the presence of fluid palpable in both uterine horns and no cardinal sign of pregnancy. Six of these cases resembled a five to seven weeks pregnancy and all had a history of either a purulent or cloudy discharge at oestrus. Three of these cases, where good records were available, had unusually short oestrous cycles (14–18 days).

TABLE I

Findings on rectal palpation

Diagnosis	No. of cases
Purulent endometritis/pyometra	9
Chronic endometritis	13
Cystic ovaries	5
Hydrosalphinx	8
Delayed ovulation	5
Nothing pathological detected	60
Total	100

Chronic endometritis was diagnosed in 13 cases. Here the uterine walls felt abnormally thickened but no fluid was palpable within them. No pus was identifiable on the uterine swab.

Five cases of cystic ovaries were observed with cysts varying in size from 25 to 50 mm in diameter. Hydrosalphinx was observed in eight cases, three of which were heifers. It was characterised by enlargement mainly at the ovarian end of the fallopian tube. This was bilateral in three cases and unilateral in the others, all involving the right side. Four cows and one heifer were found to have their follicles still intact (not ovulated) about 24 h after oestrus. These were classified as delayed ovulation cases.

INCIDENCE

The number reported here represents 8·3 per cent of the total breeding herd population. Age distribution as shown in Fig. 1, indicates that six to eight year olds were the most affected.

BACTERIOLOGICAL ISOLATES AND SENSITIVITY

No attempt was made to isolate either viral or mycotic agents. Table II shows the bacteria isolated from the samples submitted. The relationship between the rectal

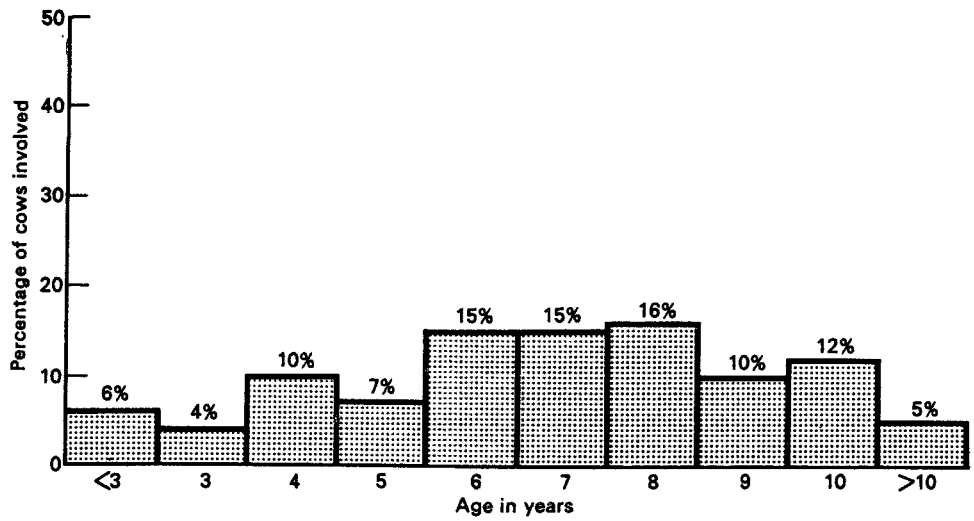

FIG. 1. Age distribution.

TABLE II

Relationship between bacterial isolates and rectal findings

Bacterial isolate	Rectal/clinical findings						
	Purulent endo-metritis	Chronic endo-metritis	No pathology	Cystic ovaries	Hydro-salphinx	Delayed ovulation	Total
No isolate	—	—	4	4	1	1	10
Vibrio or trichomoniasis	—	—	—	—	—	—	—
Pseudomonas aeruginosa	1	2	—	—	—	—	3
Haemolytic streptococci and Pasteurella	—	—	2	—	2	—	4
Escherichia coli	—	5	20	—	—	2	27
Haemolytic streptococci	—	1	13	—	3	1	18
Staphylococci	1	2	2	—	1	—	6
Pseudomonas species and *Escherichia coli*	—	1	9	—	1	—	11
Corynebacterium pyogenes	4	1	1	—	—	—	6
Escherichia coli and haemolytic streptococci	3	1	9	1	—	1	15
Total	9	13	60	5	8	5	100

clinical findings and particular bacterial isolates is also shown and it will be seen that *E. coli* either alone or in combination with other bacteria predominated amongst the bacteria isolated.

