

Care of the postpartum mare

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Peripartum problems

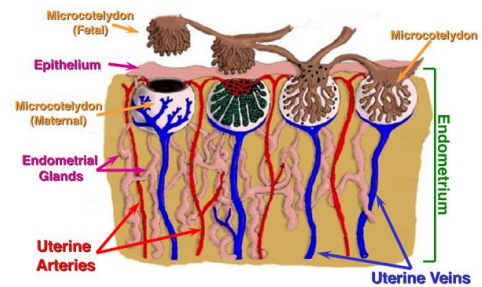
- Retained placenta
- Metritis
- Uterine artery rupture
- Uterine tear
- Uterine prolapse
- GI trauma
- Peritonitis
- GI disease
- Perineal laceration
- Cervical laceration
- Necrotic vaginitis
- ... etc

Retained placenta

- High risk for metritis, endotoxemia, laminitis
- Increased risk in cold-blood type horses: draftbreeds and Friesian horses
- Etiology ?? – Dystocia and difficult prolonged foaling
- Tx:
 - Oxytocin to stimulate peristaltic uterine contraction
 - Preventive Tx : Ab and NSAID
 - Remove placenta (different opinions and methods)

Microcotyledons

Increase placental surface area



Video animation expulsion of the placenta

https://youtu.be/YtnRIHwTf58?list=P_LMLlvzrvbJcRWSIkRFxwrKdZ-6cVJfMki

Start at 3:20



Figure 233.1 The allantoic side of the chorioallantois. (a) A mare's chorioallantois arranged in an 'F' formation for assessment. The top arm of the 'F' is the gravid horn (white arrow) and the lower arm of the 'F' is the non-gravid horn (black arrow). The body of the uterus makes up the back of the 'F'; the extra arm is the umbilicus attached to the amnion (open arrow). Note the prominent blood vessels visible on this side of the membranes. The hippomane is in the upper left corner. (b) The chorionic side of the chorioallantois. The chorion in the mare is diffusely covered with microcotyledons, giving a freshly expelled chorion a red, velvety appearance. The tip of the gravid horn in this example is hyperemic, pathogenesis unknown.

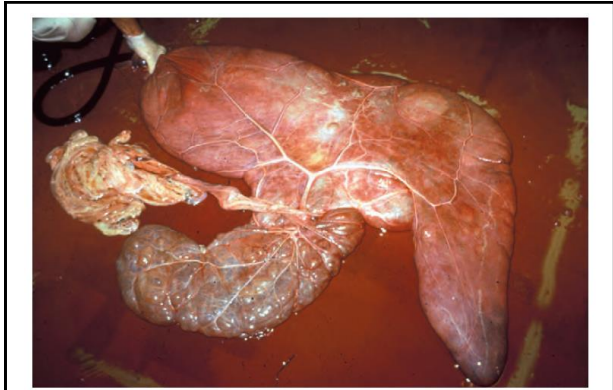


Figure 10-4 Expelled placenta is filled with water for examination.

Manual of Equine Reproduction by Brinsko et al (Third Edition) Mosby

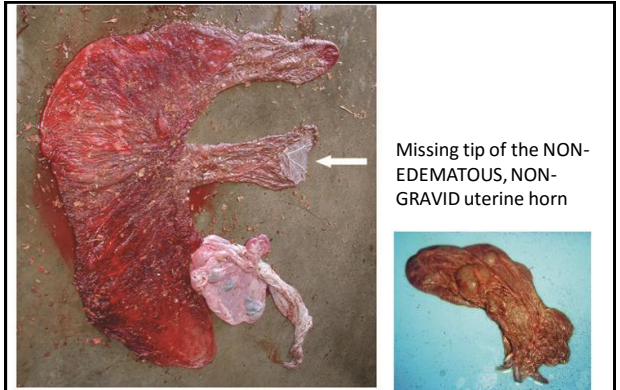
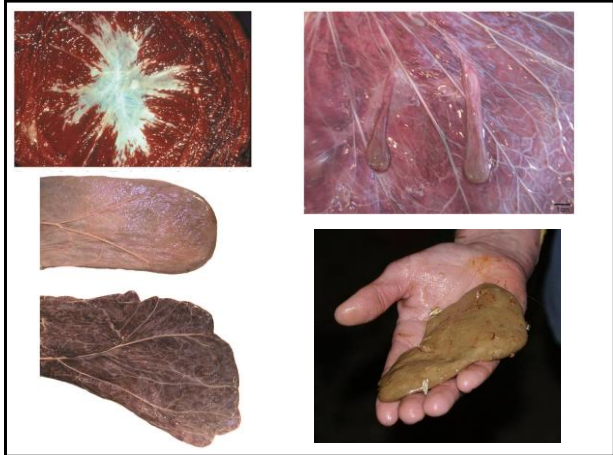




Figure 233.2 Chorioallantois of a mare with the chorionic surface facing out. Note the missing tip of the non-gravid horn (arrow).






