

## **❖ Nomenclature of Gynecological and obstetrical condition:-**

### ○ **Gynecology :-**

Study of female reproductive organs and their disease is called gynecology.

### ○ **Veterinary gynecology :-**

Study of female animal reproductive organ and their disease is called veterinary gynecology.

### ○ **Andrology :-**

Study of male reproductive organ & their disease is called andrology.

### ○ **Veterinary andrology :-**

Study of male animal reproductive organ & their disease is called veterinary andrology.

### ○ **Ovulation :-**

The process of releasing ova from ovary is called ovulation.

### ○ **Fertilization :-**

Fusion of male Gamete and Female Gamete to form zygote.

### ○ **Reproduction :-**

It is a process by which an individual produces same type of offspring is called reproduction.

## **Terms used in Gynecology :-**

### (i) **Anestrus :-**

The animal which does not come in heat is known as anestrus.

### (ii) **Repeat Breeder :-**

Repetition of heat or does not conceive.

### (iii) **Silent heat :-**

The condition of heat in which animal does not show the physical symptoms of heat (Like bellowing, mounting on other animals etc.).

(iv) **Vaginitis :-**

Inflammation of vagina (Cervix open)

(v) **Cervistitis :-**

inflammation of cervix

Vulvitis :- Inflammation of vulva.

(vi) **Metritis :-**

Inflammation of uterus.

(vii) **Salphingitis :-**

Inflammation of Fallopian tube.

(viii) **Pyosalpinx :-**

Accumulation of pus in fallopian tube.

(ix) **Hydrosalpinx :-**

Accumulation of H<sub>2</sub>O in fallopian tube.

(x) **Pyometra :-**

Accumulation of pus in uterus.

(xi) **Hydrometra :-**

Filling of H<sub>2</sub>O in uterus.

(xii) **Prolapse of vagina :-**

Coming out some part of vagina.

(xiii) **Metrorrhagia :-**

Bleeding from genital tract is called metrorrhagia.

(xiv) **Prolapse of uterus :-**

Coming out some part of uterus. Generally it occurs after calving.

(xv) **Rectal pralapse :-**

Coming out some part of rectum.

(xvi) **Dystocia :-**

Difficulty in Parturition.

(xvii) **Eutocia :-**

Normal Calving.

(xviii) **Retention of placenta :-**

The condition in which animal does not fall placenta after calving or stopation of placenta. (Normally after 8-12 Hrs)



(xix) **Gestation length :-**

The time b/t the fertilization to successful calving.

(xx) **Uterine Torsion :-**

Rotation of uterus along its longitudinal axis. It is more common in old age female animal due to weakness of round ligaments.

(xxi) **Lochia :-**

The normal uterine discharge during the first three weeks which consists of mucus and blood Initially and later become serous is called lochia.

❖ **Gestation period :-**

It is the time in which foetus develops beginning with fertilization and ending at birth is called gestation period. It is different in different species.

<b>Animal</b>	<b>Gestation Length</b>
(i) Cattle	9 Month 9 Days
(ii) Buffalo	10 Month 10 Days
(iii) Mare	11 Month 11 Days
(iv) Bitch	2 Month 2 Days
(v) Camel	1 Year 1 Month 1 Week
(vi) Pig	3 Month 3 Week 3 Days
(vii) Elephant	20 – 22 Months
(viii) Sheep	155 Days
(ix) Goat	145 Days

❖ **Estrous Cycle :-**

A recurrent set of physiological & behavioral change that take place from one period of estrous to another is called estrous cycle.

<b>Animal (Species)</b>	<b>Length of Oestrus Cycle.</b>
Cattle & Buffalo	21 Days
Mare	21 Days + 2 Days
Sheep	17 Days
Bitch	6-7 Months
Goat	21 days

❖ **Duration of Heat :-**

It is the time at in which the heat is on its peak/Maximum.

(i) Cattle Buffalo	12-18 Hr.
(ii) Mare	4 to 7 Days
(iii) Ewe	1 to 2 Days
(iv) Sow	2 to 4 Days
(v) Bitch	9 Days

❖ **Puberty age :-**

It is defined as the age or time at which generative organs become functional. Puberty age of different animal.

(i) Cattle	24 – 30 Months
(ii) Buffalo	24 – 48 Months

(iii)	Mare	18 – 24 Months
(iv)	Sheep & Goat	6 – 10 Months
(v)	Pig	6 – 8 Months
(vi)	Bitch	6 – 8 Months

❖ **Term use of Parturition in different species :-**

(i)	Cattle/Buffalo	Calving
(ii)	Mare	Foaling
(iii)	Pig	Farrowing
(iv)	Bitch	Whelping
(v)	Sheep	Lambing
(vi)	Goat	Kidding

❖ **Male Reproductive System :-**

(i) **Testis :-**

The testis are located outside the body cavity in scrotum.

Function :-

- (i) Producing the spermatozoa/Sperm.
- (ii) Producing male hormone/Testosterone.

(ii) **Epididymis :-**

It is a compact flat elongated structure & has a body, Head & a Tail.

Function :-

- (i) Transport of sperm from testicles to vas deferens.
- (ii) Concentration of sperm by absorption of surplus fluid.
- (iii) Maturation of sperm.
- (iv) Storage of viable sperm.

(iii) **Spermatic cord :-**

It is a tube from head of epididymis to the inside of body cavity.

Function :-

- (i) Spermatic blood vessels & nerves which give nutrition for the formation of sperm cells.
- (ii) It connects epididymis to vas deferens.

