

Equine Reproduction Lecture 9

Complications of late gestation in mares

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- Objective: To familiarize students with complications of late gestation in mares

Complications of late gestation

Uterine torsion
Ruptured PP tendon
Hydrops
Twin abortions
Fetal mummification
Prolonged gestation
Foaling while standing
Premature placental separation

Uterine Torsion

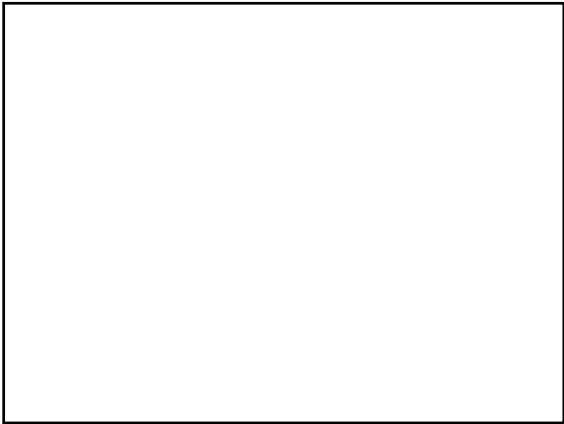
- Usually occurs during late gestation (5-9 m), or before the end of gestation
- Cause not known, may include vigorous movement of foal

Uterine Torsion

- Symptoms; persistent colic unresponsive to analgesia, abdominal discomfort in late pregnant mare
- Restlessness, anorexia, sweating flanks, and kicking at the abdomen

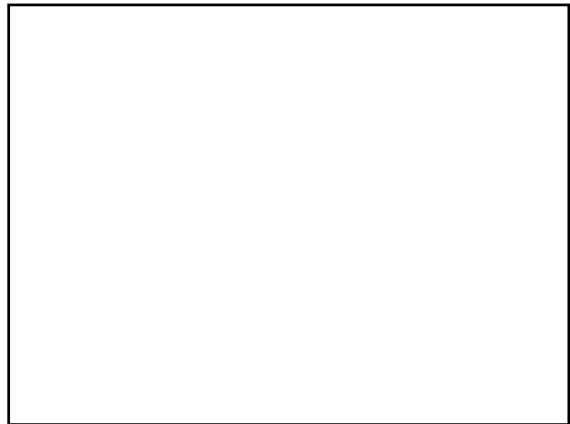
Uterine Torsion

- Torsion usually 180° or less; usually counterclockwise direction
- Less than 180° is a minor problem
- Diagnosed by rectal palpation of broad ligaments



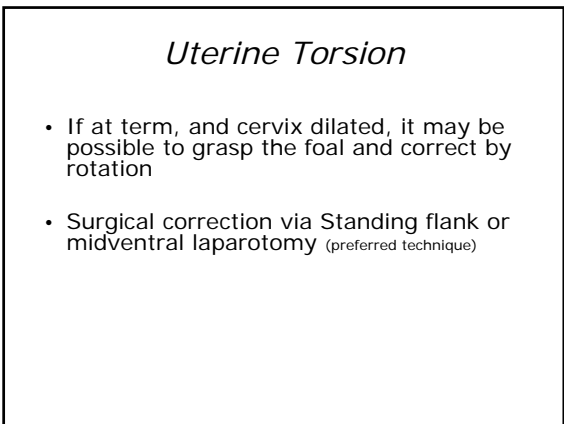
Uterine Torsion

- Fetal viability, condition of uterine wall, and fluid assessed by U/S
- Prognosis for foal is poor due to compression of major vessels
- Unattended torsion can result in uterine rupture



Uterine Torsion

- Correct by rolling (Schaeffler Technique)
- Danger of uterine rupture



Uterine Torsion

- If at term, and cervix dilated, it may be possible to grasp the foal and correct by rotation
- Surgical correction via Standing flank or midventral laparotomy (preferred technique)



*Hydrops allantois;
Hydroallantois*

- Rare condition in the mare; due to placental dysfunction
- Seen in pregnant mares 7 months to term
- More common in older mares 6-20 years of age

Hydrops

Hydrops

- Rapid onset abdominal distension, accumulation of allantoic fluid (100-200L) over a 10-14d period
- Mare may be dyspneic
- Some mares may spontaneously abort

Hydrops

- Induction of parturition indicated due to uterine inertia; manual delivery required
 - Dilate cervix, break fetal membranes, deliver foal
 - Oxytocin at 4-15min intervals until delivery
 - Foal may be born alive but is weak and usually dies

Hydrops

- Prognosis for mare fair to good
- Prognosis for reproductive future favorable in absence of cervical laceration, retained placenta, metritis

Hydrops

- Complications
 - Shock
 - retained placenta
 - delayed uterine involution
 - rupture of the prepubic tendon
 - Delayed intervention predisposes to uterine rupture or ruptured prepubic tendon

Hydrops

- Abdominal support wraps useful to prevent rupture of prepubic tendon
- Possibility of hypovolemic shock during expulsion of allantoic fluid
- Continue low dose oxytocin (1 IV per minute) for 1 hour to help involution.

