

Mare reproductive loss syndrome



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Mare Reproductive Loss Syndrome Mare Reproductive Loss Syndrome is characterized by early as well as late term fetal losses in mares whose etiology was a mystery for quite some time. According to the Merck veterinary manual, an explosive increase in abortions in mares of all breeds of horses was noticed in the state of Kentucky in 2001. Foals who aborted at an early stage of gestation, usually at 35-90 days of gestation died within the uterus before abortion. Foals which aborted at a late stage of gestation were weak, dehydrated, septic or dead (merckvetmanual. com). It was observed that the weather at that time in March was unusually cold followed by above normal temperatures in April, which stimulated rapid plant growth and concurrent increase in the number of eastern tent caterpillars. Wild Cherry trees were the principal source of food for these caterpillars. Lack of abortion in areas where these caterpillars did not exist and later experimental intragastric inoculation of pregnant mares with caterpillar extracts confirmed the reason for these abortions (merckvetmanual. com).

The MRLS syndrome in addition to early/late fetal loss is characterized by uveitis, pericarditis and encephalitis and occurs due to tissue penetration by barbed setal fragments from Eastern tent caterpillars, *Malacosoma americanum* (Tobin et al, 2004). After ingestion the barbed setal fragments migrate through moving tissues followed by rapid spread of bacteria, bacterial emboli and septic fragments of setae, collectively known as septic materials (Tobin et al, 2004). A number of bacteria are carried by the setal fragments in moving tissues, blood, uterus and fetal membranes of pregnant mares. Pharmacokinetic studies and studies on the structure of the setae revealed barbs on them which facilitated the rapid spread of bacteria as hitchhikers. Clinically affected tissues show a poor antibacterial response as

bacterial contamination of tissues and extracellular fluids is very rapid. It has been proposed that MRLS also includes an immunosuppressive mechanism which predisposes the affected horses to opportunistic bacterial infection (Flaminio et al, 2005). Pathological lesions when MRLS is suspected are consistent with bacterial infection as the cause. Streptococcus, Actinobacillus species and Serratia were some of the prominent bacterial species isolated from horses suffering from MRLS.

Sebastian M. M. et al (2008) propose two hypotheses for MRLS. According to one, the syndrome is produced due to an Eastern tent caterpillar toxin complicated with secondary bacterial infection. The other suggests that a breach of gastrointestinal mucosal integrity by the sharp barbs on caterpillar hairs leads to subsequent bacteremia. Caterpillar exposure nevertheless has been confirmed as the precipitating cause of MRLS due to evidence collected from different regions of the world.

Research is still ongoing on various aspects of MRLS as various hypotheses are being tested for reasons as diverse as some unknown toxin, virus, yeasts or molds being responsible for the syndrome.

Whatever the reason, the only means of prevention till date from MRLS is by controlling the population of caterpillars during their breeding season and preventing access for the equine population to fodder contaminated with these caterpillars. In areas where such instances have occurred, such as Kentucky and Ohio, adequate warnings are issued at the right time to prevent the occurrence of MRLS.

Works Cited

Flaminio M. Julia B. F., Nydam Daryl V. Sebastian Manu Bernard William V., Tobin Thomas, Hillegas Julia M. and Matychak Mary Beth, (2005), The Mare Reproductive Loss

Syndrome (MRLS) and the Eastern Tent Caterpillar:

Mare Reproductive Loss Syndrome, Information available online at:

<http://www.merckvetmanual.com/mvm/index.jsp?cfile=htm/bc/110311.htm&word=MRLS>

Sebastian MM, Bernard WV, Riddle TW, Latimer CR, Fitzgerald TD, Harrison LR., (2008), REVIEW paper: mare reproductive loss syndrome, Vet Pathol. 45(5): 710-22

Tobin Thomas, Harkins J. Daniel Roberts John Ford VanMeter Patricia W. and Fuller Tara A. (2004), The Mare Reproductive Loss Syndrome and the Eastern Tent Caterpillar II: A Toxicokinetic/Clinical Evaluation and a Proposed Pathogenesis: Septic Penetrating Setae, Intern J Appl Res Vet Med Vol. 2, No. 2.