Causes of Dystocia in farm and pet animals

Prof G N PUROHIT

Head, Department of Veterinary Gynecology and Obstetrics,
College of Veterinary and Animal Science, Rajasthan University
of Veterinary and Animal Sciences, Bikaner, Rajasthan, India
• Dystocia  Difficult birth

• Eutocia: Safe physiological normal parturition or delivery
DISORDERS DURING PARTURITION

- **DYSTOCIA** :-
  difficult birth

- **RUPTURE OF BIRTH CANAL** :-
  * Occurs because of extra force &/or use of sharp instruments
  * Most common rupture is cervical

- **PROLONGED GESTATION**
CAUSES OF DYSTOCIA

MATERNAL

Expulsive forces
- Uterine
  - Inertia
    - Primary
    - Partial
    - Secondary
  - Total
    - Rupture
    - Torsion
- Abdominal
  - Primary
  - Partial
  - Total
  - Age
  - Debility
  - Painful conditions
  - Uterine hernia
  - Rupture of diaphragm

Birth canal
- Inadequate pelvis
  - Immaturity of heifers
  - Pelvic fracture, exocytosis
  - Breeding of small sized breeds with larger breeds
  - Developmental disease
- Insufficient dilation
  - Uterine torsion
  - Cervical dilation failure
  - Vaginal strictures, tumors, etc
  - Improper vulvar dilation, vulvar stenosis

FETAL

Oversize
- Absolute Monster
  - Relative
  - Fetal death and emphysema
  - Fetal defects
    - Ascites
    - Anasarca
    - Hydrocephalus
  - Maldisposition
• Presentation: Relationship of the long axis of the fetus in relation to the birth canal

Longitudinal
  - Anterior (Cranial)
  - Posterior (Caudal)

Transverse

Horizontal

• Position: Relationship of the dorsum of the fetus as applied to the quadrants of the mother: sacrum, ileum, pubis

Dorso sacral
  - Dorso-ilial
  - Dorso-pubic
• Posture: Relationship of the head and extremities of the fetus to its own body

Normal Birth Posture: Anterior longitudinal presentation dorso-sacral position, both forelimbs extended and the head extended resting on the knees.
Common causes of Dystocia

BASIC

1. Hereditary - Breeds like brown Swiss, Bull dogs
   - Defects like hydrocephalus, Achondroplasia, Perosomus
2. Nutrition & Management - Small size of the dam
   - Disproportionate mating
   - Poor or excess feeding.
3. Traumatic - Ventral hernia, rupture of prepubic tendon.
4. Miscellaneous - Calcium deficiency

IMMEDIATE

Maternal and Fetal or a combination of both
A. MATERNAL- I Failure of Expulsive forces or II Insufficient dilation of birth canal

I Expulsive forces.

1. Uterine expulsive forces
a) Uterine Inertia
i) Primary uterine inertia - Myometrial defect - overstretching, degeneration uterine infection, small litter size, heredity.
   - Biochemical deficiencies – estrogen, oxytocin, PGF$_2$, relaxin, calcium, glucose.
   - Environmental disturbance.
   - Nervousness
   - Oligoannion- Premature birth
   - Lack of exercise
ii) Secondary Uterine inertia- Subsequent to exhaustion
• Dachshund, Labrador Retriever, German Shepherd, Great Dane, Saint Bernard, Pug and Pomeranian are more prone to complete primary uterine inertia in the bitch
• Nervous voluntary inhibition of the labor can occur in the bitch
• Secondary uterine inertia- following exhaustion
• Therapy  Calcium borogluconate IV in cows
  – Calcium gluconate in the bitch 5-10 mL IV monitor heart beats before administration
  – Dextrose, Oxytocin. Spasmolytics in repeated administration of oxytocin in bitch. PG
b) Uterine rupture  
Spontaneous – due to a weak point 
Accidental – rolling during torsion 

In large uterine ruptures with severe internal hemorrhage, death occurs shortly. In smaller ruptures, an animal may show transient colic without fetal delivery. Sometimes, intestine may prolapse from the vulva coming out through the ruptured part of the uterus. Administration of oxytocin after fetal delivery would contract the ruptured part of the uterus however, extensive ruptures with prolapse of abdominal organs necessitate emergency laparotomy with repair.
c) Uterine torsion

2 Abdominal Expulsive forces

- Inability to strain because of age, pain, debility,
- diaphragmatic hernia, abdominal hernia.

- Manual assistance would be required in all such cases
II Insufficient dilation of the Birth Canal

1. Inadequate pelvis
-Due to pelvic fracture, exocytosis, immaturity, breed, neoplasia
  Commonly require cesarean section.

2. Insufficient dilation-
 a) Uterus- torsion, herniation, adhesions
 b) Cervix- dilation failure, congenital defects, fibrosis.
 c) Vagina- Congenital defects, fibrosis, prolapse, perivaginal abscess,
   strictures, excess fat
 d) Vulva- congenital defects, fibrosis, immaturity.
Cervical dilation failure

• Cervical dilation at parturition involves a complex process. It is a multifactorial process which is an outcome of hormonal regulation, inflammatory process and enzymatic breakdown of collagen.

• When fully dilated the cervix is continuous with the vagina

• Cervical dilation problems are less common in buffalo compared to cattle due to more capacious pelvis, larger area of ileum and free and easily separable 5th sacral vertebra.

