Proceedings of the 12th International Congress of the World Equine Veterinary Association
WEVA

November 2 - 5, 2011
Hyderabad, India

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Endometritis is a major cause of reproductive wastage in the mare. It may be categorized as acute infectious, chronic infectious or post-mating induced endometritis. Rapid physical clearance of endometrial fluid and debris is the most important defense mechanism. In the absence of rapid clearance, infection and inflammation may become chronic, inducing permanent changes in the endometrium. Successful management of endometritis is based on restoration of efficacious uterine defense mechanisms, treatment of specific infections when indicated, and control of post-breeding inflammation.

In contrast to resistant mares, mares susceptible to endometritis retain uterine fluid and endometrial edema due to poor physical clearance. Bacterial overgrowth and accumulation of inflammatory mediators then lead to depressed phagocytosis, mucociliary clearance and lymphatic drainage. Epithelial disruption may occur allowing increased bacterial adherence. The inflammatory response changes from a neutrophilic short term physiological process promoting endometrial clearance, to a lymphocytic and plasmacytic low grade chronic inflammatory response that results in epithelial disruption, loss of normal endometrial gland architecture, and stromal fibrosis.

Diagnosis of endometritis has historically been based upon careful consideration of reproductive history, clinical examination (both physical and reproductive), and ancillary laboratory testing. Ultrasonographically evident accumulation of endometrial fluid during the estrus period is consistently associated with reduced pregnancy rates, as is excessive pre- or post-mating edema, heterogenous edema, and the presence of discontinuous hyperechoic areas in the uterine wall suggestive of air or exudates. Uterine culture and cytology are commonly deployed in the diagnosis of endometritis as they allow recovery of the causative organism and evidence of the resultant inflammation. Endometrial biopsy offers both diagnostic and prognostic information, assessing inflammatory and degenerative changes. Hysteroscopy allows direct visualization of the endometrium. However, many mares with subclinical endometritis may not overtly display clinical signs suggestive of the condition, such as accumulation of endometrial fluid or cytological evidence of infection, rendering a false negative diagnosis. This appears to be a function of the pathogen and the mare’s immune response.

A recent advance in the diagnosis of endometritis is the technique of low volume uterine lavage whereby a small volume of saline is infused into the uterine lumen then recovered for culture and cytological evaluation. This has enabled the recovery of organisms tightly adhered to the endometrium or covered in biofilm which previously escaped detection. Treatment of endometritis has historically centered on the augmentation of physical drainage by correction of anatomical defects, removal of debris by irrigation, enhancement of uterine contractility by ecbolics, and intrauterine antimicrobials for the treatment of pathogens identified. These treatments have been extensively reviewed previously by multiple authors.

Recent advances have suggested removal of protective bacterial biofilm and excessive mucus secretions by the use of solvents and mucolytics is of benefit. Biofilm is a mucoid product of bacteria and yeast facilitating colonization of epithelial surfaces and providing resistance to antimicrobial action. Excessive mucus exudation by the inflamed endometrium and inspissated glandular mucus potentially delay transport of spermatozoa...
and promote further inflammatory changes. Instillation of DMSO, N-acetylcysteine and kerosene has improved pregnancy rates in affected mares. Chelating agents have shown promise in improving antimicrobial penetration into endometrial pathogens and biofilms. Tris-EDTA usage has shown synergism with antimicrobials in the killing of bacterial uterine pathogens \textit{in vitro}. Modulation of the immune response to enhance pathogen removal and control concurrent endometrial inflammation increased treatment success in affected mares. Induction of non-specific macrophage activation and cytokine production has shown the ability to more rapidly clear experimentally induced bacterial endometritis. Corticosteroid usage in conjunction with routine post-breeding therapies has improved pregnancy rates in mares with a history of fluid accumulation post ovulation.