Clinical evaluation of leukocyte esterase as a means of detecting endometritis in the mare
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Clinical endometritis is a leading cause of financial loss in the equine breeding industry. While diagnosis of endometritis is traditionally performed using endometrial culture and cytology, leukocyte esterase (LE) has recently been demonstrated to be useful for diagnosing clinical endometritis in dairy cattle.\(^1\) The aim of this study was to describe the results of LE test in a population of forty-eight mares from different farms (44 TB, 1 STB, 1 FRS, 2 QH) with a mean age of 11.27 years (range 3 to 24 years). One mare was tested twice, for a total of 49 subjects. When a veterinarian determined a mare was in estrus, an endometrial swab for aerobic culture and cytology was obtained and processed as previously described.\(^2\) Cytologic evidence of inflammation was classified as: normal/mild (1 to 2 leukocytes/100x field), moderate (3 to 5 leukocytes/100x field), or severe (>5 leukocytes/100x field). After culture and cytology were obtained, a new double-guarded swab (Kalayjian Industries, Inc., Signal Hill, CA) was placed through the cervix and extruded into the uterus. An endometrial scraping was then retrieved using the cap, which was guarded upon withdrawal. The cap was then cut from the pipette into a red-top tube containing 1 mL of sterile 0.9% saline, and the tube was agitated. A Jor-Vet, Vet10 Urine Reagent Strip (Jorgenson Laboratories, Inc., Loveland, CO) was briefly immersed into the sample fluid. The test strip was photographed after two minutes, and the results were blindly recorded using the following manufacturer scale: negative (0 leukocytes/µL), trace (15 leukocytes/µL), small (70 leukocytes/µL), moderate (125 leukocytes/µL) or large (500 leukocytes/µL). This test has not been validated as a method of identifying leukocytes in equine uterine fluid, but studies in cattle have shown a high correlation between the presence of uterine inflammation and positive LE test results (96% sensitivity 98% specificity).\(^3\) Of the mares evaluated, 21% (10/48) had positive LE test results (6 trace, 2 small, 1 moderate, 1 large). All six mares with trace LE results had inflammation, and three of the six had positive cultures. Both mares with small LE had severe inflammation but negative cultures. The moderate and large LE mares had severe inflammation and positive cultures. Of the thirty-nine mares with negative LE results, thirty-five were negative for both inflammation and culture growth. The other four mares consisted of two with inflammation but negative cultures, and two others with positive cultures but no inflammation. This study describes the use of the LE test as an aid in diagnosing inflammation associated with endometritis in the mare. Further investigation is necessary to confirm this assay as a stall-side test for endometritis.

**Keywords:** Endometritis, mare, leukocyte esterase assay, cytology

**References**