• Cervical dilation problems are common in sheep and goats and known as Ring Womb.
• When cervix is not dilated sufficiently it is palpable by trans-rectal examination and on vaginal examination a slit in the cervix permitting only the passage of 1 or 2 fingers is found.

• The animal should be examined to rule out uterine torsion

• Sometimes it is beneficial to wait for some time and then evaluate again.
• B-2 adrenergics such as salbutamol, terbutaline, isoxsuprine HCl (50-100 mg IM or IV for cows, 100-150 mg for mares and 10-40 mg for sheep and goats) can be tried along with manual manipulation but results are not consistent.
• Clenbuterol (Planipart) 0.3 mg IV or IM
• Denaverine HCl (400 mg IM) (spasmolytic) (Germany) but not suggested if parts of fetus are not in the cervical canal hence has limited value.
• Valethamate bromide (Inj Epidosin) an antispasmodic has been shown to shorten the first stage of labor at dose of 80 mg IM in cattle and 24-40 mg in sheep and goats and also in cervical dilation failure due to cervical spasm in cattle, but results are inconsistent.

• Drugs such as misoprostol local application have shown some promise in mares but not in cattle and similar results were obtained by IM administration of Ritodrine in cattle.

• In the presence of an emphysematous fetus partial cervicotomy has been suggested if the fetus is in the birth canal.

• Cesarean section is suggested if drug therapy fails.
Vaginal causes of insufficient dilation

- Congenital strictures in the vagina or fibrous tissue bands often hinder conception in bitches but seldom impede whelping.

- Abscess in vagina can rarely cause dystocia but can be easily drained prepartum if located.

- Vaginal tumors or growths if small seldom cause difficulty in parturition yet large growths may sometimes rarely problem in delivery. Often many growths protrude outwardly post partum and can be removed surgically by general or cryo-surgery.
• In the presence of vaginal hematomas/large immature abscess it is often to opt a cesarean section.

• **Vaginal Cystocele** (Prolapse of bladder through urethra or vaginal rupture). The bladder must be replaced first after pushing the legs of fetus back in the birth canal.

• **Vulvar stenosis**: Fetus can be delivered by traction with or without a episiotomy cut about one third down the lateral wall of the vulva through the skin mucosa junction
Vaginal cystocoele
1. **Fetal death** - Lack of initiation of birth process, lack of movements.

2. **Fetal oversize**  
   a) **Absolute** Large sized fetus Monsters, disproportionate mating  
   b) **Relative** - A fetus larger relative to the pelvis. Fetopelvic disproportion common in heifers that calve at less than 2 years of age.

3. **Fetal defects** - Ascites, anasarca, hydrocephalus

4. **Fetal Malposition**
   - **Malpresentation** - Transverse, lateral, vertical
   - **Malposition** - Dorsopublic, Dorso-ilial, oblique
   - **Malposture**
     - Anterior presentation – Limb flexion at carpal, elbow or shoulder
     - Head deviation – lateral, upward and downward (vertex, footnape and breast-head)
     - Posterior presentation: Hock flexion and hip flexion (Breech)

4. **Fetal defects**: Ascites, Hydrocephalus, Anasarca
Abnormal Presentations
Transverse Presentation

Dorso-Transverse

Vento-Transverse
Dog sitting (ventro-vertical posture)

Simultaneous presentation
Abnormal Positions
Dorso pubic and Dorso-iliaal positions
- Abnormal birth postures: Head deviation and limb flexion (carpal, elbow and shoulder) Vertex

- Anterior Longitudinal Presentation

- Lateral Head Deviation

- Downward Head Deviation

- Carpal flexion

- Elbow flexion

- Shoulder flexion

- Vertex

- Nape

- Breast Head
Lateral head Deviation
Downward head Deviations

Vertex
Breast Head
Nape
Head Deviation in a calf and foal
Limb flexions
Carpal flexion
Elbow flexion
Shoulder flexion
Posterior Longitudinal presentation

Hock flexion

Hip flexion
Hip Flexion and Hock flexion
Hip Flexion and Hock flexion
CAUSES OF DYSTOCIA IN CATTLE AND BUFFALOES

The most frequent cause of dystocia in cows is fetopelvic disproportion and fetal malpresentation. Hence fetal causes are more common in cows whereas in the buffalo uterine torsion is the single largest cause of dystocia in the dairy buffalo.

<table>
<thead>
<tr>
<th>Cause of dystocia</th>
<th>Cattle (% frequency)</th>
<th>Buffalo (% frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fetopelvic disproportion</td>
<td>45</td>
<td>8</td>
</tr>
<tr>
<td>Fetal malpresentation</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Cervical dilation failure</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Uterine Inertia</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Uterine torsion</td>
<td>3</td>
<td>55</td>
</tr>
<tr>
<td>Other maternal abnormalities</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Other fetal abnormalities</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>
CAUSES OF DYSTOCIA IN OTHER SPECIES

The incidence of dystocia in the mare is rare, most frequent cause of dystocia in mares is lateral head deviation followed by posterior presentation problems and rarely transverse presentation.

The common causes of dystocia in sheep and goat are fetal maldispositions and birth canal obstruction. Ring womb or the cervical dilation failure is one of the most common cause of birth canal obstruction (and thus dystocia) in sheep and goat.

The most common cause of dystocia in the bitch, cat and sow is uterine inertia, followed by fetopelvic disproportion.
Thank You

Kindly share the video and subscribe to my You tube channel **Govind Narayan Purohit** if you like them