

## ***Equine Reproduction Lecture 10***

Peripartum Problems in Mares

### ***Peripartum Problems***

- Peripartum Hemm
- Uterine Prolapse
- Retained Placenta
- Septic Metritis
- Lacerations/Contusions of BC

### ***PERIPARTUM HEMORRHAGE***

- Most common in mares over 12 years old
- Seen soon after parturition or in next 2 to 3 days
- Rupture of uterine, uterine branch of ovarian, or iliac artery before, during or shortly after parturition

### ***PERIPARTUM HEMORRHAGE***

- May be precipitated by uterine torsion, but most commonly follows normal pregnancy and parturition
- Hemorrhage may be contained within the broad ligament, or fatal intraperitoneal hemorrhage may occur

### ***PERIPARTUM HEMORRHAGE***

#### Symptoms

- Often no specific signs are observed and the large hematoma in the broad ligament is detected as an incidental finding at subsequent routine rectal examination
- Signs of severe hemorrhage include markedly increase respiration and heart rate, weakness, staggering, sweating, pale mucous membranes and the rapid onset of prostration, shock and death

### *PERIPARTUM HEMORRHAGE*

Treatment:

- Maintain blood pressure by plasma volume expansion or whole blood transfusion

### *PERIPARTUM HEMORRHAGE*

- Surgical identification and ligation of the bleeding site is extremely difficult
- When bleeding into the broad ligament has occurred, supportive care and stall rest are indicated

### *UTERINE PROLAPSE*

- Relatively infrequent problem in mares
- May be seen 1-3 days postpartum
- Usually associated with prolonged dystocia, traction, or a sequel to a retained placenta or straining

Uterine prolapse

### *UTERINE PROLAPSE*

- Fatal hemorrhage may occur if uterus is traumatized
- Time is important
  - thrombosis develops in engorged, stagnated uterine vasculature

### *UTERINE PROLAPSE*

- If this occurs, replacement may be a futile effort since infarction and death are likely sequelae
- Amputation of the gangrenous uterus should be done when needed, but success is very poor

### *UTERINE PROLAPSE*

Treatment:

- Treat shock first
- Epidural anesthesia to suppress straining
- Uterine body may compose the major portion of the exposed everted uterus

### *UTERINE PROLAPSE*

- Clean surface with warm saline or water; avoid using irritating cleaning solutions; push uterus back in
- Insure the retroverted tips of the horns are repositioned completely
- Consider mural and intraluminal hemorrhage

### *UTERINE PROLAPSE*

- To evert the horns fill the uterus with saline to push the horns back into position

### *UTERINE PROLAPSE*

- Give oxytocin to contract the uterus once back in place
- Antibiotics: both intrauterine and systemic - broad spectrum
- Tetanus booster
- To prevent: examine placenta to make sure it is all there

### *RETAINED PLACENTA*

- Physiologically the equine fetal membranes are expelled within 0.5 to 3 hours after parturition
- Pathological if membranes are not shed in 3 hours

### *RETAINED PLACENTA*

- Incidence of 2 to 10%
- More common with large draft breeds than the light horse breeds
- Likely to occur following abortion and prolonged gestation

### *RETAINED PLACENTA*

- Retention caused by infection, uterine inertia and other factors similar to those affecting cattle
- Infection can gain entrance into the uterus following foaling when the mare gets up

### *RETAINED PLACENTA*

- Air often fills the dilated genital tract, uterus and the membranes draw debris from the bedding
- Straw, shavings or sawdust are the worst offenders

### *RETAINED PLACENTA*

- After foaling, if mare remains recumbent until the placenta is ready to fall away, uterus is more contracted and less air enters
- The rush of contaminated air into the uterus may play an immediate role in the retention of the afterbirth

### *RETAINED PLACENTA*

- Strep zooepidemicus is the most common infection associated with retained placenta
- Other organisms may be involved, especially gram negatives that produce endotoxins and histamines

### *RETAINED PLACENTA*

#### Symptoms:

- Retained fetal membranes can usually be observed hanging from the vulva
- Occasionally the placenta may partially fall away and the apex or tip of the placenta will remain in the nongravid horn especially if the apex is thickened and edematous

