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## Normal Foaling and Dystocia in the Mare

Parturition (birth) is an explosive process in the mare, requiring active participation of the foal.

Signs of impending parturition:

- 1) mammary gland enlargement may occur up to 3 – 4 weeks before parturition. It typically occurs earlier in younger mares and later in older, mares that have had multiple foals. Premature lactation is a sign of impending abortion.
- 2) Relaxation of pelvic ligaments becomes noticeable about 2 weeks before foaling and will become very loose (jello-like) in the day or two before foaling.
- 3) The vulva lengthens, relaxes and becomes swollen during the week before foaling.
- 4) 'Waxing' of the teats may occur within the last week preterm and usually within the last day or two. Wax is part of the initial thick colostrum fluid produced by the gland and may hang from the end of the teats.
- 5) Concentrations of electrolytes in milk will change in the days before foaling. These are useful indicators of fetal maturity. An increase in calcium to greater than 200 ppm, a decrease in sodium to less than 35 mg/ml and an increase in potassium to greater than 80 mg/ml are all indicators of fetal maturity and impending parturition. Commercial kits are available to measure calcium levels.

### Stages of Labor

Stage 1: Increased uterine contractions and dilation of cervix

- Duration is 1 hour average, range 30 minutes – 6 hours. The mare can control this stage
- Signs of mild colic, restlessness and anorexia. Sweating on neck and flanks, tail switching, get up and lie down, rolling, frequent urination and defecation. There are no outwardly visible abdominal contractions.
- Fetal movement can be seen in the flank as the foal actively rotates from its upside down position to a right side up one. Rolling by mare assists in this process.
- Disruption of the mare can result in cessation of this stage and postponement for hours – days.
- Ends with the water breaking (rupture of the chorioallantoic membrane).

Stage 2: Birth of the foal

- Duration is 15 – 60 minutes, average 30 minutes
- As the foal enters the birth canal it stretches soft tissue of cervix and vagina which stimulates uterine contraction resulting in the amnion being presented at vulva. The amnion is a gray-white sac that surrounds the foal. Presentation of a velvety red structure (chorioallantois) at vulva indicates premature placental separation.
- Contractions occur in groups of 3 – 4 with a rest period of 3 – 5 minutes in between. Mares may reposition themselves during rest periods. Most mares foal while laying on their side while some (especially maidens) will foal standing.
- Mares may remain lying down after foaling for 30 – 45 minutes due to exhaustion. The umbilical cord will break when the mare stands. Transfer of placental blood will occur until the cord breaks (up to 1 liter).

Stage 3: Passage of fetal membranes and uterine involution

- Duration is 1 – 3 hours. Placenta is considered retained after 3 hours.
- Mild, uterine contractions during this stage may make the mare colicky. If she is very colicky, she may be hand walked.
- Uterine involution (return to its normal size) is complete by day 15 postpartum. The uterus is 1½ times its non-pregnant state within 12 hours.



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### Procedures at time of parturition

- Supervision should be provided through some type of monitoring system (visual, video, alarm) however, interference should be minimized unless mare is in trouble. Get mare into routine of monitoring beginning 2 – 3 weeks prepartum.
- Once stage 1 begins, wrap tail and clean perineum w/clean water and dry off. Remove Caslick's if still in place.
- Be sure mare does not foal into a corner.
- Interference is appropriate if: 1) strong contractions and no progression in 15 minutes; 2) presentation of 1 foot and head; 2 feet and no head resting on knees; or head only; 3) red, velvety structure at vulva; 4) if perforation of the rectum or anus occurs.
- After foaling, allow mare to rest. Be sure amnion is off foal's muzzle. Remove placenta once passed and examine for completeness. The placenta should be saved for the veterinarian to examine at the post-foaling exam.

### Care of the foal

- Disinfect navel w/chlorhexidine solution (10%) soon after cord breaks. Dry foal if mare inattentive or poor environmental conditions
- Examine for congenital defects and foaling injuries (fractures)
- Vaccinate for tetanus (toxoid and antitoxin) if the mare is unvaccinated. Vitamin E/Selenium should be administered.
- APGAR score (at 1, 5, and 15 min postpartum): Attitude: should be sternal in 5 minutes of birth; Pulse > 60 bpm; Grimace: foal should respond to nasal stimulation with head shaking or sneezing; Appearance: mucous membranes should be pink within 5 minutes; Respiration > 60 bpm. This is a good initial assessment of the newborn foal and indicates need for veterinary intervention.
- Foal should stand w/in 15 – 60 minutes; nurse w/in 45 – 135 minutes; start to pass meconium w/in 2 hours; urinate w/in 8 hours. An enema can be given within the first 1 - 3 hours after birth to stimulate the start of the passage of the meconium
- Foal should obtain 10% of it's body weight in colostrum in first 12 hours.

### Care of mare

- Allow mare to bond w/foal
- Examine for injury from foaling, i.e. lacerations, hemorrhage
- Clean udder and assess colostrum quality

### Difficult Foaling (Dystocia) Conditions

- Incidence is low: 1.5 – 2.5%
- Fetal oversize is uncommon
- Primary cause is fetal malpresentation, position or posture (see below)
- Dystocias are true emergencies. Placental separation is significant by 1 hour after stage 2 begins which results in compromise of the oxygen supply to the fetus.
- Presentation: whether the fetus is head first or tail end first: normal is head first.
- Position: whether the fetus is right side up, sideways or upside down: normal is right side up.
- Posture: where the fetal extremities are located: normal is both front legs extended with the head resting on on the fetus' knees
- Most foalings occur between 11 am and 4 am (6 pm – 6 am) when environmental activity is lowest
- When you call the vet to help with a foaling difficulty:



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- You should be prepared to provide a short history of the problem: length of pregnancy (is the mare at term or early), how long has the mare been in stage 2, previous problems at foaling
- You should be able to restrain the mare with good footing and wrap tail, tie to one side and have warm water available
- The vet should check first for injuries to mare or fetus before starting
- The vet will need to determine degree of vaginal/cervical relaxation, if the fetus is alive and what its position is before starting to correct the problems
- Sometimes local anesthesia will be placed in the spinal canal in the mare's tail to prevent her from straining so the fetus can be repositioned

### Methods of Handling Dystocia

The fetus may be repositioned and forcibly removed or the mare may require Cesarean section if the fetus is still alive but can't be repositioned quickly. If the fetus is already dead, a procedure called fetotomy may be performed to salvage the mare without necessitating surgery. This procedure allows for the removal of one or more fetal parts in order to reduce the size of the fetus or correct the malposture and allow for removal through the vagina.

Some general rules of thumb are:

- Lubrication is extremely important
- Be gentle when repelling fetus
- If fetal position can't be corrected in 15 minutes try another approach
- No more than 3 people pulling on fetus
- Never use calf pullers on mares!

Common fetal malpresentation, postures and positions

- Flexed knees: lower leg pointed away from vulva
- Shoulder flexion: whole leg pointed away from vulva.
- Foot nape: foot pushed up through vaginal ceiling into rectum or out of anus
- "Dogsitter": Hind limbs flexed forward and stuck against or under the mare's pelvis.
- Head flexed up, back or to either side.
- Backwards (hind feet presented) or true breech (only the tail is presented): rare

In some cases, if repositioning is difficult or the mare is excessively straining, general anesthesia may be administered and the mare's hind quarters elevated if possible