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CLINICOPATHOLOGICAL INVESTIGATION ON EQUINE ENDOMETRITIS IN AN ORGANISED FARM

J.SELVARAJ[1], M. SENTHIL KUMAR[2], R.ARUL[2], J. ANTON ROSELINE[2], W. MANOHAR PAUL[3], C. BALACHANDRAN[4], S. RAVIKUMAR[5] AND B. MURALI MANOHAR[6]

Department of Veterinary Pathology
Madras Veterinary College
Chennai-600 007

ABSTRACT

The present study was conducted to evaluate the reproductive tract status of 26 infertile mares of an organised stud farm. Caslick index for vulva conformation ranged from 14 to 118.4 (Mean 56.7). Of these, 4 mares had moderate or severe inflammation, with total protein concentration >2.5 g/dLin uterine flushings. E.coli *was found to be sensitive to gentamicin (66.6 per cent) and ciprofloxacin (66.6 per cent). Salmonella sp. was sensitive to ciprofloxacin (85.7 per cent) and enrofloxacin (71.4 per cent). B.cereus was sensitive to gentamicin, enrofloxacin, metronidazole and cephalexin (100 per cent). P.aeruginosa was sensitive to gentamicin and metronidazole (100 per cent).*

Key words: Antibiotic sensitivity test, bacterial infection, cytology, endometritis, equine.

INTRODUCTION

Infertility results in a significant economic loss in equine reproduction. There are many causes of infertility such as traumatic, inflammatory, nutritional, hormonal, neoplastic and congenital abnormalities[4,8]. The average percentage of live foals born in India was only 42.04%[1]. Hence, a study was conducted to report and compare the vulvar conformation, cytological, biochemical and microbiological findings in endometritis of mares.

MATERIALS AND METHODS

Twenty six thoroughbred mares in heat (aged 3-11 years) belonging to Chettinad Stud and Agricultural Farm, Chennai were utilised for the study. Uterine flushing (100 ml) was collected aseptically. 10 ml of uterine flushing was centrifuged at 1500 rpm for 5 minutes. Smears were prepared from the sediments, fixed in methanol, stained with Giemsa stain and examined under light microscope. The percentage of polymor-phonuclear cells, lymphocytes and macrophages were recorded and degree of uterine inflammation was classified.[3]

Swabs from sediments of concentrated uterine fluid were used for cultural examination. Routine morphological and biochemical methods were used to identify the isolates[6]. Concentrated uterine flushing was used for the estimation of total protein by semi autoanalyzer (BTS 320). Vulvar conformation of the mares was recorded at the time of sample collection by determining Caslick index[9].

[1]Assistant Professor, Dept of Veterinary Pathology, [2]Final year B.V.Sc Students, [3]Associate Professor, Dept of Veterinary Microbiology, [4]Professor and Head, Centralized Clinical Laboratory, [5]Resident Veterinarian, Chettinad Stud and Agricultural Farm, Soorapet, Chennai; [6]Professor and Head, Dept of Veterinary Pathology.

RESULTS AND DISCUSSION

Caslick index for vulvar conformation ranged from 14 to 118.4 with an average of 56.7. Mares with Caslick index below 150 had higher pregnancy rate than those greater than 150[9].

On cytological examination, 8 (30.8 per cent) mares showed evidence of uterine inflammation (Severe - 2 cases, moderate to severe - 4 cases and slight 2 cases). In addition to the neutrophils, macrophages and lymphocytes were also seen in 5 cases. Pathogens detected in the endometrial smears were coccobacilli (9/26;34.61 per cent) and yeast (2/26;7.69 per cent).

Cultural examination revealed infection in all the 26 mares showing variable degree of endometritis. Of these 26 mares, *Escherichia coli, Salmonella spp, Bacillus cereus, Pseudomonas aeruginosa, Candida albicans* were isolated from 12, 7, 4, 1 and 2 mare, respectively. These findings agreed with those of earlier reports[2,5,7]. Positive culture in many of the samples were not considered significant since endometrial inflammation was not detected by uterine cytology. False positive culture results might have occurred as a result of environmental contamination.

The microorganisms were sensitive to ciprofloxacin (70.8 per cent), gentamicin (66.6 per cent), enrofloxacin (62.5 per cent), amoxicillin (41.6 per cent), metronidazole (33.3 per cent), ampicillin (25 per cent), cloxacillin (20.8 per cent), lincomycin (20.8 per cent), chloramphenicol (20.8 per cent), cephalexin (17 per cent), tetracycline (12.5 per cent), oxytetracycline (4.1 per cent) and sulphadiazine (4.1 per cent) in decreasing order.

Among the different bacteria isolated *E.coli* was sensitive to gentamicin (66.6 per cent) and ciprofloxacin (66.6 per cent), *Salmonella spp.* to ciprofloxacin (85.7 per cent) and enrofloxacin (71.4 per cent), *B.cereus* to gentamicin, enrofloxacin, metronidazole and cephalexin

(100 per cent) and *P.aeruginosa* to gentamicin and metronidazole (100 per cent). Due to wide variations in antibiotic sensitivity of equine bacterial isolates, no antibiotic can be recommended for umbrella therapy[7,10].

Total protein concentration of the uterine flushing ranged from 0.8 to 2.8 g/dL (mean 1.78 g/dL). Mares with total protein level of 2.6 to 2.8g/dL in their uterine flushing revealed evidence of uterine inflammation and bacterial infection in 4 cases and evidence of uterine infection without inflammation in 2 cases. The increased protein concentration in the uterine flushing of these mares might be due to increased levels of secretory proteins, cellular debris, damaged tissues and lysed microorganisms. Low protein concentration in uterine flushing of other mares with isolates indicated that invading organisms could not induce inflammation[10].

It may be concluded that Caslick index, cytology, cultural examination, antibiotic sensitivity and total protein estimation of uterine flushing seem to be useful indicators to evaluate the reproductive status of mares.

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