The response of bacteria to individual drugs on sensitivity trials is shown in Fig. 2. No individual drug was useful in all cases. Chloromphenical and ampicillin appeared to be the drugs of choice in most cases while most isolates were resistant to sulphonamides. None of the isolates was resistant to all the drugs on which they were tested.

Conception rates

Table III summarises the number of cows that conceived after various treatments and at different services from which it can be seen that the number of cows conceiving after iodine treatment was considerably greater than in the control group.

DISCUSSION

From the history given, it is apparent that frequently this syndrome may be a result of ascending infection as a sequel to retained foetal membranes or uterine bacterial contamination during calving. Fifty-one per cent of all the cases had a history which incriminated this.

Mixed uterine bacterial infections are common in the bovine (Namboothiripad and Raja, 1976). In the present study an incidence of 30 per cent was observed.

Lack of bacterial isolates in most of the cystic cases may be due to high circulating oestrogen levels in these cows. It has been stated (Roberts, 1971) that these hormones are bacteriostatic.

Hydrosalphinx diagnosed in heifers was probably due to congenital segmental aplasia while that in the cows may have been due to ascending infection which resulted in adhesions and occlusion of the fallopian tubes.

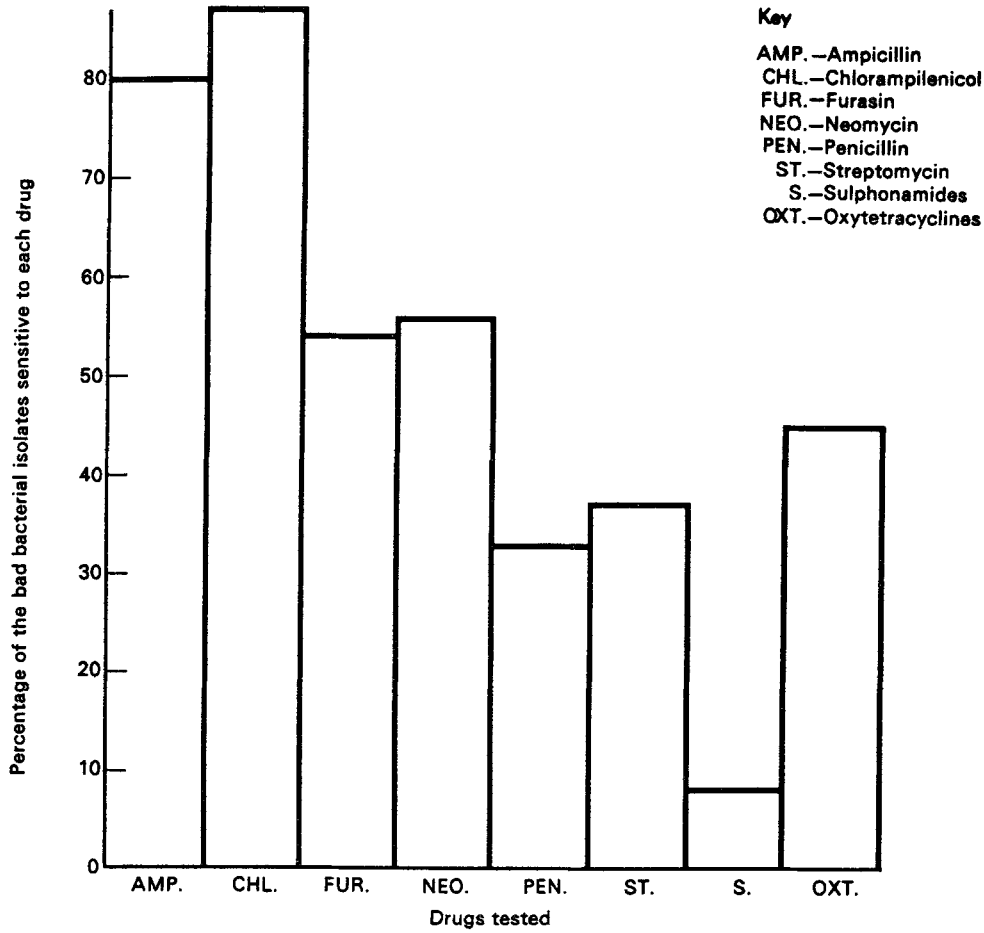

FIG. 2. Sensitivity trials.