Retained placenta : Tx

- Atraumatic expulsion of placenta - manual removal of placenta has pros and cons
- Control bacterial growth
- Prevention of secondary problems – endotoxemia and laminitis





Retained placenta : Tx

- Oxytocin (10-20 units every 30min to 4 hrs)
- Oxytocin IV drip – 60 units in 1 ltr – 1 unit/min until placenta is expelled (max 2 hrs)
- Burns technique (insufflation of the intact allantochorion with water)
- Modified Burns “Dutch” technique
- Careful “peeling” of placenta from endometrium – careful for micro-retention

Retained Placenta

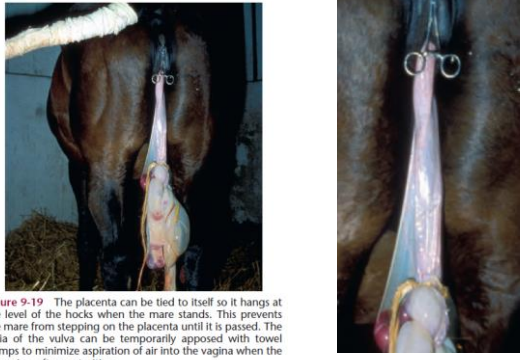
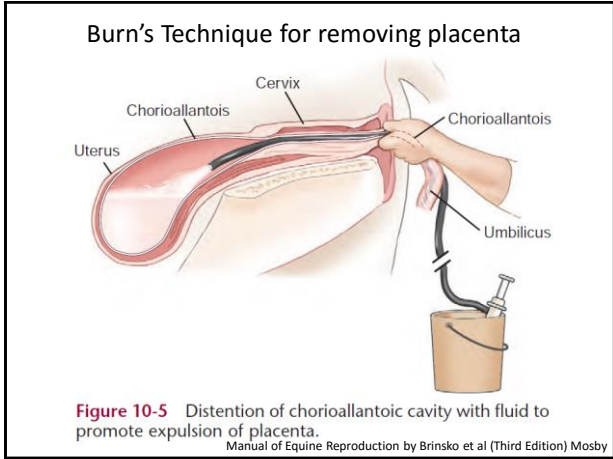


Figure 9-19 The placenta can be tied to itself so it hangs at the level of the hocks when the mare stands. This prevents the mare from stepping on the placenta until it is passed. The labia of the vulva can be temporarily apposed with towel clamps to minimize aspiration of air into the vagina when the mare rises after parturition.

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Video animation of the modified Burns technique

<https://youtu.be/mfjR-MTg6ng>

How to Use Umbilical Vessel Infusion to Treat Retained Fetal Membranes in Mares

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Introduction

- 2007-2014: 147 mares with retained fetal membranes > 3 hrs (majority > 6 hrs)
- Mares did not respond to the initial oxytocin therapy



Procedure

- 10-20 IU Oxytocin
- Foal nasal tube or stallion catheter
- Hose connector with flow control valve
- Water hose or pump
- Low pressure water infusion via umbilicus



Tube connected to the water hose



Hose connector + valve



Tube placement in the umbilical vessel



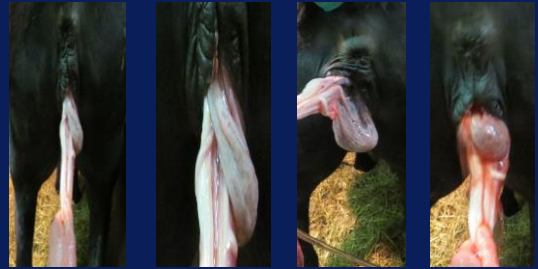
Tube placement in the umbilical vessel



Holding the tube in the umbilical vessel

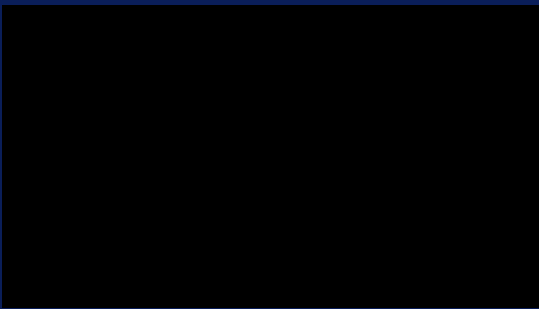


Procedure



Manual fixation of the tube in the umbilical bloodvessel,
Controlling the waterflow, depending on mare's physical reaction

Procedure



Technique for uterine lavage postpartum

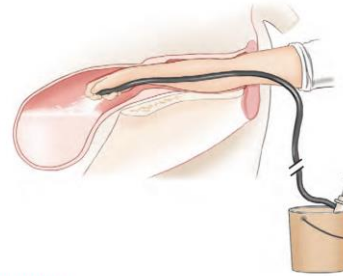


Figure 10-6 Technique used for lavage of the uterus of the postpartum mare. The hand should be cupped around the end of the tube to avoid injury to the uterus from the siphoning action.