### *RETAINED PLACENTA*

- The weight of the placenta or the mare stepping on it may rip it away, leaving the tip of the placenta stuck in the nongravid horn in the uterus
- This piece of placenta may act as a focus of infection often resulting in a severe metritis and secondary laminitis the 3rd to 7th day after foaling
- Sequelae include metritis, septicemia or toxemia, laminitis, death

### *RETAINED PLACENTA*

#### Treatment

- Oxytocin
  - Membrane retained 3-8 hours: 10 to 40 I.U. IM or IV every 1 to 3 hours beginning 4 hours postpartum and until fetal membranes are expelled
  - Membrane retained >8 hr: Infusion of 100 IU oxytocin 1000 ml saline by slow IV drip over a period of 0.5 to 1 hour as a more physiologic way to give the oxytocin

### *RETAINED PLACENTA*

- Follow by walking mare for 10-30 minutes
- Uterine contractions may produce signs of mild colic and pain

### *RETAINED PLACENTA*

- Infusion technique
  - Clean mare's perineum
  - Gloved hand entered into the vagina, gently draw chorioallantois out of the vulva

### *RETAINED PLACENTA*

- Torn ends of the cervical star are gathered together, stomach tube placed through it into the allantoic cavity
- 2 to 3 gallons of warm sterile water, saline or weak povidone-iodine solution (<2%) is slowly pumped into the allantoic space to distend it

### *RETAINED PLACENTA*

- The hand around the membranes and tube prevents the solution from escaping
- The distended uterus stimulates the mare to attempt to expel the solution and stimulates oxytocin release; Oxytocin may augment the contraction efforts
- Exposed fetal membranes are held and the solution is squeezed back into the uterus as the chorioallantois is slowly released

### *RETAINED PLACENTA*

- Repeat frequently
- Takes 15 to 20min for the complete release of the placenta
- comes out intact, including the microvilli of the chorioallantois
- If doesn't work initially, try again in 6 to 12 hours
- Contraindicated if uterus is torn

### *RETAINED PLACENTA*

Supportive care:

- Broad spectrum antimicrobials - penicillins –aminoglycosides
- Banamine for endotoxin effects
- Tetanus toxoid/antitoxin

### *RETAINED PLACENTA*

- Septic metritis and laminitis are common secondary problems associated with retained placenta

### *RETAINED PLACENTA*

Manual Removal

- Not indicated unless fragments of placenta are left in the uterus
- This technique has been associated with impaired fertility

### *RETAINED PLACENTA*

- Clean perineum thoroughly!!!
- Insert sterile gloved hand into the birth canal and grasp allantois-chorion
- By gentle traction and twisting on the fetal membranes to form a "rope", uniform traction may be applied to the fetal membranes

### *RETAINED PLACENTA*

- A hand is gently forced between the endometrium and chorion in places where it is still attached
- Any direct manipulation of the endometrium may be damaging to it;
- The entire placenta, including the tips of the horns should be carefully removed
- Examine the placenta after removal to be certain it is complete

### *RETAINED PLACENTA*

- Conservative approach consists of inserting the hand inside the allantois chorion and gently massaging it away from the endometrium
- If removal does not occur promptly, supportive treatment should be given

### *RETAINED PLACENTA*

- Re-examine the mare and treat 4-12 hours later
- Mare will exhibit some discomfort from this procedure
- Phenylbutazone (1-2g BID) helps reduce the likelihood of laminitis secondary to metritis.

### *SEPTIC METRITIS*

- May occur with or without retention of fetal membranes
- Observed within 1 to 10 days after parturition
- Etiology of septic metritis is similar to that of retention of the fetal membranes

### *SEPTIC METRITIS*

- Usually associated with uterine inertia
- Highly pathogenic organisms present in the uterus and their toxins are absorbed into the circulation
- Produce severe general symptoms associated with septicemia, endotoxemia, and pyemia

### *SEPTIC METRITIS*

- Organisms most commonly present are coliforms; Actinomyces pyogenes, hemolytic streptococci, (esp. S. zooepidemicus) Ps. aeruginosa, proteus, hemolytic staphylococci and in rare cases clostridia
- Severe infections characterized by a fetid red watery uterine fluid that is very toxic and depressing