TABLE III

Conception rates in each group

	Control	Treated
Total number in the trial	50	50
Number conceiving		
1. After first service	6	10
2. After second service	5	17
3. After specific antibiotic therapy or third service	2	4
Total number conceiving after three inseminations	13 (26%)	31 (62%)

On the basis of age, three year olds had fewer problems, probably because of less repeated post-partum infections.

From the results obtained in this study, 1 per cent Lugol's Iodine solution can be recommended as a useful and cheap method for the routine treatment of the repeat breeder cow under conditions similar to those described.

ACKNOWLEDGEMENTS

Technical assistance of Mr James Muraguri is gratefully acknowledged.

Accepted for publication April 1978

REFERENCES

AYALON, N., WEISS, Y. & LEWIS, I. (1967). The nature of fertility losses in normal cows and repeat breeders, 1967–1968. Ann. Rpt. "Hasherut" Al Center, Rishon Le Zion, PO Box 31, Israel.

BAYER, S. N. (1971). *Veterinary Record*, **88**, 355–358.

BENNETT, W. R. (1974). The role of nutrition in breeding and reproduction. *Research News Dairy Field Report*.

BLOOD, D. C. (1973). Preventive medicine and infertility in herd health programs. 6th Annual Convention. AABP, p. 163.

CASIDA, L. E. (1961). *Journal of Dairy Science*, **44** (12), 2323.

HEWETT, C. D. (1968). *British Veterinary Journal*, **124**, 342.

HJERPE, C. A. (1961). *Journal of the American Veterinary Medical Association*, **138**, 590.

HINZE, P. M. (1959). *Journal of the American Veterinary Medical Association*, **134**, 302.

JAINUDEEN, M. R. (1965). *Ceylon Veterinary Journal*, **13**, 10.

KRUIF, A. DE. (1976). *The Bovine Practitioner*, 11.

LEMKE, R. (1972). *Tierärztliche Umschau*, **27** (3), 116, 118, Abstr. 4156.

MINOCHA, H. C., MARION, G. B., GIER, H. T. & MCMAHON, K. J. (1964). *American Journal of Veterinary Research*, **25**, 1051.

NAMBOOTHIRIPAD, R. R. B. & RAJA, C. K. S. V. (1976). *Kerala Journal of Veterinary Science*, (1), 57–61.

OLDS, D. (1969). *Journal of the American Veterinary Medical Association*, **154**, 253.

PERKINS, J. R., OLDS, D. & SEATH, D. M. (1959). *Journal of Dairy Science*, **42** (3), 543.

RAHMAN, A., RAHMAN, A., RAHMAN, H. & AHMED, M. U. (1975). *Tropical Animal Health and Production*, **7**, 114.

ROBERTS, S. J. (1971). **Veterinary Obstetrics and Genital Diseases.** Published by author, Ithaca, New York.

ZEMJANIS, R. (1963). The problem of repeat breeding in cattle. Mimeographed Paper presented to New England Veterinary Meeting.

TRAITEMENT DU SYNDROME DE "L'ACCOUPLEMENT REPETE" CHEZ LA VACHE AU KENYA

Résumé—Cent vaches laitières ont été examinées avec soin. Bien que 60 p. 100 d'entre elles aient été considérées comme normales, des germes ont été isolés de l'utérus de la majorité d'entre elles (90 p. 100). Dans 30 p. 100 des cas, la population microbienne était mixte.

Des injections intra-utérines d'une solution diluée de Lugol accompagnée dans quelques cas par de l'antibiothérapie ont fait que le groupe traité à un taux de fécondité de 62 p. 100 contre 26 p. 100 dans le groupe témoin. Les auteurs concluent que la solution iodée de Lugol constitute un traitement utile chez les vaches contre ce syndrome, dans les conditions semblables à celles décrites.

TRATAMIENTO DEL SINDROME DE VACAS REPETIDORAS EN KENYA

Resumen—Se estudíaron en detalle 100 vacas repetidoras destinadas a la producción de leche, en Kenya. Aunque el 60 por ciento de ellas parecía normal clinicamente, se aislaron bacterias del útero de la mayoría (90 por ciento). El 30 por ciento de los aislamientos fue mixto.

La infusión intrauterina de una solución diluída de Lugol, combinada en algunos casos con antibióticos, resultó en una proporción del 62 por ciento de concepciones, comparada con el 26 por ciento del grupo control. Se concluye, que la solución de Lugol diluída es útil para el tratamiento del síndrome de vacas repetidoras, bajo condiciones similares a las aquí descritas.