

## **FOALING DISASTERS: WHEN NOT TO PANIC**

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### **INTRODUCTION**

Foaling can be a hazardous time in the life of a mare and very traumatic for owners if things don't go as planned. The process of foaling is quick and explosive and therefore things can go bad very quickly. Equally important is the time before and immediately after foaling. However, there is no reason to panic, as a veterinarian with a calm attitude can soothe even the most fractious owner.

### **EMERGENCY SITUATIONS PRE-FOALING**

#### **Colic/Uterine torsion**

Colic in the late term pregnant animal can be difficult to diagnose an exact cause as the large size of the fetus impairs diagnostic options. Certainly, in any colicky animal, a gastrointestinal (GI) cause should be ruled out using standard diagnostics (palpation, nasogastric tube, clinical signs). In colicking mares that are 7-10 months gestation, uterine torsion should be a top differential. Clinical signs are typically a low grade chronic colic that responds to analgesics initially, but then becomes painful again. Mares that have a higher degree of torsion, or have GI lesions concurrently, can present extremely painful. Diagnosis is made by transrectal palpation. The uterus rotates within the abdomen causing tension on the broad ligament. If the rotation is clockwise (when facing the back of the horse), the left broad ligament will be tight across the dorsal abdomen while the right ligament will dive ventrally on the right lateral side of the abdomen. A counter-clockwise rotation would be the opposite. Uterine torsion in mares occurs cranial to the cervix so there is rarely a palpable vaginal spiral (as is common in cows). Treatment options include "rolling" the mare under general anesthesia in the direction of the torsion with a large board placed over the uterus with someone of sizable stature standing on the board ("plank in the flank"). The mare is then rolled slowly while the uterus is held in place by the weight of the person on the board. If not successful, the mare's feet should be slid under her to move her back into the correct lateral position and another roll attempt made. Transrectal exam should be performed following each roll attempt to assess status. Surgical options include correction via standing flank laparotomy or ventral midline if there are concurrent GI lesions that also need to be corrected. Prognosis depends on the degree of torsion, vascular compromise of the uterus and fetus, and stage of gestation. Following successful treatment, care should be taken to restrict activity of the mare until delivery of the foal to prevent recurrence.

#### **Premature Lactation**

Udder development in mares should be gradual as they near their due date, increasing more rapidly in the final 2 weeks. If a mare exhibits significant udder development with or without dripping of milk, this is a sign that parturition is likely imminent. The most common differentials for this are placentitis and twin pregnancy, although any cause of abortion may present with premature udder development. Mares with this clinical sign should be examined immediately, and, if a cause is determined, it should be treated aggressively if the pregnancy is to be salvaged. Oral altrenogest (0.088mg/kg orally once daily) should be given to promote uterine quiescence, flunixin meglumine (1.1mg/kg IV or PO twice daily) should be given as an anti-inflammatory to block the inflammatory cytokines and prostaglandins that initiate the foaling process. Other treatments would be used as needed depending on the inciting cause.

#### **Body Wall Hernia/Prepubic Tendon**

These two conditions are difficult to differentiate but are treated similarly. These tend to occur in older multiparous mares late in pregnancy. It is thought that the older mare has a weaker abdominal wall and therefore the increased weight of the pregnancy in the last few months of gestation cause a tearing of the muscles. This condition should be differentiated from normal ventral edema that may occur late in gestation due to decreased circulation of lymphatics caused by the pregnancy. With a body wall hernia, the udder location is shifted ventrally and cranially and may be visualized at the level of the stifle or lower. The ventral abdominal wall is flattened, lacking the natural curve as it ties into the udder region. With a prepubic tendon rupture, the pelvis can be tilted cranially. Treatment depends on severity of the mare and her level of pain. Often, these are very painful conditions and analgesia including NSAIDS should be implemented. Many mares also benefit from an epidural catheter providing analgesia. A tight belly support wrap should be placed and worn at all times. Careful monitoring of the mares is essential to ensure GI contents do not become entrapped in the hernia. Gestation should be shortened to alleviate the weight of the foal in the abdomen, however,

owners should be cautioned that premature induction may lead to a nonviable foal. High doses of dexamethasone (100mg IM once daily for 3 days) shortened gestation length and resulted in normal foals when administered days 315-317 gestation in normal thoroughbred mares. This treatment has also been used in clinical cases with good success where a shortened gestation was necessary due to the status of the dam. However, due to the high dose of steroids, it should be used cautiously and only when other options are not available. Mares with abdominal wall hernias and tendon ruptures lack the abdominal push required deliver the foal so assistance will be needed during foaling. Rebreding affected mares is not recommended. If their genetics are valuable, embryo transfer may be an option in some breeds.