### *SEPTIC METRITIS*

- Most common with retention of fetal membranes, but may follow a prolonged dystocia, prolapsed uterus or invagination of the tip of the uterine horn associated with trauma and infection of the endometrium
- Occasionally may result from extension of necrotic vaginitis

### *SEPTIC METRITIS*

Symptoms of septic metritis:

- Retention of fetal membranes
- A piece of placenta, often a portion from the nongravid horn, is retained in the body or the nongravid horn of the uterus
- Animal exhibits anorexia and dullness
- Pulse is rapid and weak
- Temperature may be elevated but extremities cold

### *SEPTIC METRITIS*

- Respirations are rapid and shallow
- If severe, marked atony of the digestive tract
- Marked drop in milk flow or agalactia, newborn foal will exhibit signs of malnutrition or starvation

### *SEPTIC METRITIS*

- Reddish, watery, fetid discharge from the vulva
- Genital passageways are likely to be swollen and inflamed
- Uterus in nearly all cases is atonic or flaccid

### *SEPTIC METRITIS*

- Acute laminitis may be present, making the mare reluctant to walk, rise and stand
- Marked left shift with a leukopenia during the early stages
- During the recovery the white cell count shifts to the right, with a leukocytosis developing
- lasts from 2 to 6d, ending with recovery or death

### *SEPTIC METRITIS*

- Prognosis guarded to poor unless treated before the uterus is severely damaged, peritonitis develops, and the animal becomes extremely toxic
- Prognosis for future breeding poor in severe cases, if perimetritis, ovaritis or abscesses of the uterine wall
- If recovery occurs, conception may be delayed due to severe chronic metritis.

### *SEPTIC METRITIS*

Treatment of septic metritis:

- Aggressive but conservative
- Septicemia and toxemia needs to be overcome before any manipulative procedures are used
- Massaging or attempts to remove fetal membranes can make Septicemia and toxemia worse
- Systemic and local antimicrobial therapy brings prompt recovery if instituted in a timely manner

### *SEPTIC METRITIS*

- If the uterus is filled with large amounts of fetid fluid, gently siphon off
- Siphon carefully with a sterile soft rubber hose or horse catheter; uterus wall friable and easily ruptured
- If a portion of the placenta is lying in the uterus, it should be removed in as gentle a manner as possible
- Antibiotics

### *SEPTIC METRITIS*

- Systemic treatment
- Antibiotics
- Anti-inflammatory therapy to prevent endotoxemia and laminitis
- Uterine flush of warm saline or water daily for several days in a row
- Good nursing care in a suitable stall or other equally comfortable environment is essential

### *SEPTIC METRITIS*

- If laminitis is suspected, apply ice packs to the mare's hooves, use antihistamines and phenylbutazone as preventatives
- Drop in pulse rate, increase in appetite, improvement in the tone of the uterus wall, change in the exudate from a watery to a mucoid, are all favorable symptoms indicating response to therapy

### *SEPTIC METRITIS*

- Treatment should be continued until the animal has safely recovered and septic symptoms have subsided

*LACERATIONS AND  
CONTUSIONS OF THE BIRTH  
CANAL*

- May involve the vulva, vagina, cervix, or uterus
- Might involve the perineal body or even the rectum

*Cervical tear*

- May pass unnoticed initially
- Severely reduces reproductive potential
- Will heal spontaneously if not extensive
- Extensive lacerations, or those not healed by 20-30d postpartum require suturing

*Vulvar tear*

- Vulvar tear
  - If needed, suture as soon as possible
  - Will often breakdown but it is still beneficial
- Perineal tear
  - 1st, 2nd, or 3rd degree
  - Repair immediately or wait 6 to 8 weeks before repair

### *Laminitis and Foal founder*

- Occurs during first 1-3 days postpartum; examine hooves routinely for warmth, and gait for pain
- Institute treatment immediately

### *Lactation failure*

- Small bag, agalactia
- Some mares may have no mammary development prior to foaling, but lactate
- "Fescue Toxicosis"
- Foals should be fed colostrum from banks in cases of agalactia

### *Foal colic*

- Transient colic occurs 1-6d after foaling, due to uterine contraction and involution

### *Hysteria, or rejection of foal*

- Mare rejects foal, does not allow nursing, may kick foal
- Common in young mares
- Tranquilize and allow foal to nurse: milk mare and feed colostrum to foal

