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Antibiogram of genital discharge in repeat breeding Mehsani buffaloes

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Abstract

The overall frequencies of different bacterial isolates identified form genital discharge of repeat breeding Mehsani buffaloes were Staphylococcus Spp.(43.75%) followed by gram negative bacilli (12.5%) and proteus (6.25%).The antibiotic sensitivity pattern of these bacterial isolates revealed that maximum number of isolates were sensitive to Enrofloxacin (87.5%) and Chloremphenicol (87.5%) followed by Gentamycin (81.25%),Tetracycline (43.75%), Penicillin (31.25%), Cotrimoxazole (25.00%), Streptomycine (18.75%) and Metronidazole (12.3%).

Key words: Genital discharge, antibiogram, repeat breeder, buffalo

Introduction

Non-specific bacterial infection plays a crucial role in repeat breeding animals by causing inflammation of endometrium resulting in to early embryonic mortality (1). The treatment of repeat breeder buffalo needs proper selection of antibiotics so as to prevent development of resistant strains of organism and to eliminate the infection as quickly as possible. The continuous introduction of new antibiotics and their indiscriminate use emphasize the importance of invitro testing for specific antibiotic susceptibility. More over, recovery rate is faster when specific antibiotic is used for specific type of organism invivo. In perspective, present study was designed to identify the microflora in genital discharge of repeat breeder Mehsani buffaloes and their antibiotic sensitivity pattern.

Material and methods

The present study was carried out in repeat breeder (n=28) Mehsani buffaloes to identify the involvement of microorganisms in repeat breeder Mehsani buffaloes. Seven repeat breeding Mehsani buffaloes in each I, II and III groups were treated with Gentamicin sulphate 10 ml with 10 ml of distilled water (40 mg/ml, Gentamor-Vet, Morvel Laboratories, G.I.D.C. Estate,Mehsana), Chloramphenicol 1 g dissolved in 10 ml of distilled water, (Chloramphenicol Sodium Succinate, Makers Laboratory td., Mumbai) and Metronidazole 30 ml (Inj. Metronidazole, 0.5 g/ml, Core Health-care Ltd., Sachana,Gujarat), as intrauterine infusions for three consecutive days,respectively. Seven repeat breeding Mehsani buffaloes were kept as control(Group-IV) and not given any antibacterial drug. Instead 10 ml of distilled water was infused intrauterine for three cosecutive days.

All the repeat breeder Mehsani buffaloes were subjected to aseptic collection of genital discharge using sterile A.I. sheath and syringe for aspiration of discharge (2). The genital discharge thus collected was transferred on Hi culture TM Transport Swab with Stuart transport medium (Hi-Media Laboratories Pvt. Ltd., Mumbai) and submitted to Department of Microbiology of the College for further analysis.

Genital discharges collected were streaked over Brain Heart infusion Agar plates for cultural isolation and identification of organisms on the basis of colony characters and smear examination as described by Carter (3). Antibiotic sensitivity spectrum of isolated organisms was investigated as per the method described by Bauer et al. (4).

Results and discussion

Out of 28 genital discharge samples, 16 (57.14%) samples had bacterial growth. These results are in agreement with Kmieniecki and Sablik (5) in cows.

Table 1. Varying frequencies of different bacterial isolates from genital discharge of different group of repeat breeding Mehsani buffaloes

Group	N	Sample positive for Bacterial Growth	Sample negative for Bacterial growth	Gram positive cocci			Gram positive Bacilli	Gram negative bacilli	Mixed culture		
				Staphylo-cocci	Strepto-cocci	Total			Proteus	Others	Total
I	7	4 (57.14 %)	3 (42.86 %)	2 (50.00 %)	1 (25.00 %)	3 (75.00 %)	1 (25.00 %)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)	0
II	7	5 (71.43 %)	2 (28.57 %)	1 (20.00 %)	0 (0.00 %)	1 (20.00 %)	1 (20.00 %)	0 (0.00 %)	3 (60.00 %)	3 (60.00 %)	0
III	7	3 (42.86 %)	4 (57.14 %)	2 (66.67 %)	0 (0.00 %)	2 (66.67 %)	0 (0.00 %)	1 (33.33 %)	0 (0.00 %)	1 (33.33 %)	0
IV	7	4 (57.14 %)	3 (42.86 %)	2 (50.00 %)	1 (25.00 %)	3 (75.00 %)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)	0 (0.00 %)	1 (25 %)
Total	28	16 (57.14 %)	12 (42.86 %)	7 (43.75 %)	2 (12.5 %)	9 (56.25 %)	2 (12.5 %)	1 (6.25 %)	3 (18.75 %)	4 (25.00 %)	1 (6.25%)

