Meconium and "milk feces"

Meconium is formed from Swallowed amniotic fluid Intestinal secretions (e.g. bile) Cellular debris Other debris Appears during the 1st trimester Accumulates throughout fetal period Bile acids Excreted by the beginning of 2nd trimester

Concentration of bilirubin in meconium 50 times that of the serum Intestinal absorption of bilirubin Icterus in the neonate Dark color of meconium due to bilirubin pigments If meconium retained Its color becomes the same as "milk feces" Bilirubin pigments will be absorbed/ excrete in urine

In utero meconium passage Associated with fetal distress ? Can occur as early as the 2nd trimester Late term meconium passage Fetal GI innervation matures Defecation controlled by parasympathetic stimulation Vagal stimulation with cord or head compression

In utero Meconium Passage Fetal diarrhea Born passing profuse, liquid meconium Resolves within 48 hours of birth Associated with intrauterine insults Hypoxia/asphyxia FIRS/sepsis Manifestation of fetal enteritis?







Meconium Impactions

Increase incidence in colts Narrow pelvic canal Excessive meconium formation Impaired GI function Asphyxia, Sepsis Meconium retention Prematurely/Postmaturity Prolong recumbency Dopamine

Meconium Impactions Signs

Strain to defecate - arched back Nurse frequently Not effective Dried milk on head Persistent colic Rolling on back Kicking at abdomen Frantically swishing tail



Defecation





Meconium Impactions Signs

Abdominal distension
Tenesmus
Umbilicus may reopen
Bleed
Drip urine

Meconium Impactions Diagnosis - History

Foal "past his meconium"
Variable amount in each foal
Passage of meconium easily missed
Little or no meconium passed & colic

Meconium Impactions Diagnosis - Physical Examination Digital rectal examination Rectal mucosal edema Enema can be diagnostic Deep abdominal palpation Meconium is distinct Caudal abdomen Anterior abdomen Abdominal ultrasound

Meconium Impactions Differential Diagnosis

Ruptured bladder NEC Intussusception Intestinal volvulus Rectal perforation Colonic atresia Lethal White Syndrome Meconium Impactions Treatment - Enemas

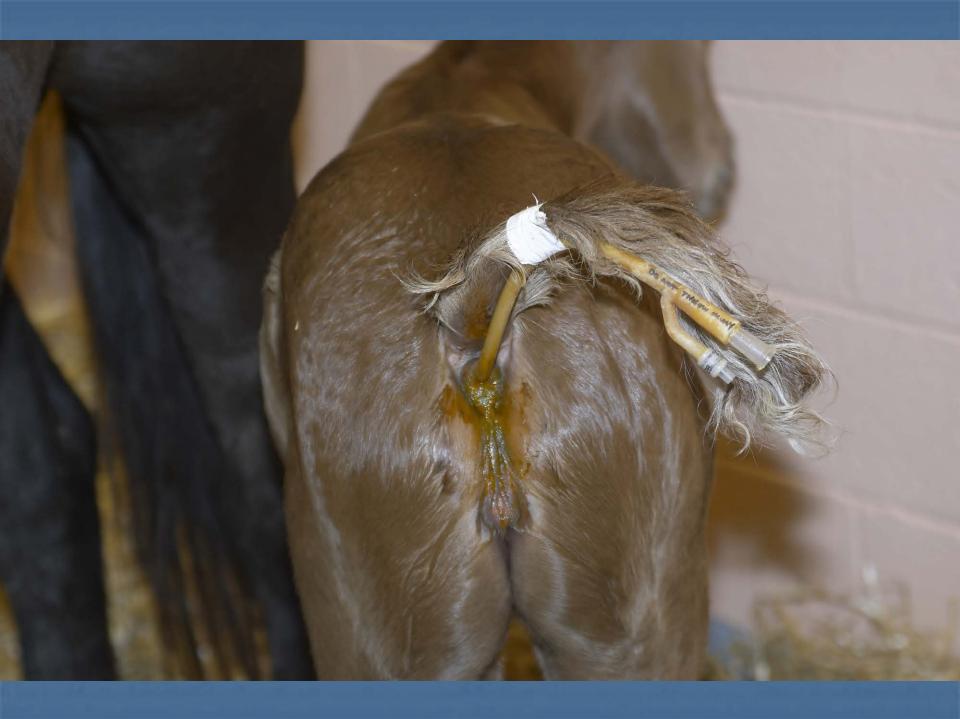
Soapy water gravity enemas Rectal irritation - persistent tenesmus Lubricant enemas Dioctyl sodium sulfosuccinate (DSS) enema Glycerin enemas Retention enemas 4% Acetyl cysteine Rectal distension - stimulates motility Add barium - osmotic effect (MOM)