Ruptured Prepubic Tendon

Ruptured Prepubic Tendon; Ventral hernia

- Usually in heavy draft horses, but other breeds as well
- Common in aged mares with hydroallantois, and mares carrying large foals or twins

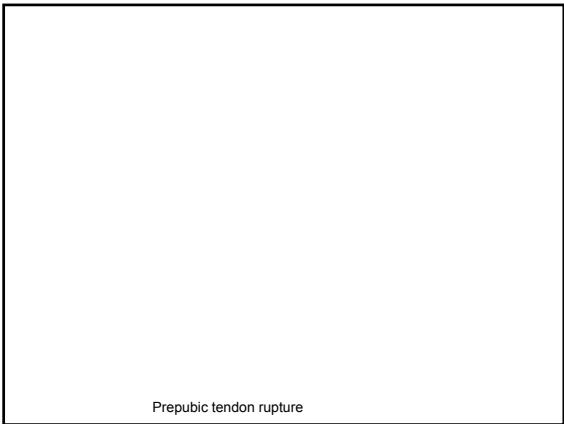
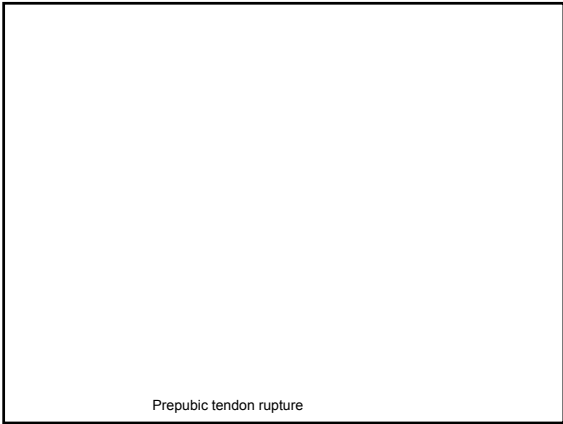
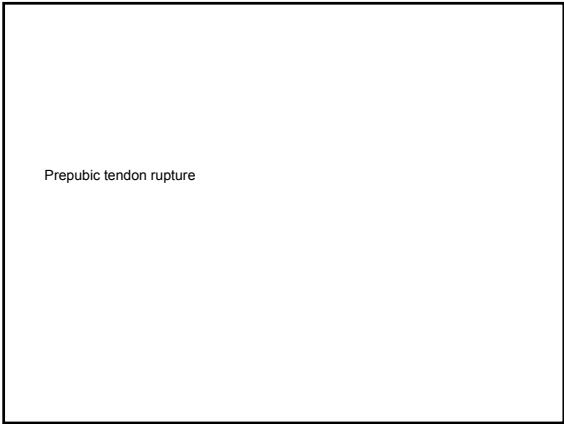
Ruptured Prepubic Tendon

- Marked ventral edema on the ventral midline extending from the udder to the xiphoid region
- Rupture can be acute resulting in no ventral support

Ruptured Prepubic Tendon

- Mare shows tachypnea, tachycardia, pain, sweating and may develop shock and die
- "Saw horse" stance with mare reluctant to move

Ventral edema



Ruptured Prepubic Tendon

- Support slings helpful in maintaining pregnancy
- Induce parturition and assist delivery to save mare
- Most mares are humanely destroyed following salvage of the foal

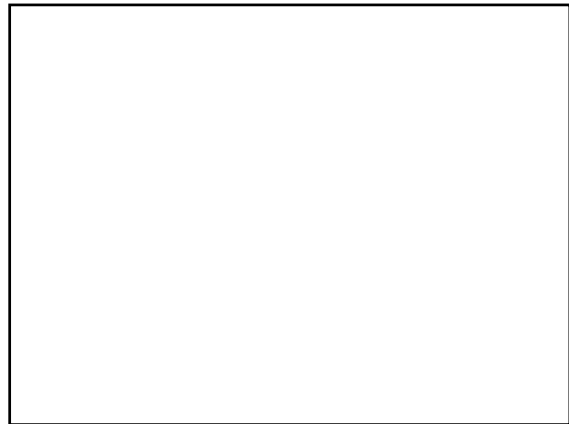
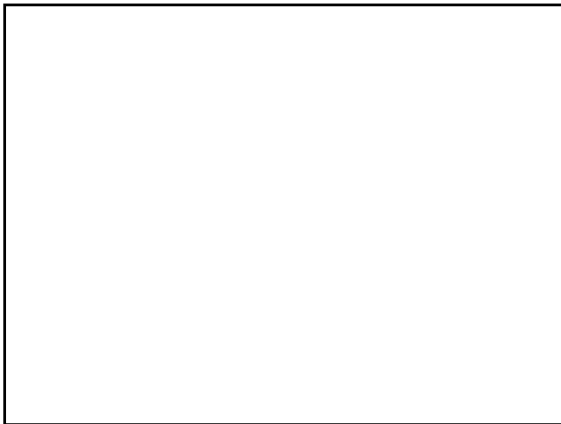


