

Common diseases and accidents during gestation, prolonged and pre-matured birth, termination of pregnancy, early embryonic death



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Common diseases and accidents during gestation

Certain diseases and accidents commonly occur in cattle during gestation. Those can be noted as given underneath:

1. Abortion
2. Maceration of foetus
3. Mummification of foetus
4. Torsion of uterus
5. Vagino-cervical prolapse
6. Paraplagia of pregnancy
7. Dropsy of foetal membranes and foetus
8. Abdominal hernias resulting in hydrocele
9. Extra- uterine pregnancies and fetuses
10. Miscellaneous accidents

Abortion

Expulsion of living or dead foetus of recognizable size before term can be termed as abortion, Generally, aborted foetus is non-viable.

Etiology :

Different causes affecting the foetus or placental membrane or both the foetus the placental membrane cause abortion to the animal.

Symptoms of abortion :

- Expulsion of foetus pre-maturely or at term
- Aborted foetus may be live or die shortly after birth because of weak and disease condition.
- Aborted dead foetus having varying degree of decomposition or developed autolysis.

- In case of abortion after four month of pregnancy, expulsion of foetus is followed by retention of placenta.
- Frequent straining
- In most aborted cases with retention of placenta metritis may develop.

Causes of abortion :

The factors causing abortion can be classified into two major groups :

- ❖ Infectious cause and
- ❖ Noninfectious causes

Factors of infectious causes of abortion are :

- Bacterial
- Miscellaneous Bacterial
- Viral
- Miscellaneous viral
- Mycotic or Fungal
- Protozoal

Factors of noninfectious causes of abortion are as given under:

- Chemical, Drug and poisonous plants
- Hormonal
- Nutritional
- Physical
- Genetic or chromosomal
- Miscellaneous

Maceration of foetus

The fertilized ovum or embryo succumbs to bacterial or viral infection or other disease or abnormality. Ovum or embryo usually absorbed in the uterus. Sometimes, bones of macerated foetus may pass through the cervix with pus. In complicated case, bones are deeply embedded in the endometrium.

Occurance :

- ❖ At any stages of gestation
- ❖ Observed in all species

Effect of maceration :

Based on period of occurrence affect of maceration results :

➤ *When maceration in early stages of gestation :*

- Insignificant purulent uterine or vaginal discharge
- Embryo is seldom observed
- Pyometra results – foetal shreds and placental remnants in the pus.

➤ *When maceration after three month of gestation :*

- Develops emphysema in 24 to 48 hours from the time of death of the foetus.
- In 3 to 4 days macerated foetus.

Clinical findings :

- Foul, fetid, reddish-gray vulvar discharge
- Intermittent straining
- **On examination per rectum or vaginum :** Distended, swollen foetus with crepitating sound in the tissue

Important information :

In long standing case : common case history recorded is chronic, fetid, mucopurulent discharge from the vulva over a period of several weeks or month.

Treatment :

➤ *If much pus is present :*

Treatment as in case of pyometra can be done. Bones may pass through cervix with pus.

Prognosis : poor.

➤ *In long standing case :*

severe damage to endometrium.

- Prognosis : poorer.

Mummification of foetus

Occurance :

In cattle, horse, sheep and goat, swine, dogs and cats.

Types of mummification of foetus :

- Hematic type; in cattle
- Papyraceous type; in other species

What is mummification of foetus ?

Death of foetus that occurs in middle or last 3rd of gestation leads to autolytic changes, absorption of placental and foetal fluids, involution of maternal placenta and at last uterine contraction tightly enclosed the conceptus.

Etiology :

- Genetic cause
- Torsion and compression of umbilical cord

Important information :

Foetal death does not occur due to infections.

Symptoms and clinical findings :

In cow following symptoms and clinical findings are generally observed.

- Failure of oestrus with persistent corpus luteum
- Fairly thick uterine wall
- Cotyledons are not palpable
- Fremitus is found negative
- No calving even after parturition

Incidence :

- ❖ Goat : Rare
- ❖ Sheep : Occasional
- ❖ Horse : Occurs seldom
- ❖ Pig : Causes prenatal loss. Mummified foetus expelled at parturition along with normal fetuses.
- ❖ Dog & cat : Uncommon, though 1-3 foetuses are expelled with normal pups at the time of whelping.