Acetyl Cysteine Retention Enema

Acetyl Cysteine Retention Enema







Meconium Impactions Treatment - Oral Laxatives

Colostrum Mineral oil Milk of magnesia DSS Castor oil

Meconium Impactions Supportive Care If impaction prolonged Intravenous fluids with dextrose Continue nursing? Close attention to adequate passive transfer Higher risk for sepsis Damaged colonic epithelium Open umbilical structures Plasma transfusion

Meconium Retention

Neonatal Gastroenteropathy

- Dysmotility
- Meconium retention
- Signs
 - Not passing meconium
 - No abdominal pain
 - No distension
 - Retains enema fluid
- Duration
 - 4-8 days
 - As long as 30 days

Birth Trauma

Rib Fractures Physical Examination

2 - 4 cm above costochondral junction Involving 4 to 12 ribs in a straight line Any rib or set of ribs may fracture Most frequently anterior chest (ribs 2-8) • Over the heart Palpation - feeling click Auscultation - click associate with heartbeat Easily confirmed on radiographs, ultrasound

Rib Fractures Hemorrhage

Primarily bleeding from intercostal arteries Most often diffuse chest wall/subpleural/hemothorax May be extensive - not evident externally Lung contusions - hemothorax Lacerations of the myocardium No pericardial damage - Cardiac tamponade Arrhythmias Trauma to other structures

Rib Fractures Clinical Signs Signs are variable From pain, anemia, cardiac arrhythmias Tachycardia Tachypnea Positional Exacerbated during examination Exacerbated when down Weak, minimally responsive foal Distressed when on one side - relief when turned Exacerbated of hypotension when turned



