ENDOMETRITIS IN MARES DUE TO COLIFORM AND ITS SUCCESSFUL TREATMENT

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ABSTRACT

Five broodmares with history of persistent endometritis and repeat breeding for last two breeding seasons were examined for their reproductive health by ultrasonography and the uterine samples were aseptically collected using low-volume flush technique by two-way Foley's catheter. The uterine samples were found positive for *Escherichia coli* upon culture. The mares were treated with a treatment regimen consisting of uterine lavage with normal saline + Cloprostenol (250µg, i.m.) + intrauterine antibiotic infusion based on the antibiotic sensitivity test. All mares revealed absence of uterine exudates and/or uterine wall thickening upon post-treatment ultrasound. The mares conceived after the treatment, four in the 1st artificial insemination (AI) and other in 2nd AI.

Key words: Coliform endometritis, Intrauterine infusion, Mares, Treatment, Uterine infection,

Breeding mares usually acquire uterine infections during breeding and foaling despite of varied hygienic and aseptic measures adopted by scientifically managed breeding establishments. Uterine infections that occur during foaling and breeding are of transient duration and usually resolve within 10-15 days post-foaling in post-partum mares and within 72 hours post-breeding in cyclic mares (Ricketts and Mackintosh, 1987). Old and pleuriparous mares are unable to overcome uterine infections, due to inadequate uterine defense mechanism and poor conformation, leading to accumulation of uterine fluid and subsequent development of endometritis associated with oedema and thickness of uterine wall (Hurtgen, 2006; Lu and Morresey, 2006). Incidence of Coliform endometritis is higher (Sharma *et al.*, 2011), and occurs as a result of faecal contamination of the reproductive tract (Pascoe, 1979). The innate resistance of mares to uterine bacterial and fungal infections is compromised by pneumovagina, leading to vaginitis, pneumouterus and persistent endometritis (Oral *et al.*, 2009) Without confirmation of antibiotic sensitivity test, treatment with antibiotics to endometritis affected mares sometimes may or may not be beneficial. Therefore, in the present study we discuss the *E. coli* affected endometritis and its treatment with appropriate intrauterine use of antibiotics.

Five mares with history of persistent endometritis and conception failure for last two breeding seasons were presented to Veterinary section of Equine breeding stud Hisar, for treatment. The animals were first examined by rectal palpation followed by transrectal ultrasonography using a linear array probe (operating at 5 and 7MHz frequency). The uterine ultrasound revealed presence of echogenic uterine exudates and wall thickening (Figures 1 and 2). For culture the uterine samples were collected aseptically by low-volume uterine flush technique using Phosphate buffer saline (PBS, pH 7.2) through a two way Foley's catheter. Uterine samples were cultured for bacterial growth and antibiotic sensitivity test was performed as per the standard procedures.

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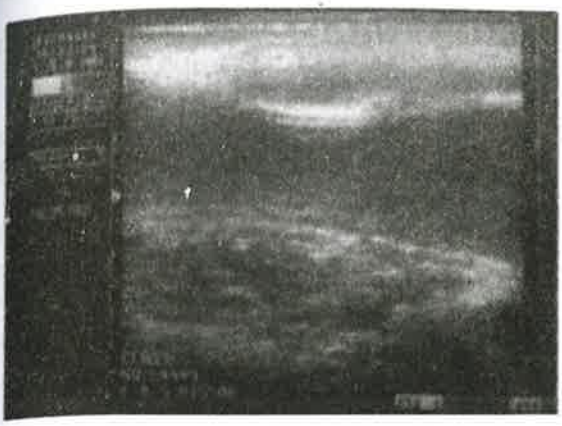

Fig. 1. Ultrasound view of longitudinal section of a uterine horn showing presence of echogenic ma terial inside the lumen.

Fig. 2. Ultrasound view of transverse section of a uterine horn showing non echogenic exudates along with distinct uterine wall thickness.

In the present study, the uterine samples of all five mares upon culture revealed presence of *Escherichia coli*. The isolates of *Escherichia coli* were found 100 per cent sensitive to Cefuroxime, Ceftriaxone, Chloramphenicol, Co-trimoxazole, Gentamicin and Tetracycline. However, *E. coli* was 100 per cent resistant to Ampicillin, Cefalexin and Streptomycin. Moreover, Ciprofloxacin was found sensitive in 50 per cent isolates and resistant in 50 per cent.

The mares were treated with uterine lavage using normal saline (500 ml) and Cloprostenol (250µg, i.m.) on day 0 of the treatment and intrauterine infusion of antibiotics was started on day 3 of the treatment. As per the economic point of view and maximum sensitivity obtained in the present study, the Gentamicin @ 2gm intrauterine infused continuously for 3-5 days depending upon the complete clearance of uterine infection. The response to treatment was evaluated by ultrasonographic examination conducted between days 7 to 10 after culmination of treatment. The post treatment ultrasound examination of all five mares showed absence of uterine exudates and/or wall thickness, and were thus declared as successfully treated for endometritis. These mares were daily teased with a vasectomised stallion for estrus detection. All five mares showed estrus and conceived (four at 1st AI and other at 2nd AI).

Early drainage of uterine debris and inflammatory exudate by uterine lavage often helps uterine inflammation to subside early (Knutti *et al.,* 2000). Troedsson *et al.* (1995) observed that saline uterine lavage was as effective as penicillin in reducing streptococcal population from the uterine lumen. Cloprostenol following uterine lavage favours the resumption of utero-ovarian cyclic function as a consequence to clearance of uterine infection with prolonged stimulation of uterine contractions (Troedsson *et al.,* 1995; Brendemuehl, 2002) as well as its effective therapeutic response in chronic endometritis with uterine lymphatic stasis (Brendemuehl, 2002). Further, Combs *et al.* (1996) observed that radiocolloid was not cleared consistently in mares after $PGF_{2\alpha}$ treatment, while Cloprostenol consistently caused the most rapid clearance of radiocolloid. Administration of Cloprostenol also causes a sustained increase in intrauterine pressure (Goddard and Allen, 1985). The prolonged uterine contractions and the possibility that Cloprostenol has a higher binding affinity for prostaglandin receptors in the myometrium (Josimovich, 1973) likely contribute to its better performance. Further, minimum inhibitory concentration (MIC) is more rapidly achieved with intrauterine administration of antibiotics as compared to their systemic antibiotic therapy (Brown *et al.,* 1984; Spensley *et al.,* 1986). In the present study, it may be

concluded that intrauterine infusion of Gentamicin along with Cloprostenol and uterine lavage may be used for the treatment of *E. coli* caused endometritis in mares.

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