Treatment :

- Estradiol injection i/mly @ 50-80 mg
- Removal of persistent CL of pregnancy

Torsion of uterus

Torsion of uterus means twisting or revolution of uterus on its long axis. In uniparous animals rotation of uterus takes place clockwise or anticlockwise direction.

Mild degree torsion :

45^0 to 90^0 rotation of uterus

High degree torsion :

180^0 to 360^0 rotation of uterus

Occurance :

Various **factors** cause torsion of uterus which is

- Common : in cattle, dogs, cats, sheep, goats and mare
- Rare : in sow

Important informations:

- ❖ Torsion occurs in non-pregnant uteri containing pus.
- ❖ Torsion is commonly observed in pluriparous than in primiparous animals.
- ❖ Torsion in uniparous animals are either right (clockwise) or left (counter-clockwise).
- ❖ $45^0 - 90^0$ torsion are frequently found on rectal examination,; $180^0 - 360^0$ torsion are unusual.
- ❖ Amount of torsion on broad ligament and arteries indicate severity of torsion.

Symptoms :

The symptoms of torsion are only exhibited by the animal only when torsion of uterus is 180^0 or more. Those are :

1. Abdominal pain	6. Rapid pulse rate
2. Anorexia	7. Restlessness or colic symptoms
3. Constipation	8. Treading
4. Lack of rumination	9. Switching of tail
5. Weak and slow rumen contraction	

Clinical findings :

- Right or left broad ligament is pulled strongly downward and under the twisted uterine body and vagina (clockwise/ counter-clockwise).
- Then the left or right broad ligament is pulled tightly crossing over the top over the cervix, body of the uterus and vagina.
- Middle uterine arteries are tightly stretched.
- In advanced pregnancy- dorsal commissure of the vulva being pulled forward to the left or right.

SAWHORSE : *the term is applied in case of ewe in stiff, stilted gait and stretched body condition due to torsion of uterus*

Prognosis :

depends upon following factors :

- Degree of factors (90^0 or less- good)
- Severity of symptoms
- Length of time exist

Treatment :

- ❖ Rolling of animal
- ❖ Laparotomy

Important information:

A major disadvantage of rolling of the animal is dangerous to animal's life.

VAGINO-CERVICAL PROLAPSE

During gestation the vagina and part of cervix in cow sometimes turn away which is known as vagino-cervical prolapse; also called 'casting of wethers'.

Type :

- Pre-partum and
- Post-partum prolapse

Pre-partum prolapse occurs during last 2 to 3 months of gestation in cow.

Etiology :

- Secretion of oestrogenic hormone by placenta.
- Increase intra-abdominal pressure to the pelvic structure.
- Atony of the reproductive tract and general weakness.
- Hereditary or genetic factor.
- Species factor- common in pluripara than primipara.
- Confinement.
- Over-distention of the abdomen or excessive amount of loose pelvic fat.

Occurance :

- ❖ In cow : In last 2 to 3 months of gestation.
- ❖ In bitch : at the time of oestrus.

Important informations :

The condition occasionally observed in cattle following parturition.

Prognosis :

depends on primarily on two situation :

- Severity of the condition.
- Length of time it has existed.

Treatment :

Following treatments can be made in cervico-vaginal prolapse condition :

- ***Manually correction*** : The following steps are necessary to be followed in successful treatment of the case :
 - Cleaning and disinfection.
 - Epidural anaesthesia.
 - Icing the prolapsed part- to reduce size.
 - Correction.
 - '8'-knot suture.
- ***Elevation of hind quarter***: Raising of the hind quarter up to 2" to 6" from the ground is found to be effective.
- ***Progesterone injection*** : 50 to 100 mg / day of progesterone injection can be continued up to 1 week to parturition.
- ***Epidural anaesthesia*** : Five to ten ml of 2% procaine or Xylocaine solution can be used as epidural anaesthesia in vagino-cervical prolapse case.
- ***Vulvar suture*** : At the beginning of the case one '8'- knot vulvar suture is found to be effective along with progesterone injection.

PARAPLAGIA OF PREGNANCY (PARESIS OF PREGNANCY)

Occurrence :

Paraplagia of pregnancy generally occurs in advance pregnancy due to

- ❖ Growth of the foetus
- ❖ Progressive relaxation of pelvic ligament and
- ❖ Increasing size of the udder.

