

How to Deal With Dystocia and Retained Placenta in the Field

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1. Introduction

Parturition in the mare is a fast and explosive process. It often takes less than 2 hours, with actual delivery of the foal being less than 30 minutes.¹ There are three distinct stages to parturition. Mares that have trouble foaling or those with intrapartum or postpartum medical problems may have jeopardy to their health and that of their foal. Foaling difficulties may be more grave when mares are not in a hospital setting. The objective of this paper is to discuss foaling problems that are often encountered in the field and how to deal with them

2. Foaling

Stage 1 is considered the preparatory stage and is characterized by restlessness, walking, frequent urination, and sweating. The duration of stage 1 is usually about an hour and ranges from 10 minutes to 5.5 hours. However, mares can often show signs of discomfort for several hours or days. Mares with prolonged stage 1 labor should be examined to determine presentation of the foal. The foal has an active role in the birth process and rotates from a dorso-pubic to a dorso-sacral position during first-stage labor.² An inability to reposition itself can lead to prolonged first stage. A rectal ultrasono-

graphic image of the head and presence of the foal's eye will ensure that the foal is in an anterior presentation. During stage 1, there are only uterine contractions and no abdominal press.

Stage 2 begins with the rupture of the chorio-allantois, normally at the cervical star, and the passage of allantoic fluid, a brownish-yellow, somewhat opaque-appearing fluid.

Stage 2 lasts about of 15 to 30 minutes and consists of forceful uterine contractions and abdominal press. Normal birth is characterized by presence of the amnion through the vulva, within a few minutes after rupture of the chorio-allantois. A front foot appears first, followed by the other foot approximately 6 inches behind, and then the muzzle. All are encased in the amnion. It is not uncommon for mares to rise, walk around, and then go down once or twice during the initial minutes of second stage.² During the birth of a normal foal, it is also common to observe that the front legs of the foal will move back and forth as the mare presses with the abdomen. This is part of the active role that the foal plays in squaring the shoulders to pass thorough the pelvic inlet. Delivery of the foal once the abdominal press is active should not last more than 30 minutes.¹ If the mares keeps getting up and down

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with no signs of progression; if there appears to be vulvar protrusion of the chorio-allantois (red bag); or if only one leg and a muzzle, two legs and no muzzle, or only one leg is present out to the carpus or one or both legs are protruding out the vulva, prompt intervention is necessary.²

Dystocia

Dystocia is not common in mares and is most often due to abnormal presentation and or posture of the foal. Prompt assessment of the cause of dystocia is important, as is relatively rapid decision-making as to the course of action. First, the obstetrician must assess if the foal is in anterior or posterior presentation (fetal head or sacrum present under the mare's pelvis). Once this is determined, the operator must determine what is preventing a normal delivery, for example, flexed limb(s), neck, or head. If both front feet and the muzzle are in the canal, allow the mare to continue. If strenuous contractions continue for another 10 minutes without significant progress, assist delivery. The veterinarian must never forget that the foal is an active participant in parturition and that a weak or dead foal could be causing the dystocia. Diagnosing and repositioning a foal is best performed with the mare standing. Uterine fluids should be replenished, using a water-soluble lubricant, followed by retraction and repositioning of the foal. If the person assisting the mare is not able to make significant progress in correcting the dystocia within 10 to 15 minutes, it is recommended that the mare be anesthetized using a combination of xylazine and ketamine and the hindquarter of the mare be elevated. Elevation of the hind quarters can be done with a front-end loader by lifting the mare from the ankles. One rope should be placed on each leg.

Unlike cattle, dystocia in the mare is usually due to abnormalities of fetal positioning and posture, caused by the long limbs and neck of the foal, or congenital deformities such as wry neck, contracted tendons, or ankylosis of joints. Rarely, dystocia in the horse is due to feto-maternal disproportion.

Premature Placental Separation (Red Bag Delivery)

Premature placental separation or red bag delivery is a type of dystocia not always related to fetal malpositioning or posture. A prolonged first stage of labor or a mare with a weak foal that is unable to break the cervical star could result in a premature placental separation, most commonly known as a red bag delivery. Other risk factors for this condition include placentitis, fescue toxicity, twinning, and induction of parturition. Transfer of oxygen to the foal occurs through the chorionic attachment of the placenta to the uterus. If there is a large portion of the chorion that separates prematurely from the uterus, the foal will start undergoing a hypoxic process, fetal stress, meconium release, and in most severe cases, fetal death.

Red bag will often be recognized by forceful abdominal contractions without chorio-allantoic fluid being expelled and often the presence of the chorion or a velvety membrane in the vagina or through the vulva. Failure to act quickly in a premature placental separation delivery can result in fetal anoxia, and, if prolonged for excessive periods of time, fetal death. To alleviate this situation, the attendant must look for a sharp object and rupture the membrane to release the pressure and then assist in foal delivery.