### *Eversion of urinary bladder*

- Associated with forceful abdominal straining-bladder through large urethral opening
- Give epidural/anesthesia and replace

### *TETANUS*

- Occurs occasionally, usually following metritis or retained placenta
- All mares with dystocia, retained placenta, metritis, and prolapsed uteri should be vaccinated promptly with tetanus antitoxin, or toxoid if no history of prophylaxis

### *TETANUS*

- Tetanus usually observed 1 to 4 weeks after parturition
- Unsanitary handling of retained placenta, trauma to uterus or birth canal, predispose to tetanus
- If metritis is present, the uterine exudate should be removed and the mare treated with antitoxin, penicillin, tranquilizers, supportive care

### *Obturator Paralysis*

- Rare in the mare, but similar to that in the cow

### *Rupture of Cecum or Colon*

- Sporadic complication of 1st or 2nd stage labor
- Abrupt cessation of straining and signs of shock (sweating, trembling, depression, tachycardia, fever)

### *FOAL PROBLEMS*

FOAL PROBLEMS in Immediate postpartum period

- Retained meconium
- Mild colic 24-48 hrs. after foaling

### *FOAL PROBLEMS*

- Be sure meconium passed (Gloved finger)
- If meconium retained, foal uneasy, mild colic, assumes crouching stance; strains with tail elevated
- Examination per rectum reveals impacted meconium

### *FOAL PROBLEMS*

- Correction
  - Enema with mineral oil or soap
  - Care should be exercised to avoid rupture of rectum

### *Foal Septicemia*

- Foal Septicemia due to infection
  - Streptococcal
    - Usually 2-3 weeks postpartum (may be sooner)
  - E. coli
    - Common during first three days
  - C (Rhodococcus) equi
    - In foals less than 1 month of age
  - S. typhimurium
    - Peracute septicemia, depression, death within 24-48 hours

### *Navel Ill*

- Due to infection at birth; failure to disinfect umbilicus
- Inflamed navel, fever
- Antibiotics
- May be associated with patent urachus

### *Ruptured bladder*

- Due to trauma during parturition
- Signs seen 2-4 days postpartum
- Foal active postpartum, but becomes dull, listless 48-72 hours postpartum

### *Ruptured bladder*

- Reduced suckling
- Both temperature and RR elevated; straining
- Abdomen appears enlarged

### *Ruptured bladder*

- No urine when bladder catheterized
- Fluid on abdominal succussion
- Progressive uremia
- Surgery

### *Jaundiced foal*

- Isoimmune hemolytic anemia
- Foal normal at birth, but develops signs 24-48 hours after birth and suckling
- Foal appears pale, dull, weak, no desire to nurse
- There is increased pulse rate, and foal yawns intermittently
- Icterus develops

### *Jaundiced foal*

- Separate foal and mare; milk out mare, blood transfusion, fluid therapy
- Cross match mare's colostrum and foal's RBC before nursing

### *Diarrhea*

- May be due to several causes
- Infection

### *Diarrhea*

- Overeating
  - Mare produces more milk than foal can handle
  - Foal shows mild colic, hypermotile gut and whitish yellow watery feces
  - Control by muzzling foal and partially milking mare before foal nurses
  - Reduce mare's feed intake (take off pasture and grain and feed hay)
  - Problem corrected when mare's milk production slows down

### *Diarrhea*

- Foal heat scours, or 9 day scours
  - Diarrhea occurring when mare in foal heat
  - Subsides after end of estrus
- Parasites
  - Diarrhea due to *Strongyloides westeri* occurs 10-21 days after foaling
  - Foals infected by infective larvae in milk; watery diarrhea
  - Deworm

### *Failure of Passive Transfer*

- Failure of Passive Transfer: Failure to absorb immunoglobulins

### *Fractured Ribs*

- Fractured Ribs: Recognized 2-3 days post-foaling; Foal not active, but nurses normally
  - Shallow, but increased, respiratory rate
  - Palpation reveals fracture (usually at point of elbow, tender)
  - Confine mare and foal for 10-14 days

### *Orphan foals*

- Orphan foal; Feed colostrums
- Dummy Foal due to infections, anoxia, hypoxia during parturition: Failure of passive transfer

### *THE END*

- Go forth and help mares reproduce