The condition also occurs soon after parturition or dystocia.

Factors of paraplegia of pregnancy :

- Nutritional deficiencies and starvation; Ca, P, Cu, Co, Fe, Vit. A and carbohydrate are some important nutritional components those effect on paraplasia.
- Dropsy of foetal membranes and foetus.
- Injuries to the joints and tendons.
- Fracture of rare limbs and spine.
- Septic or infectious processes.
- Other conditions like rabies, listeriosis, tumor in the brain and spinal cord, diseases of CNS etc. also cause paraplegia in pregnant animals.

Nutritional deficiencies and starvation cause various diseases in the livestock as presented in the table below:

Species/ animal	Disease	Factors	Treatment
Cow	A) Gras tetany	Hypocalcaemia/ Hypomagnacaemia	Ca/ Mg therapy (I/V route)
	B) Milk fever or parturient fever	Defficiency of Ca (in high yeilding cow)	Ca injection (I/V route)
Ewe	Ketosis	Lake of carbohydrate (common in debilated animal)	Glucose injection (I/V route)
Dogs and cat	Puerparal tetany (Eclampsia)	Hypocalcaemia*	Ca therapy (I/V route)

*Symptoms: Nervousness, restlessness, whining, staggering, stiffness of legs and finally collapse with colonic spasm, laboured respiration, increasing temperature.

DROPSY OF FOETAL MEMBRANES AND FOETUS

Symptoms :

Distended abdomen as if twins or triplets are present (common in uniparous animals).

Types :

There are four types of dropsy :

- Hydramnios/ hydrops of amnion.
- Hydrallantois/ hydrops of allantois.
- Oedema of the allantois chorion
- Foetal anacerca of foetal oedema with ascites and hydrothorax

Occurrence :

Incidence of hydramnios and hydrallantois in different farm animals is as shown in the table :

Occurrence	Hydramnios	Hydrallantois
Common	Cattle	Cattle
Occasional	Sheep	-
Rare	Pigs	-

Differential diagnosis of hydrallantois and hydramnios in cattle :

Parameters	Hydrallantois	Hydramnios
Characteristics	Enlargement of foetus and membranes	Enlargement of amniotic cavity
Incidence	85 – 90 %	5 – 10 %
Abdominal enlargement	Rapidly develop (within 5 to 20 days)	Slowly develop (over weeks to months)
Shape of abdominal wall	Round, distended, tense	Pear shaped, less tense
Palpation of uterine horns	Easily palpated	Hard to palpate
Per rectum palpation	Not easily the foetus, placentomes and ballotment can be palpated	May be through the abdominal wall
Nature of amniotic fluid	Watery, clear and amber with	Syrupy, viscid and often contain

	characteristics exudates	meconium
Foetus	Normal and small sized twins	Defective anomalous foetus
Placenta, allanto-chorion and placentomes	Diseased, abnormal with greatly hypertrophied placentome	Normal
Post-effective removal of fluid	Rapidly fills again	Slowly filled with less volume
Retained placenta & severe metritis	Usually occur	Occasionally occur; metritis less severe
Sequelae	Uterine rupture, abdominal hernias, dislocation of hips in severe case	Adverse sequelae are rare
Prognosis for life & fertility	Guarded to poor	Fair to good

ABDOMINAL HERNIAS

Etiology :

Occurance of hydrocele during pregnancy.

Types :

- ❖ Umbilical hernia
- ❖ Inguinal hernia
- ❖ Parineal hernia
- ❖ Diaphragmatic hernia
- ❖ Ventral hernia

Effect of abdominal hernia :

Pregnant uterus falls into the sac of the abdominal hernia. As a result dystocia occurs ensuing death of foetus or dam or foetus and dam.

EXTRA-UTERINE PREGNANCIES AND FOETUSES

Types :

- ❖ True extra-uterine pregnancy and
- ❖ False or Secondary extra-uterine pregnancy

True extra-uterine pregnancy :

The fertilized ovum, embryo or foetus establish nutritive relationship with ORGAN or TISSUE other than the ENDOMETRIUM upto certain egree of embryologivcal development.

False or Secondary extra-uterine pregnancy :

The fertilized ovum, embryo or foetus reseaches to a recognizable size along with normal placental relationships with endometrium. Then it ESCAPES from UTERINE CAVITY either into the abdominal cavity or the vagina, that is known as VAGINAL PREGNANCIES.

