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Veterinary advice for horse owners

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Why does my mare slip?



Susan Salter
examines what can
be done to prevent
mares from slipping
their pregnancies

THE loss of one valuable pregnancy can be devastating to a farm. Proven mares are usually in their teens and thus are at a higher risk of pregnancy loss. A mare that has slipped before is at higher risk of slipping again than those who have never slipped before. The financial burden ensued by the owner is large but presently accepted from year to year for 'the odd one that slips.' Regumate is often the recommended solution...but what caused the problem in the first place? This article attempts to introduce you to some of the pit falls and solutions discovered by research and the endeavours of equine reproduction enthusiasts to help you get that healthy foal on the ground.

A mare's gestation is approximately 11 months duration. 60% of pregnancies that are lost occur within 45 days of ovulation. Genetic, environment and hormonal factors play a role in pregnancy survival. The corpus luteum (CL) functions to produce progesterone for pregnancy maintenance. A healthy endometrial lining and adequate blood flow are required to provide nutrition and a healthy reproductive tract with adequate barriers preventing ascending infection is needed. If one or more of these factors function at a sub-optimal level then the pregnancy may not survive.

The mare's body condition influences her ability to conceive. Having your mare well turned out but not overweight is a necessity. Stress and pain cause a mare to release chemicals e.g. adrenaline which has a detrimental effect to the blood flow and health of the pregnancy. Keeping mares in smaller groups free from bullying, having adequate hoof care and good dental care etc. are important husbandry aspects which increase your chances of a live foal. EHV is the most common infectious cause of abortion and is endemic in many environments. Pregnant mares should be vaccinated for EHV 1-4 at five, seven and nine months of gestation with some veterinarians recommending another vaccine at three months.

ENDOMETRIAL CYSTS

Endometrial cysts have no direct effect on pregnancy survival unless a cyst is large and the pregnancy implants beside it, blocking its ability to gain nutrition from the endometrium. Large quantities of endometrial cysts however maybe a sign of poor lymphatic drainage and consequently a reduced ability to expel uterine fluid. It has been suggested that cysts interfere with maternal recognition leading to early embryonic death. However, this theory



There are many factors involved in getting a healthy foal on the ground including genetic, environmental and hormonal factors

(by Ginther) has not yet been proven. Maternal recognition factor(s) have not yet been identified and so we cannot blame cysts for interfering in a process which has not yet been identified.

UTERINE FLUID

Uterine fluid accumulation plays a role in stopping mares from conceiving in the first place. It also plays a role in embryo loss and an early pregnancy surrounded by uterine fluid is often a sign of looming failure. I like to call the clean-up process "the immaculate conception." If her uterus is immaculate then she may have a conception!

EARLY EMBRYONIC DEATH

After cover, your mare should be checked for ovulation. Important information can be extrapolated later in the pregnancy if the timing of ovulation +/- 12 hours is determined (easily done with 48 hour checks).

We normally check for pregnancy at 14 days post ovulation, however detection on ultrasound is possible at 11 and 12 days. Between 13 and 15 days post ovulation a pregnancy's growth rate should be relatively constant. At this stage, if it is more than two days small for age then it has a significantly increased chance of failure.

It is reported (by Newcombe) that 25-35% of pregnancies are lost before the first pregnancy exam. Recently some drugs e.g. buserelin have been shown to play a role in reducing pregnancy loss (by up to 10%) prior to the first exam. Drugs which improve uterine blood flow are also being used prior to the 14 day check with relative success in reducing early embryonic death.

DOUBLE TROUBLE

Until recently, twins have been the primary cause of abortion in thoroughbreds. Owners demand effective management programmes to avoid their survival. Reports in Germany say that abortion in thoroughbreds has halved since the invention of ultrasound. Twin identification and squeezing is best done early and prior to fixation of the pregnancy to the endometrium which happens at 16 days. In the early stages, one twin is often small for age and destined to die anyway but not always which is why we ablate one. There are salvage techniques available later in

gestation in the event of twin survival eg. between 36-60 days and 60-100 days however they are tedious and best avoided.

REASONS FOR USING REGUMATE

From reading the literature, it is evident that a universally accepted progesterone level adequate in supporting pregnancy has not yet been achieved. There are conflicting reports which try to either prove or disprove that progesterone sufficiency exists. A report that 'concerned a mare which had low plasma concentrations of progestagen on day 20 despite being pregnant and carrying to term' suggested that peripheral progesterone levels need to be high enough only to keep the cervix shut and to prevent excessive uterine motility. This value is lower than 4 ng/ml which is a guideline value accepted by many laboratories in indicating a healthy pregnancy.

It is important to distinguish in candidates for regumate treatment whether there is abnormal progesterone secretion in a normal environment or normal progesterone secretion in an abnormal environment. This will help the clinician to determine the dose that he/she may want to administer.

Abnormal progesterone in a normal environment: At the 14 day check, we can estimate the health of the CL. In the event that it looks unhealthy and the vesicle size is normal, then your veterinary surgeon may take a progesterone assay and recommend regumate at a dose of 10 mls per 500 kg. In practice 'CL' health can be recognised by defining its echogenicity (colour). Researchers are investigating the nature of CL blood flow; a new method in defining CL health. Inadequate levels of progesterone are said to cause only 6% of pregnancy failures.

Normal progesterone in an abnormal environment: At a higher dose

of 20 ml per 500kg, regumate functions to improve endometrial blood flow and increase cervical tone. Some veterinary surgeons use an even higher dose, particularly if there are concerns with the function of the cervix. We can visualise markers of uterine health at the 14-day check e.g. the presence or absence of a pattern called "oedema". This pattern is normal when a mare is in season but if it exists at 14 days in the presence

of a healthy CL then its nature should be questioned. Oedema solely around the vesicle is considered insignificant, however a diffuse uterine oedema pattern maybe a marker of poor blood flow. Other drugs can compliment the use of high dose regumate in improving blood flow at this time.

At 45 days, a mare should have developed endometrial cups and consequently accessory CLs which supplement progesterone. These maintain pregnancy until the placenta is fully developed at roughly 120 days. Between 45 and 120 days, there are varying protocols for regumate administration. It maybe advised to keep the mare on regumate if blood flow and cervical function are a concern or taken off regumate if concerns regarding abnormal primary CL function are no longer an issue due to the presence of accessory CLs.

PLACENTAL FACTORS

Pregnancy maintenance is taken over by the developed placenta at approximately 120 days. Most mares lose their pregnancies from this point on due to infection, poor blood flow or a combination of both. Veterinary surgeons use ultrasound to diagnose the diseased placenta by measuring its thickness. Because infection is the major complication, antibiotics which penetrate the uterus have formed the basis of placental treatment. However resistance to commonly used antibiotics is an increasing problem and monitoring is required to observe an adequate response. Regumate, anti-inflammatories and drugs which help placental blood flow are also given.

Albeit this information, one must appreciate that there are exceptions to every rule and that miracles can happen.

A native of Laois, Susan Salter (BSc (Hons), BVM&S, MRCVS) graduated from Edinburgh in 2011. She is stud medicine-focused having trained with a world expert in the UK. She has just completed a breeding season in Fermoy and is soon to begin another in Australia while completing a certificate in equine stud medicine. For any questions about the content of this article, feel free to email her to suevet16@gmail.com.



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