Once removed: repeated uterine lavage plus oxytocin to help clearing out uterus
– no intrauterine antibiotics

After removal of retained placenta / metritis :

- Large volume uterine lavage
- Home made saline
 - Prepare 20-30 liters of water total
 - 90gm salt in bucket of 10 liters of tap water
- Broad spectrum Ab
- NSAID
- Foot care
(ice, water, pads)



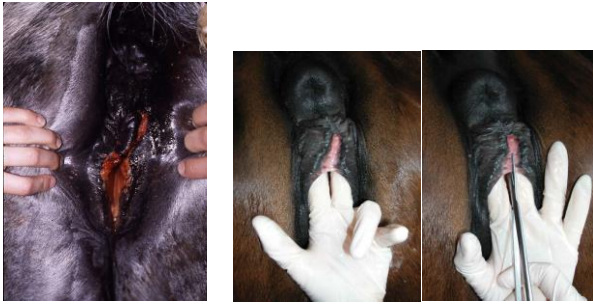
Examination of the postpartum mare

- Inspection of the vulva & perineum: lacerations?
- Examination of the genital tract: bleedings?



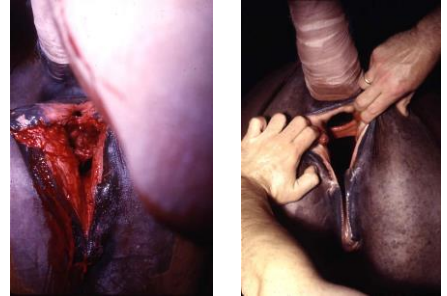
Vulvar lacerations

- Open Caslick before foaling



Recto-vaginal tear

- Not life threatening – treat conservatively in the acute stage – allow to heal by second intention



Cervical lacerations

- Conservative treatment
- Prevent adhesions by applying Ab/NSAID ointment
- Final diagnosis will be when mare is in luteal phase (digital exploration)

Partial invagination of a uterine horn

- Colic
- Discomfort
- Difficult Dx
- Repel with blunt extension (soda bottle)
- Maintain on low dose of oxytocin
- Epidural/pain relief

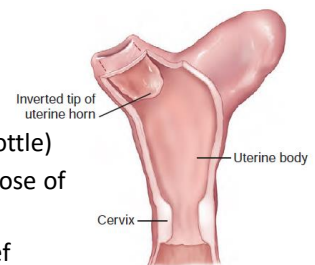


Figure 10-9 An invaginated uterine horn. Palpation per rectum reveals a short, blunted uterine horn and tense mesovarium.

Uterine prolapse

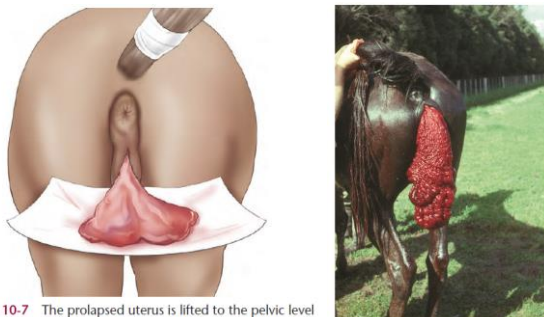


Figure 10-7 The prolapsed uterus is lifted to the pelvic level to restore circulation and reduce edema in preparation for replacement.

Figure 251.1 Photograph of a postpartum mare with uterine prolapse.



Figure 10-8 The prolapsed uterus is replaced after first covering the endometrium with petroleum jelly and then placing it inside clean plastic bags. The bags are removed as the uterus is pushed inside the vagina. This technique, described by Dr. Wendell Cooper, has been advocated to reduce the chances of lacerating the friable endometrium of the prolapsed uterus. The uterus should be completely replaced in its normal position to reduce the chance of re prolapse.

Uterine tear

- Connection with abdomen? – Peritonitis!
- Abdominocentesis
- Conservative Tx (Ab/NSAID)
- Surgery ??



