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Management of Dystocia

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Approach a dystocia with a consistent plan aimed at delivering the foal in the shortest possible time while minimizing mare complications.

Foals delivered more than 90 minutes after rupture of the chorioallantoic membrane rarely survive.
Save the foal and the reproductive potential of the mare

Management of Dystocia

- Length of time attempting to foal
  - 30 min or less
  - Placental separation
- Temperament of mare
  - Expulsive efforts
- Response to trauma
  - Adhesions, fibrosis, metritis

Initial Examination

- Restraint
- Middle of stall
- Standing if possible
- Cleanliness
- Walk slowly
- Determine OB procedure
Management of Dystocia

• Strict sanitation & lubrication
• Determine presentation, position and posture
• Access viability

Assess reproductive tract for trauma

Equipment needed

• Lubrication
  – Vaseline
  – Methyl Cellulose
• Soap irritates mucosa
• Chains or straps
• Hog snare
When to intervene – 5 min

- Forceful contractions
- Ruptured chorioallantois-no foal

Immediate intervention

- “Red bag”
- Front legs – no head
- Head and only 1 leg
- Mare is exhausted

Case 1

- 14 yr old TB mare
- 5 previous foals
- Well managed farm in Ocala FL
- Broke CA 5 min
- No foal
- You are 20 min away
- What should personnel do until you arrive?
Case 1

- Upon arrival, mare walking attempting to go down quietly
- Exam in middle of stall
  - Mare attempts to go down but does not kick
- Foal alive, left front leg retained at the knee, no contracture or ankylosis noted
- Method of sedation?

Drugs for obstetrical techniques

Should support or minimally decrease maternal arterial oxygenation and uterine perfusion

Effect on neonatal viability

- Cardiopulmonary effects
- Reversible??
- Can the neonate eliminate the drug??
Drug combinations for standing procedures

Xylazine
0.5 – 1.0 mg/kg
Acepromazine
10-20 mg
Butorphanol
0.025-0.05 mg/kg

Detomidine Hydrochloride

- Dose: 0.01-0.02 mg/kg IV
- Hypersensitivity
- Prolonged decrease in fetal heart rate

Mutation and traction
Case 2

- Fractious Saddlebred
- Maiden mare
- Ruptured CA 20 min
- Kicking and lunging during exam
- Rt front retained at fetlock
- Sedation?

Intravenous anesthesia

- Xylazine 1.1mg/kg*
- Butorphanol 0.025-0.05 mg/kg
- Ketamine 2.2 – 3.0 mg/kg
- * Detomidine 0.022 mg/kg

Intravenous anesthesia appears safer than inhalation anesthesia in pregnant mares

Taylor 1995; 1997
Aguiar 1997
Luna 1996
**Xylazine/Ketamine/GG**

- Higher fetal oxygenation
- Umbilical V-A difference lower
- \(\text{PaCO}_2\) lower in fetal artery & umbilical V-A
- Decreased fetal acidosis

**Intravenous anesthesia**

**Triple drip**

- 5% guaifenesin 1 Liter
- Ketamine 2 mg/ml
- Xylazine 0.5 mg/ml

* Ventilate mare; rate of 2 to 3 ml/kg/hr

**Halothane anesthesia in pregnant mares**

- Increase in pituitary adrenocortical activity
- Cardio respiratory depression
- Fetal acidosis
- Increased risk of fetal death
Case 3

- Miniature Mare 2nd foal
- Ruptured CA 120 min
- Vaginal mucosa normal
- Head back/ foal dead
- Management?

Mutation

- 1 cut fetotomy
- Need room
- Place wire around base of neck in front of withers
- Sedation?
Epidural anesthesia

- Lidocaine
  - 5 ml of 2% lidocaine/450 kg
- Xylazine
  - 0.17 mg/kg in 6-10 ml saline
  - 100 mg/450 kg

Fetotomy

- 1 to 3 cuts
- Must have room
- Contra-indicated if vaginal mucosa edematous or dry or cervix not effaced

Case 3 – Miniature mare

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After care

- Miniature horses and donkeys are prone to necrotic vaginitis even when delivery is not assisted
- May result in severe vaginal and urethral adhesions

Case 4

- 12 yr old QH mare
- 5 foals previously no difficulty
- Weak expulsive efforts/assistance given
- Delivery stops after chest of foal passes vulvar lips (2 strong men pulling)
- Can not deliver foal; Mare becomes frantic
- Differential diagnoses? Management?
Sedation? Management?