Fetal Mummification and Maceration

- Occurs in one of twin fetuses
- Once a fetus has recognizable skeleton (>4m) death and dehydration results in a mummy
- Mummies expelled at time of abortion or birth of the more developed sibling

Fetal Mummification and Maceration

- Fetal maceration if contamination of the uterine environment
- Manual dilation of cervix facilitates removal of fetal remnants, followed by antimicrobial therapy

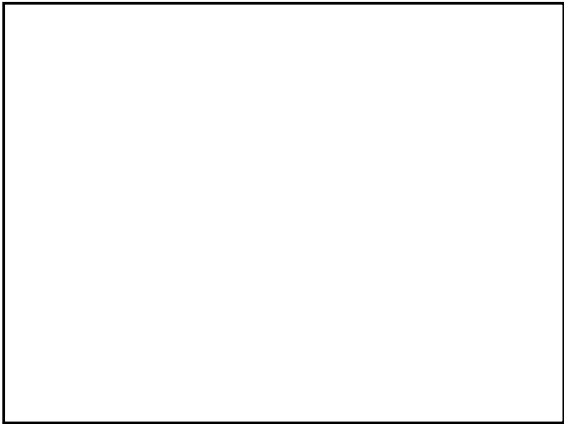


Foaling while standing

- Incidence up to 5%
- Be present to prevent injury to foal
- Support foal to keep umbilical cord intact for several minutes
- Allow mares to foal in quiet areas, prevent excitement in young mares

Premature placental separation

- During birth, fetal hypoxia, dummy foal, or stillbirth
- Reddish velvety bulge at vulva without rupture of chorioallantois
- Red Bag
- Quickly deliver foal; resuscitate

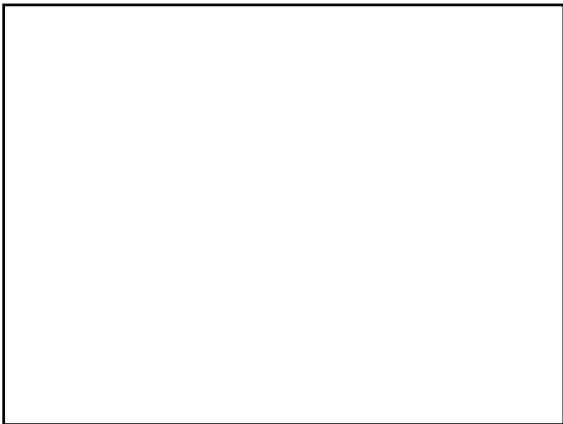


Prolonged gestation

- Gestation prolonged >360-380d **seldom results in oversized fetus**
- Causes are unknown; but arrest of fetal development during early pregnancy implicated, but not proven

Prolonged gestation

- Foals born from prolonged gestations are normal
- Mares conceiving early in the year (February/March) carry foal a little longer normally
- Pathologic prolonged gestation can occur with fescue toxicosis in mares grazing on fescue grass



Prolonged gestation

- **Regardless of cause, induction of parturition should not be attempted unless cardinal signs of fetal maturity and impending parturition are present**
- Confirm pregnancy (rectal palpation/ultrasound), make sure that foaling date well past 320 days

Prolonged gestation

- Confirm viability of fetus, by detecting fetal movements
- Confirm if foal is in anterior presentation (palpate head)
- Look for adequate mammary development (Ca and K levels in udder secretion)

Prolonged gestation

Indications for induction of Parturition

- Management of high risk pregnancies
- Elective (foaling for mares with previous foaling problems)
- Gestational abnormalities, such as rupture of prepubic tendon, hydroallantois
- May be associated with dystocia, fetal hypoxia, premature placenta separation, and dysmaturity

Prolonged gestation

- Three essential criteria
 - Gestational length (at least 330 days from last breeding)
 - Mammary development and secretion
 - [Ca] in colostrum increases 24-48 hrs prior to foaling
 - [Na] much higher than K until 3-5d before birth, then Na:K ratio inverted

Prolonged gestation

Methods of induction

- Synthetic prostaglandins - Fenprostalene, cloprostenol
 - Induction interval is variable - 1-6 hours