## **EMERGENCY SITUATIONS POST FOALING**

### **Uterine Artery Hemorrhage**

Hemorrhage of the uterine artery most often occurs in older multiparous mares. This is a life threatening and often fatal condition. Signs may be missed initially due to the foaling process and pain associated with passage of the foal and placenta. However, if hemorrhage is severe, clinical signs such as colic, sweating, tachycardia, poor perfusion, pale mucous membranes, etc will persist. Mares with an artery rupture present in severe shock and often die before treatment can be initiated. If the bleed is contained within the broad ligament, the prognosis is improved. Diagnosis is usually made from clinical signs of shock, tachycardia, tachypnea, and poor perfusion to the mucous membranes. Transabdominal ultrasound shows free fluid within the abdomen and an abdominocentesis would confirm the diagnosis. The packed cell volume of the abdominal fluid will often closely mirror the peripheral packed cell volume. Initially, anemia is not evident as the blood loss is whole blood, and there is a compensatory response with splenic contractions and arterial constriction. Transrectal examination will assist in diagnosis of hemorrhage into the broad ligament, but extreme care should be made when palpating these mares as the hematoma can rupture leading to a full bleed into the abdomen. Minimizing stress on the mare is vital for treatment. Placing her in a quiet dark stall, administering analgesics, and minimize handling. Sedation should be used with extreme caution. Acepromazine is contraindicated due to the vasodilation caused. Alpha 2 agonists should also be used only if necessary as they cause an increase in blood pressure due to vasoconstriction that can lead to disruption on a clot and increased hemorrhage. Other treatments include blood transfusion, antibiotics, and antifibrinolytic therapy (aminocaproic acid). Formalin has been used historically, but current research is lacking as to its efficacy. There are reports of mares that have been successfully rebred after a previous artery rupture, but extreme caution should be taken, and, in general, re-breeding is not recommended.

### **Tears**

Because foaling is an explosive event, if the foal is not in the correct position, tearing of the tissue can happen. Uterine tears may occur as the foal kicks during delivery, thus placing a hoof through the uterus. They are also common following a dystocia. Diagnosis can be made by transvaginal palpation and clinical signs consistent with peritonitis. Treatment is generally surgical correction.

Cervical tears can also occur and are not typically life threatening, but can severely compromise the reproductive career. These most often occur if the foal is delivered before the cervix has time to dilate. Care must be taken to allow the cervix to fully dilate as the foal comes through the vaginal vault before engaging the shoulders. If assisted foaling is performed too rapidly or too forcefully, the cervix may be damaged during the delivery. It is best to caution owners not to intercede if the foaling is going well (don't pull on the foal too soon), and, when necessary, only assist when the mare pushes.

Vaginal tears are fairly common and result from either large foals, or malposition of the foal leading to tears in the vaginal vault. Grading ranges from least severe (grade I: mucosal tear) to most severe (grade III: full thickness tear of vaginal and rectal tissue). Although concerning for owners, these are not typically an emergency. Healing must occur before they can be repaired so they should be left open for at least 30 days to allow healthy tissue to remain. Often, a full grade III will be repaired when the foal is weaned, as the mare must be taken off all hay and fed only a gruel which could affect her milk production for the foal. Once surgically corrected, the uterus can be lavaged and treated for contamination that occurred as a result of the defect. Mares can be re-bred, but due to the scar tissue, mares are likely to tear again with subsequent foaling. Embryo transfer may be a more suitable alternative for preserving genetics.

### **Miscellaneous**

Hemorrhage into the uterus is different from a uterine artery bleed as the blood is evident vaginally. Uterine tear should be ruled out as a cause. Uterine bleeding is often self limiting, but can be significant if a vaginal artery is damaged during delivery. A complete examination should be performed to determine the source of the bleed

and hemostasis should be implemented. If it is from the uterus itself, ecbolics such as oxytocin (10-20 IU IM) will assist in uterine contraction and involution, and therefore hemostasis. Uterine lavages should be performed only with caution until the active bleeding resolves.

Retained placenta is an emergency after approximately 6 hours. Sepsis, endotoxemia, laminitis, and death are all potential outcomes. Affected mares should be treated aggressively. A "Burns technique" is recommended where isotonic water is pumped inside the placenta (into the allantoic cavity) to distend the uterus and placenta and promote release. The uterus should be filled and water held for 5-10 min before draining. This author uses isotonic distilled water (add 34 grams or 20 cc of salt to one gallon of distilled water). In a post partum mare, 4-6 gallons are often necessary to fully dilate the uterus. An alternative technique has been described where a stallion catheter is placed into the umbilical artery of the exposed placenta. Water is then pumped into the umbilical artery through this catheter to dilate the vasculature and promote release of the placenta. Once the placenta is released, uterine lavages should be continued once daily until clear to remove additional contaminants from the uterus. Antibiotics, anti-inflammatories (flunixin meglumine), and oxytocin (20 IU IM or IV every 4-6 hours) should also be used until the placenta is passed. With prompt and aggressive treatment as described above, most mares have a good prognosis for life and future fertility. This author has treated placentas retained for longer than 72 hours with an excellent outcome. Concurrent laminitis prevention is also recommended (ice boots, frog support etc). Manual removal of the fetal membranes in the mare is contraindicated as it will result in tearing of the tissue leaving placental tissue in the uterus and damage to the endometrium leading to metritis.

Evisceration of the intestinal contents through the vaginal canal is life threatening for the mare. If acute, the tissue can be cleaned, wrapped and replaced within the vaginal vault and the mare immediately referred for abdominal surgery with resection of the affected bowel. If the bowel is compromised, or a large segment is eviscerated, the mare is usually euthanized.

References available upon request.