RESULT OF DIFFERENT TYPES OF PREGNANCIES:

TRUE EXTRA-UTERINE PREGNANCY	FALSE OR SECONDARY EXTRA-UTERINE PREGNANCY
The foetus succumbs	The foetus dies and remains as a STERILE FOREIGN BODY in the VENTRAL PORTION OF THE ABDOMINAL CAVITY

MISCELLANIOUS ACCIDENTS (during pregnancy)

- ❖ Haemorrhages of pregnancy
- ❖ Rupture of gravid uterus
- ❖ Strangulation of large colon by gravid uterus
- ❖ Strangulation of gravid uterus by pandulated lipoma

Haemorrhages of pregnancy :

occurs in utero-chorionic space or between maternal and foetal placenta which can be noted only after parturition.

Etiology :

Rupture of larger vessels due to trauma or violence.

Rupture of gravid uterus :

Etiology :

- Dystocia
- Abortion
- Emphysematus foetus
- Chorionic peritonitis with uterine adhesion
- Torsion
- Dropsy of the foetal membranes and foetus
- Extreme violence and trauma in advance pregnancy

Strangulation of large colon by gravid uterus :

The colon is displaced beneath the gravid uterus.

Symptoms :

- Digestive distress.

Strangulation of gravid uterus by pandulated lipoma : where lipoma wrapped around the GRAVID UTERUS.

PROLONGED AND PREMATURE BIRTH

Prolonged birth :

Etiology :

- Iodine deficiency
- Progesterone injection
- Vitamine deficiency
- Inbreeding
- Destruction of foetal pituitary gland and
- Hypoplasia/ aplasia of hypophysis

Iodine deficiency results hypothyroidism which is commonly found in sow. The gestation prolonged by 4 to 10 days of normal gestational length.

Sow, dog, sheep and cow response to progesterone injection with prolonged gestation.

The inbreeding effect can be most commonly observed in case of sow with a range of 3 to 4 weeks of longer gestation.

Destruction of foetal pituitary gland at around 90 to 142 days of gestation in ewe cause longer gestational length.

Effect of longer gestational length in cattle :

- ❖ Postmature, long haired with giant foetus.

Premature birth :

Etiology :

- Severe stress
- Starvation
- Deficiency diseases*
- Chronic debilitating diseases*
- Malnutrition*
- Infection
- Involution of CL of pregnancy associated with hyperplastic adrenal cortex

* Premature birth associated with abortion in cattle.

Effect of premature birth in cattle :

- ❖ Immature foetus with cranial or CNS abnormalities
- ❖ Foetal adrenal gland becomes hypoplastic

EARLY EMBRYONIC DEATH

It is a condition in which corpus luteum of pregnancy terminates at early parts of the gestation and death of embryo takes place.

Effect of early embryonic death on oestrous cycle :

Period of embryonic death	Oestrous cycle length
1. Eight to 16 days after breeding	Normal (of 18 to 24 days)
2. Sixteen to 25 days after breeding	Longer (from date of service/ A.I. to onset of next oestrus)
3.	

Etiology of early embryonic death :

- * Pathological
- * Managerial

Pathological causes are :

- * Genetic or congenital
- * Acquired
- * Infections or traumatic inflammatory process
- * Endocrine dysfunction

Genetic or congenital cause such as anatomical defects of the genital organ.

Acquired defects are defects of ova, spermatozoa and early zygote.

Infections or traumatic inflammatory process cause early embryonic death affecting the genital organ.

Managerial causes are :

- * Nutritional deficiency
- * Stress
- * Temperature

Transportation and new surroundings cause embryonic death to the pregnant animal due to stress. High ambient temperature such as more than 80 degree F cause early embryonic death.

Treatment :

- * Culling of animal
- * I/U treatment
- * Hormonal therapy
- * Vitamines and mineral supplements
- * Proper/ sufficient ventilation

Pyometra

Pyometra in bovine :

Accumulation of pus or mucopurulent matter in the uterus. The animal having RETAINED CORPUS LUTEUM with FAILURE OF OESTRUS due to suppression of endometrial leutolytic factor secondary to severe endometritis. The retained corpus luteum (CL) is not the CL of pregnancy in the post partum pyometra , but, is the CL following first to third ovulation that persist due to the uterine infection.