Delivery of the fetal membranes is considered stage 3 and the culmination of the birthing process. Expulsion of fetal membranes is considered normal if it occurs within the first 3 hours after parturition which has been arbitrarily considered to be the normal time. Evaluation of the membranes should be a routine procedure after delivery. The membranes should be examined to ensure they have been passed in their entirety. Retained fetal membranes, most commonly in the nongravid horn, can result in serious consequences such as metritis, endotoxemia, and laminitis if left unattended in a mare.

The amnion, umbilicus, chorionic, and allantoic surface of the placenta should be evaluated for intactness, color size, and weight. Areas of hypoplastic or aplastic villi may indicate endometrial pathology and warrant further investigation, especially in a mare that was difficult to get in foal or had an abnormally long gestation.

The chorionic surface should be inspected closely for signs of placentitis, including discoloration, exudates, or abnormal thickening. If the placentitis has an ascending infection through the cervix, a thickened area extending from the cervical star will be evident. The affected portion of the placenta will be thickened, discolored, and the villi will be blunted. It may be covered with an exudate. Any abnormal areas may put the foal at a high risk of septicemia. If indications of placentitis are detected at the time of delivery of the fetal membranes, treatment of the foal can be initiated immediately, before the foal begins to show signs of clinical illness. The initiation of early treatment may make the difference in success or failure of treatment.

Retained Fetal Membranes

Separation of the fetal membranes from the endometrium is an ischemic process of the placental villi separating them from the contracting uterine crypts. This process is aided by the loss of placental blood through the umbilical arteries into the foal in the first few minutes after delivery. Once the umbilical cord is ruptured and the mare stands, uterine contractions after foaling in combination with traction applied to the chorion from the weight of the amnion eventually results in release of the fetal membranes from the uterus. Complete or partial retention of the fetal membranes is one of the most common problems of the mare in the early

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postpartum period. Its incidence increases after abortion, dystocia, obstetrical manipulations, cesarean surgery, induction of labor, placental infections, and fescue toxicity.^{3,4} If fetal membranes are not expelled promptly, the attached membranes become necrotic, followed by a severe inflammatory reaction. In addition, rapid bacterial growth may lead to toxic metritis, endotoxemia, laminitis, and founder. The percentage of broodmares that retain their placenta ranges from 2% to 10%, and it is considered that mares with a history of retained fetal membranes have an increased risk of repeating.

Severity of illness is not associated with the quantity of membranes retained. Affected mares may not exhibit clinical signs of illness in the first few hours after foaling. By 12 to 24 hours, most mares become depressed, anorexic, and dull. Some will have a fever, regardless of the amount of membranes retained.⁵

Strategies for managing retained placentas vary, depending on the duration of the retention and the accessibility of the mare (clinic or field). The first line of action shortly after foaling involves the tying of the amnion and umbilical cord above the hocks to avoid the mare stepping on it, and the administration of 10 to 20 IU IM or SQ of oxytocin every 2 to 3 hours to the mare.⁶ If oxytocin therapy is not successful and the membranes are thought to be intact, then a large volume of fluid can be infused in the allantoic space to promote uterine contractions in the areas of the uterine horns (Burns Technique).⁷ Conversely, a large-volume uterine lavage can be performed in an effort to promote separation of the chorionic surface from the uterus. In this case, the membranes are not necessarily intact and the fluid will run in between the chorion and the uterus. If the placenta remains attached, this procedure will at least have removed a significant amount of bacteria, endotoxins, and debris from the uterine lumen. The oxytocin and uterine lavage treatments may have to be repeated several times until the placenta is passed.

Although manual removal of retained placentas in mares is somewhat controversial, it must be considered as a first option when the clinician is in ambulatory practice and is unable to see the mare several times in a day.⁸ In the authors' experience, manual removal, if done slowly, does not pose a serious health risk to the mare or her future fertility.

However, if not done properly and in an aggressive form, manual removal has been associated with severe hemorrhage, placental tearing, delayed uterine involution, endometrial damage, intussusception of a uterine horn, and uterine prolapse. Regardless of the length of retention, it is advisable to start the mare on systemic antibiotic therapy at the time of first exam. Additional medical treatments for mares with a retained placenta may include nonsteroidal anti-inflammatory drugs and medications or management practices to prevent laminitis. The antimicrobial regimen must be effective against anaerobic bacteria (e.g., *Bacteroides spp.*, *Clostridia spp.*) and endotoxin-producing organisms (e.g., *Escherichia coli*).⁹ Antimicrobial agents effective against aerobic bacteria that are commonly employed include trimethoprim sulfadiazine (15 to 30 mg/kg, orally twice daily) or penicillin G (22,000 mg/kg, intravenously 4 times daily) plus gentamycin (6.6 mg/kg, intravenously once daily). Metronidazole (15 to 25 mg/kg, orally 4 times daily) is typically the drug of choice when treating anaerobic infections. The prognosis for mares with retained placenta is generally favorable if therapy and removal is done in a timely manner.⁹

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