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The Problem Mare: Uterine Abnormalities I

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Take Home Message—Mares may exhibit a variety of reproductive problems during the breeding season. A list of some the abnormalities that may be encountered in clinical broodmare practice is presented in the following table. This manuscript will describe persistent mating induced endometritis. A second manuscript will address other uterine abnormalities.

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I. MATING-INDUCED ENDOMETRITIS

A transient inflammatory response in the endometrium is an inevitable consequence of mating by either natural service or by artificial insemination. Evidence indicates that most of the uterine inflammation is due to an antigenic response to the presence of spermatozoa.

Diagnosis

Diagnosis is made on the basis of the presence of echogenic fluid in the uterine lumen on ultrasound examination 12 to 24 hours after insemination of the mare, as most normal mares will have cleared the inflammatory fluid associated with the insemination of spermatozoa by that time period. Additional diagnostic tests are not typically performed, but could include detection of the presence of white blood cells on cytology and an absence of bacterial growth on culture.

The inflammatory response is characterized by an influx of neutrophils into the uterine lumen and serves to clear the uterus of non-viable spermatozoa, seminal plasma and possible bacterial contamination. The inflammatory response begins within one-half hour after insemination. Neutrophil numbers are highest at approximately 8 hours post-mating and neutrophils disappear by 24 to 48 hours in normal mares. The intensity of the inflammatory response may be dependent on the concentration of spermatozoa introduced into the uterus. Insemination with frozen-thawed spermatozoa into the equine uterus may lead to an enhanced inflammatory response, due to the absence of seminal plasma in frozen semen.

A majority of young, reproductively normal mares are capable of eliminating the inflammation within 24 to 48 hours of breeding. In contrast, the post-mating inflammatory response may develop into a pathologic condition in older susceptible mares that cannot physically clear fluid and inflammatory products from their uterus. If the uterine inflammation persists, the embryo will not survive when it enters the uterus 5-6 days after ovulation. Persistent uterine inflammation may also result in premature luteolysis or short-cycling.

Management of persistent mating-induced endometritis is aimed at limiting the severity and duration of the inflammatory response and clearing the uterus of fluid, inflammatory by-products and bacteria.

Treatment

The number of matings or inseminations should be limited in susceptible mares, and artificial insemination should be used to reduce the number of bacteria introduced into the uterus, if A.I. is permitted by breed regulations. Oxytocin (20 IU) may be given intravenously 4-8 hours after mating to stimulate uterine contractions and provide physical clearance of fluid and inflammatory by-products. Oxytocin does not appear to adversely affect the transport and function of gametes within the oviducts and does not adversely affect fertility. The uterine lumen may be lavaged with 1-4 liters of sterile saline or sterile lactated Ringer’s solution 4-24 hours after mating. The lavage is typically performed using approximately 1 liter of fluid at a time and is repeated until the recovered fluid appears clear. Intruterine antibiotics are generally not necessary in mares with persistent mating induced endometritis, unless the presence of bacteria is suspected or has been confirmed.