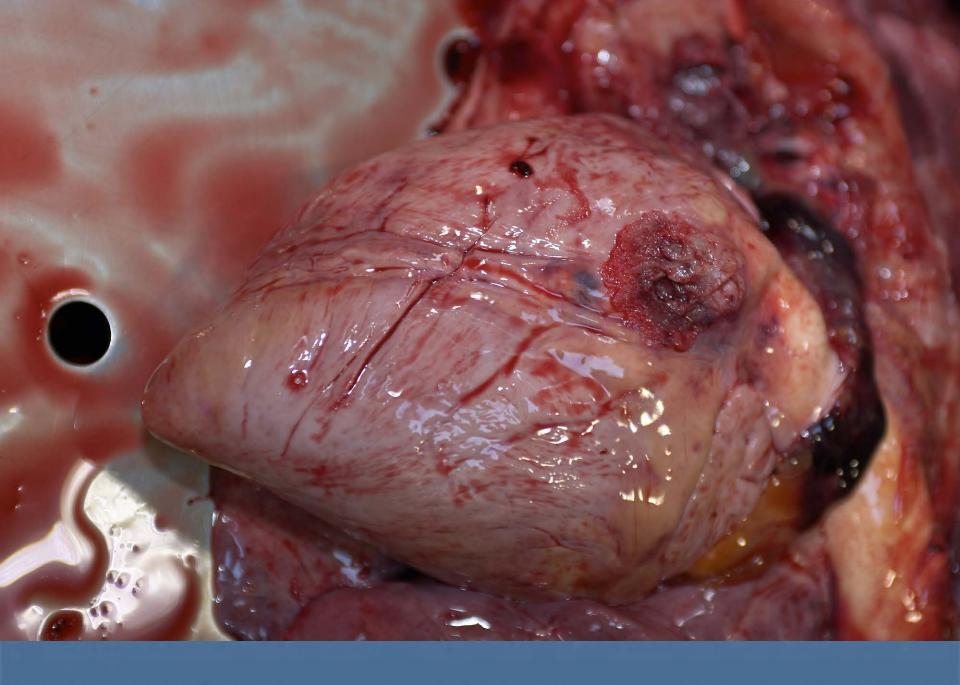














Umbilical Problems

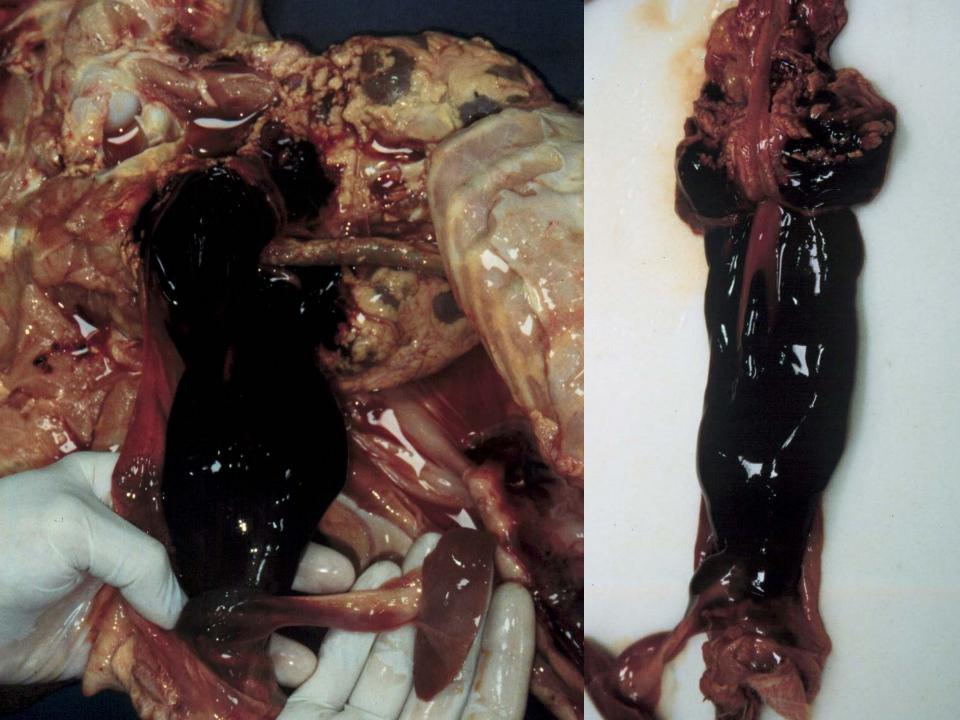
Umbilical Bleeding

Can be a major source of bleeding External (extracorporeal) bleeding Internal umbilical artery ruptured Commonly in calves, rare in foals Large hematomas Bleeding contained within fascia

PERMINEN.

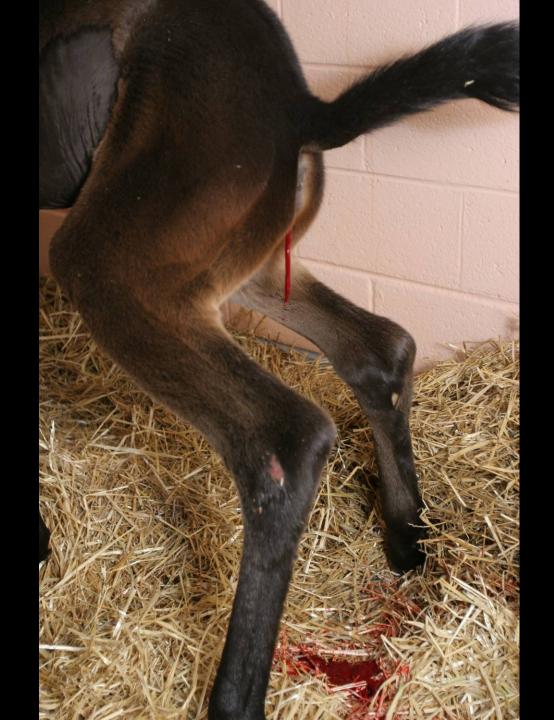
Body Wall Hematoma

Artery pulls back into umbilical stump Attendant squeezing end of the stump Not effectively stop bleeding Umbilical clamp or umbilical tape Not effectively stop bleeding Leaking blood Travel along fascial planes Body wall hematoma Internal hematoma Flow through the urachus Large hematoma free in bladder Hematoma along the urachus



Often clinically inapparent Pass bright red urine within hours of birth Occasional urinary obstruction - organized clot "pop-off valve" - urachus becomes patent Body wall hematomas - secondary edema Diagnosed by careful abdominal palpation Sleeping or weak neonate Can be as accurate as ultrasound Find bladder/urachal hematomas - no clinical signs





Some foals - extensive bleeding

 Hemorrhagic shock

 Most foals do not bleeding extensively

 Signs of urachitis - persistent straining to urinate
 Asymptomatic

 Icteric
 Mildly anemic

Patent Urachus

Patent Urachus

Most often seen 3-5 days old
 When umbilical "scab" falls off
 Diagnosis

- Observe urination
- Wet between or constant leak
- Beware colts not drop penis
- Treatment
 - Benign neglect
 - Antimicrobials?
 - Avoid topical therapy
 - Do not suture

Urachitis

- Urachal disease
 - Infection
 - Hematoma
 - Delayed atrophy
- Signs
 - Straining to urinate after normal urination
 - Repeat posturing
- Consequences
 - Usually none
 - Patent urachus
- Therapy
 - Benign neglect
 - Phenazopyridine (Pyridium)