- Xylazine/butorphenol + epidural
- General anesthesia
- Detomidine drip + epidural
- Management
  - Fetalotomy
  - C section

Detomidine Drip

- Loading Dose 3 mg/450 kg
- Drip 12 ml D in 250 ml saline
  - 1st 15 min 2 drops/sec
  - 2nd 15 min 1 drop/sec
  - 3rd 15 min 1 drop/every 2 sec
Fetotomy

- “Dog Sitter”
- Foal dies during delivery
- Make cuts in vagina or uterus
- Eviscerate

Case 5

- 18 yr old TB mare
- Treated for 3 weeks for placentalitis
- Day 321 of gestation
- What do you do?

Common presentation for weak foal

- Retained head
  - Weak or dead foal
- Get head up first
  - then legs
Case 5 – Premature placental separation

- Retained placenta common sequela
- Culture fetal stomach contents if foal is dead or allantoic fluid before placenta is cut open
- IF manipulations are few, culture uterus
- Treat mare for metritis
- Ensure no inflammation or infection before attempting to breed again

Bacterial isolates

- Fetal stomach
- Uterus

Proposed route of fetal infection

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Pathological & bacteriological findings

- Infection appears to spread through chorioallantois at cervical star into allantoic fluid; fetus inhales or aspirates fluid
- Lung is organ of predilection
- Uterine culture taken within 24 hrs of abortion may identify the cause of premature delivery or abortion
At what point do you quit in the field?

Controlled vaginal delivery
- Mare is suspended to facilitate delivery of foal
- Limit manipulations to 30 min

Dystocia in a referral hospital
- From 1986-1999 247 cases
  - 42% of dystocias – delivery of live foal
  - 30% of foals discharged
- Time from chorioallantoic rupture to delivery
  - Foals alive at discharge – 72 ± 34 min
  - Foals not surviving – 85 ± 37 min
Referral hospital management

Maternal trauma

- Protect the cervix !!!
- If it is torn - fertility is severely reduced

Do no harm
Cesarean section

• Elective versus emergency
• If emergency-timing
• Complications

Fertility and complications associated with cesarean section

KK Abernathy, MM LeBlanc, SW Pierce, RM Emberton

Fertility and c-section

• 97 mares
  – 71 dystocias; 15 partial fetotomies
  – 20 medical or surgical disease
  – 6 elective
• 15 mares died
  – 5 from medical or surgical disease
  – 10 dystocias- 6 had partial fetotomies
Live foals discharged after c section

- 30/90 foals discharged
- 15 foals after dystocia (21%)
- 10 foals after medical or surgical problem (50%)
- 5 foals after elective c section (83%)

Fertility after c section

45 Day preg rate
- Year 1 22/42 52.4%
- Year 2 43/62 69.4%
- Year 3 36/53 68%

Foaling rate before c section: 375/480 - 78%

Foaling rate
- Year 1 17/41 40.5%
- Year 2 38/62 61.3%
- Year 3 31/53 58.5%

Factors affecting fertility

- 54 of 82 mares (that lived) experienced complications after c section
  - 44/54 had retained placenta
- 8 mares were in labor < 90 min
  - 1st, 2nd and 3rd yr foaling rate: 33%, 80 and 87.5%
- 35 mares labor > 90 min
  - 1st, 2nd and 3rd yr foaling rate: 50, 52 and 52%
## Effect of age on foaling rate

<table>
<thead>
<tr>
<th>AGE</th>
<th>1st yr foaling</th>
<th>2nd yr foal</th>
<th>3rd yr foal</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 9 yr</td>
<td>7/19 (36%)</td>
<td>18/30 (60%)</td>
<td>18/26 (69%)</td>
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<td>10-15 yr</td>
<td>8/15 (53%)</td>
<td>15/19 (79%)</td>
<td>12/19 (63%)</td>
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<td>&gt; 16 yr</td>
<td>2/8 (25%)</td>
<td>5/13 (38%)</td>
<td>2/8 (25%)</td>
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