Prolonged gestation

- Oxytocin is drug of choice
 - Bolus injection – IM (40 – 100 iu)
- Oxytocin (5 – 10 iu) IV at 15 min. intervals
- Oxytocin following synthetic prostaglandins
 - Eg 500 mcg Cloprostenol + 5 – 10 iu Oxytocin at 15 min. intervals

Prolonged gestation

CAUTION: High Dose of Oxytocin

- Perineal tears
- Uterine rupture
- Premature placental separation
- Fetal hypoxia
- Fetal cerebral vascular accidents

Dystocia

Objective:

- Understand causes of dystocia and discuss methods used to diagnose and treat dystocia.
- To discuss postpartum problems in mares

Dystocia

Dystocia

- Difficult birth due to prolonged stage 1 or 2 or parturition
- Incidence 1.5-2.5%.

Dystocia

Causes:

- Abnormal presentation, posture and position
- Abnormal head and neck position is most common cause
- Long fetal extremities contribute to high incidence

Dystocia

- Transverse presentations: Ventral transverse more common than dorsal transverse, Occurs in approximately 0.1% of births
- Premature separation of the chorioallantois

Dystocia

HANDLING DYSTOCIA

- History; Age, number of previous pregnancies, previous history of dystocia
- Duration of gestation
- Illness or abnormal signs during pregnancy
- Time of onset of labor, Time of rupture of allantochorion

Dystocia

- Membranes, extremities presented
- Nature of any intervention so far
- Presence of mammary secretions (calcium content)
- Exposure to fescue hay or pasture

Dystocia

General Physical Examination

- Ensure complete physical examination
- If absolutely impossible before delivery, complete after relief of dystocia.

Dystocia

Specific Examination of the Genital Tract

- Adequate restraint; mare is best examined standing
- Note degree of abdominal enlargement and abdominal contour
- Note mammary development, nature/amount of vulvar discharge, any protruding membranes

Dystocia

- Wrap and tie the tail, scrub perineum
- Arm inserted into the vagina must be clean and well lubricated
- Examine caudal birth canal for damage caused earlier in the dystocia or by previous intervention

Dystocia

- Determine if fetus is alive. (Transabdominal ultrasound helpful)
- Determine fetal presentation, position and posture
- Establish which membranes are intact

Egad!!!!!!

Dystocia

PROGNOSIS

- Decreases as duration of dystocia increases
- Foal dies soon, usually within 30 to 40 minutes
- Prognosis for mare is grave if dystocia has persisted 24 hours
- Powerful contractions predispose to lacerations of the uterus or caudal birth canal

Dystocia

- Long pelvis and fetal limbs complicate correction of equine dystocia
- Mare is very susceptible to metritis and its complications (e.g., peritonitis, laminitis)
- Evaluate prognosis for the foal, life and breeding potential of the mare

Dystocia

EPIDURAL ANALGESIA

- Useful in abolishing abdominal contraction, and reducing pain
- Not required or even desirable in all cases; essential for fetotomy
- First intercoccygeal vertebral space
- Some mares react adversely to loss of sensation in the rear limbs; Glycerol guaiacolate anesthesia.

Dystocia

OBSTETRICAL OPERATIONS

- Principles of mutation (repulsion, rotation, version and adjustment of extremities) are as for cows
- Longer limbs make many manipulations more difficult
- General anesthesia may be indicated because of the strong abdominal contractions of the mare
- ENSURE ABUNDANT LUBRICATION AT ALL TIMES

Dystocia

Specific points:

- Retroflexion of the head and neck
- Determine posture of head and neck by attempting to trace the trachea or mane
- Attempt to grasp the muzzle; Kuhn's crutch

Dystocia

- Wry neck may complicate correction; if diagnosable it indicates partial fetotomy
- Partial fetotomy also indicated if the fetus is dead and the malposture is not easily corrected

Dystocia

- Transverse presentation
- Bicornual pregnancy or a deflected longitudinal presentation
- Mutation is only possible in mares with a short pelvis or a very small fetus; cesarean usually indicated
- Compound (rotated) bicornual pregnancy may result only in mild signs of dystocia, owner may not notice the problem until much later
- Prognosis is poor.

Dystocia

- Twin pregnancy usually presents as an abortion

Dystocia

FETOTOMY

- Indicated if the fetus is dead, and mutation is impossible or difficult
- Principles essentially as for the bovine
- LUBRICATION (20 liters or more!)
- Epidural analgesia or general anesthesia

Dystocia

- Traction on extremity to be removed
- Careful placement of head of fetotome
- Good prognosis for life of mare, fair prognosis for breeding future
- Aggressive supportive therapy
- Antimicrobials, Fluid therapy, Regular uterine drainage
- Complications include peritonitis, laminitis, toxemia, retained placenta

Dystocia

- CESAREAN SECTION