Character of pus :

- * Volume : 2/3 ounces to 2 to 4 gallons.
- * Colour : Creamy, yellow, white or greenish gray.
- * Consistency : usually thick mucoid.

Etiology :

- * Abnormal parturition
- * Uterine infections
- * Tardy involution of uterus
- * Chronic cystic ovarian condition
- * Introduction to infection into genitalia during breeding by bull or A.I.

Symptoms :

- * Failure of oestrus
- * Escape of pus when cow lies down or urinate or defecates if cervix is relaxed.
- * Presence of pus into the catheter after out of cervix.

On rectal examination :

- * Retention of pus (2/3 ounces to 2 to 4 gallons) or mucopurulent material in the uterus.
- * Uterine wall becomes thick, flaccid and atonic.
- * About 3 to 4 ounces of pus may come out from the cranial portion of the vagina.

Prognosis :

A. In early diagnosis and if treatment is conducted within 60 to 160 days of diagnosis :

Recovery with successful correction of the organ.

B. In long standing case beyond 120 days :

- * Endometrium : destroyed
- * Uterine wall : starts fibrosis

No complete recovery and no conception.

C. Pyometra with severe perimetritis (*inflammation of serosa*) :

Hopeless

Treatment :

To evacuate the pus following treatments can be done :

- * Involution of retained CL : by
 - (a) Manual removal
 - (b) Oestrogen/ glucocorticoid injection
- * Douching of uterus
- * Pituitrin injection after oestrogen
- * Parenterally antibiotics
- * Pituitrin injection sterilize myometrium and dilate/ relax cervical os.

Differential diagnosis of pyometra from pregnancy

	Pyometra	Pregnancy
l. content	Pus	Water like placental fluid
Foetal membrane's slip	(-)ve	(+)ve
Foetal cotyledones	Absent	Present
Fremitus	Absent	Present
Foetal bump	Absent	Present
Foetal appendages	Absent	May be present (in later stage of pregnancy)
Uterine enlargement	Symetrical	Asymetrical (in early pregnancy period)

Pyometra in bitch:

Pyometra is mostly detected at metoestrus period in bitch characterised by odorous exudate with distension of uterine horn.

Colour of discharge is yellowish gray to reddish brown.

Etiology :

- * Prolonged hormonal stimulation e.g. progesterone
- * Infectious agents e.g. e.coli, staphylococci

Types :

Acute and severe : which results within 1 or 2 weeks.

Chronic : It is of either mild or severe form. The disease may run for a month or more.

Pyometra in bitch is called as cystic hyperplasia-pyometra complex or cystic hyperplasia, endometritis, metritis and pyometra complex.

Grading of cystic hyperplasia, endometritis, metritis and pyometra complex and its symptoms:

Type I	uncomplicated systic hyperplasia	mucoid dischare during metoestrus
Type II	Difused plasma cell infiltration of endometrium superimposed on cystic hyperplasia	Mucus discharge from vagina for several weeks in metoestrus
Type III	Acute endometritis: pyometra superimposed on systic endometrial hyperplasi	i) Illness for 4 to 10 days ii) Dehydration with increased thirst iii) Vomitting occurs ocesionally iv) Vulvar discharge v) Distended abdomen vi) Severe illness vii) Anorexia viii) W.B.C. Count : 1900-145000/cmm
Type IV	Chronic endometritis: mild/ severe; often with squamous metaplasia of endometrium	i) Mild illness ii) Mild distended abdomen iii) severe bleeding into the lumen due to ulceration occur in the endometrium
Type IV is mostly observed in 10 to 13 years aged bitch.		

Diagnosis :

Pyometra can be diagnosed by following techniques :

- * By rectal examination with index finger. During examination bitch's forequarter is raised.
- * By radiography. The patient should be placed in lateral recumbacy for better outline of distended horns.
- * Ultrasonography.

Treatment :

- * Parenteral injection of antibiotics and sulphanamides with oestrogen or pituitrine injection.

Result : The disease may recur.

- * Ovariectomy is the choice of treatment.

Result : Satisfactory.

Suggested reading :

Veterinary Obstetrics and Genital Diseases, 2nd Edition, By S.J. Roberts.