Table 2. Efficacy of different antibacterial drugs against isolates from genital discharge of repeat breeder Mehsani buffaloes.

Group	Bacterial isolates	Chloremphenicol			Gentamycin			Enrofloxacin			Cotrimoxazole			Penicillin			Metronidazole			Tetracycline			Streptomycin		
		S	M	R	S	M	R	S	M	R	S	M	R	S	M	R	S	M	R	S	M	R	S	M	R
I	4	3	0	1	4	0	0	3	1	0	1	1	2	0	2	2	0	0	4	0	0	4	1	1	2
II	5	5	0	0	4	0	1	5	0	0	0	0	5	1	0	4	0	0	5	2	0	3	1	1	3
III	3	2	1	0	1	2	0	2	1	0	1	0	2	1	0	2	2	1	0	2	0	1	0	1	2
IV	4	4	0	0	4	0	0	4	0	0	2	0	2	3	0	1	0	0	4	3	1	0	1	2	1
Total	16	14	1	1	13	2	1	14	2	0	4	1	11	5	2	9	2	1	13	7	1	8	3	5	8
Percent		87.5	6.25	6.25	81.25	12.5	6.25	87.5	12.5	0.00	25.00	6.25	68.75	31.25	12.5	56.25	12.5	6.25	81.25	43.75	6.25	50.00	18.75	31.25	50.00

S = Sensitive M = Moderately sensitive R = Resistant

Among total bacterial isolates 93.75 (n=15 and 6.25 (n=1) percent were single and mixed type of isolates, respectively (Table-1).The frequency of single and mixed isolates observed in present study is in agreement with the findings of Dhoble *et al.* (6) in buffaloes and Singla *et al.* (7) in cows. In the present study,among total isolates,75 per cent were gram positive and 25 per cent were gram negative bacteria. This extent is in alignment with the observations of Derashri *et al.* (8) and Goswami *et al.* (9) in buffaloes. Among all isolates, predominant isolates were Staphylococcus Spp. (43.75%) followed by gram negative bacilli other than proteus (18.75%), Streptococcus Spp. (12.5%), gram positive bacilli (12.5%) and proteus (6.25%). The mixed type isolates comprised gram positive cocci and gram positive bacilli. Higher per cent of Staphylococcus spp. Among different bacterial species has also been reported by Osman *et al.* (10), El-nagaar *et al.*(11), Dholakia *et al.* (1), Mourya *et al.*(12) and Dhabale *et al.*(5) in buffaloes.

The antibiotic sensitivity results indicated that maximum number of isolates were sensitive to enrofloxacin (87.5%) and Chloremphenicol (87.5%) followed by Gentamycin (81.25%), Tetracycline (43.75%), Penicillin (31.25%) Cotrimoxazole (25.00%), Streptomycin (18.75%) and Metronidazole (12.3%). Apart from Enrofloxacin (87.5%) and Chloremphenicol (87.5%), Gentamycin was found to be the next most sensitive drug in the present study (Table-2). These findings are in agreement with the observations made by El-Nagaar (11), Derashri *et al.*(7), Dholakia *et al.* (1), Maurya *et al.*(12) in buffaloes.

From the present study it can be concluded that majority of bacterial isolates recovered from genital discharge of repeat breeding Mehsani buffaloes showed highest invitro sensitivity to Chloremphenicol and Gentamycin.

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