Figure 10-10 Transverse uterine rupture in the uterine body that was discovered after dystocia was relieved. Note that a rupture in the tip of the previously gravid uterine horn is also present.

Internal Hemorrhage

- Rupture of one of the three branches of the uterine arteries
- More often on right side ?!
- Age-related – aneurisms, degenerative changes in the vascular walls
- Usually (almost always) bleeding within the two sheaths that compose the broad ligament

Internal Hemorrhage : Symptoms

- Severe signs of colic/pain that cannot be controlled with the usual medication
- Profuse sweating - flehmen
- Signs of hemorrhagic shock : pale mucous membranes, low PCV, increased HR and RR, cold extremities
- Presence of a large mass dorsolateral of uterus (palpation and ultrasound)
- Sometimes incidental finding at foalheat

Hemorrhage in the broad ligament

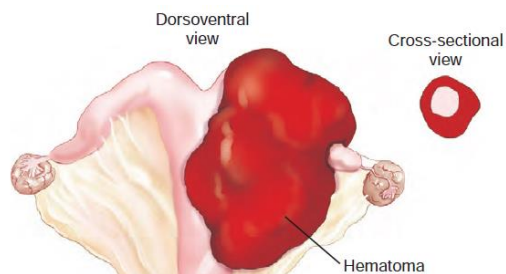


Figure 10-11 Drawing of uterine hematoma discovered during postpartum examination of the uterus of a mare, illustrating the extent of the surrounding hematoma.

Treatment

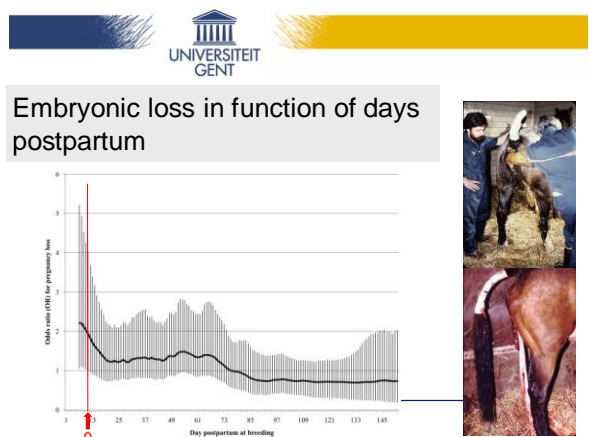
- Keep mare quiet, avoid stress, keep blood pressure low, risk for rupture of broad ligament
- Control pain (NSAID, butorphanol, ...)
- Blood transfusion if clinical parameters are indicative. Do not wait for blood results.
- Naloxone??
- **Aminocapric acid (inhibits clot lysis)**
- Reoccurrence??

Aminocapric acid (Amicar®)

- Aminocapric acid is an effective inhibitor for enzymes such as proteolytic enzymes like plasmin, the enzyme responsible for fibrinolysis.
- Effective in treatment of bleeding disorders
- Dose rate: bolus 20-40mg/kg IV Q6h
- Per horse (500kg): 20g in 1ltr saline IV over 30-60min followed by 10g IV every 6h until bleeding has stopped.

Prognosis / Future potential

- Fertility affected ??
 - 50% have had another foal
 - Many have had several foals
- Increased risk for reoccurring ??
- More severe next time ??
- Embryo transfer as a precaution ??



Foal heat

- First ovulation between 4 and 14 days postpartum (average 10 days)
- Uterine involution takes >12d
- Fertility (% pregnant) is lower (-10%)
- Risk for early embryonic loss is higher (+10%)
- Skip or inseminate?
- Postpone the first ovulation?
- Skip first ovulation and give PGF to shorten the luteal phase?

Routine treatment postpartum ...

- Progesteron starting 1d pp
- Progesteron starting 4-5d pp
- Uterine lavage
- Oxytocine / Prostaglandin to stimulate uterine contractions and evacuation
- Antibiotics (local or systemic)
- Caslick's / vulvoplasty !!



Strategy ...

- Agree on minimum interval from foaling to ovulation
- Do not use hCG on foalheat
- History of the mare
- Any sign of problem (free fluid in uterus)
- Age
- Vulvar conformation

Skipping the foalheat

Simply wait for the next estrus:

- $12 + 22 \text{ days} = 34\text{d} + 345\text{d} = 379\text{d} > \text{jr}$
- 50% pregnant per cycle : $22\text{d} + 10 \text{ d} = 32\text{d}$ lost per year

Shorten the luteal phase with PGF:

- $12\text{d} + 12\text{d} = 24\text{d} + 345\text{d} = 369\text{d}$
- Tease/examine mare until foalheat ovulation; give PGR 6 days after ovulation and use hCG to hasten the (second) ovulation