(iv) **Vasa Deferens :-**

It emerges from tail of epididymis & passes as part of spermatic cord through the inguinal ring into body cavity.



Function :-

- (i) It passes the sperm.

(v) **Accessory Sex glands :-**

These are three

- (i) Seminal vesicles. (Paired)
- (ii) Prostate glands ( Only in Dog).
- (iii) Cowper's gland/bulbourethral gland. (Paired)

Function :-

- (i) Make up most of the liquid portion semen.
- (ii) Become the sperm more motile.
- (iii) It flush&Cleanse the urethra.

(vi) **Urethra :-**

The two vas – deferens eventually unit into a single tube, the urethra, which is a chae passing through the penis.

Functions :-

- (i) It serve as a common passage for semen & Urine.

(vii) **Penis :-**

It is a cylindrical structure & organ of copulation. It consist of three part – root, body & glans penis. The outer sheath is called prepuce.

Function :-

- (i) It is a organ of copulation.
- (ii) Act as passage of urine and semen.

(viii) **Scrotum :-**

It is a cutaneous sac & situated in front of inguinal region. It consult the both tests.

Function :-

- (i) It consists and protect testicles.
- (ii) It controls the temp of whole body

## **Female reproductive Organ :-**

(i) **Ovaries :-**

These are two oval bodies of size 3x2x1 cm& attached to a ligament by a fold of peritoneum.

Function :-

- (i) Producing ova

(ii) Producing female hormone – Estrogens, progesterone.

(ii) **Oviduct :-**

These are two narrow tube also known as fallopian tube. It has 3 parts.

- (i) Infundibulum
- (ii) Ampulla.
- (iii) Isthmus.

Function :-

- (i) Fertilization is take place here.
- (ii) Transport egg from ovaries to fallopian tube.

(iii) **Uterus :-**

It is a thick walled hollow muscular organ situated in abdominal cavity. It has 3 parts :-

- (i) Uterine horns
- (ii) Uterine body
- (iii) Cervix

Function :-

- (i) Passage way for sperm during copulation.
- (ii) Incubation & nourishment of Embryo during Pregnancy.
- (iii) Expulsion of foetus during parturition.

(iv) **Cervix :-**

A thick walled mass of connective tissue with a small tube like opening. The tip of cervix presents a depression called external os.

Function :-

- (i) It joins the uterus to vagina.
- (ii) It serve as a passage way for semen during copulation.

(v) **Vagina :-**

It is a muscular tube of length about 20 cm & has external urethral orifice.

Function :-

- (i) It serve as receptacle for penis.
- (ii) It serve as birth canal during parturition.
- (iii) Serve/acts as passage way for semen & urine.

(vi) **Vulva :-**

The external portion of female reproductive tract & caudal most part of birth canal.

Function :-

- (i) It serves to protect internal system from infection.
- (ii) Initially receive the Penis at copulation.
- (iii) Act as a passage way for urine.

S. No.	Hormones	Origin	Functions
1)	RH ( Releasing Hormones) (Several)	Hypothalamus	Stimulates the pituitary gland to release hormones.
2)	Inhibiting hormone (Several)	Hypothalamus	Inhibit the release of pituitary gland hormones.
3)	Growth Hormone	Anterior Pituitary gland	Controls the growth of body.
4)	Thyroid Stimulating Hormone	Anterior Pituitary gland	Controls the secretion of hormones by thyroid gland.
5)	Prolactin (PRL)	Anterior Pituitary gland	Stimulate the production of milk by mammary gland.
6)	Adrenocorticotrophic hormone (ACTH)	Anterior Pituitary gland	Controls the secretion of hormone by adrenal cortex.
7) (a)	Follicle Stimulating Hormone (FSH)	Anterior Pituitary gland	In Female Stimulate maturation of an ovarian follicle & ovum.
7) (b)	FSH	Anterior Pituitary gland	In male Stimulate maturation of sperm in testis.
8) (a)	Luteinizing Hormone (LH)	They Help Sertoli Cells to produce (ABP)	In Female :- Cause Ovulations Through ovary.
8) (b)	LH	They Help Sertoli Cells to produce (ABP)  Acts on Leydig	In Male :- Cause secretions of testosterone.  Cells to produce testosterone.
9)	Oxytocin (OT)	Posterior Pituitary Gland	(i) Cause uterine muscle contraction

			(ii) Milk production (let down of milk)
10)	Estrogen	Ovary	(i) Develop & maintain female secondary sexual characters. (ii) Help to animal to come into Heat
11)	Progesterone	Ovary	(i) Prepare uterus for implantation of zygote. (ii) Also nourish the animal
12)	Testosterone	Testes	(i) Develops & Maintain male secondary Sexual Characters. (ii) In Building of muscles.
13)	Gonadotropin Releasing Hormone (GnRH)	Hypothalamus	Controls pituitary secretion.
14)	Human Chorionic Gonadotropin (HCG)	Embryonic Membranes & Placenta	Prevents corpus luteum disintegration, stimulates corpus luteum to secrete estrogen & Progesterone.
15)	Inhibin	Ovaries	Inhibit Secretion of FSH from anterior pituitary gland.
16)	Relaxin	Placenta & Ovaries	Increases flexibility of pubic symphysis during pregnancy. Help dilate uterine cervix during labour & Pregnancy.
17)	Androgens	Adrenal Gland Adrenal	Stimulates Sexual derive
18)	Melatonin	Pineal	Emotion/behavior.
19)	Thymosin	Thymus	Maturation

## Pregnancy Diagnosis :-

To check whether animal is pregnant or not is known as P D.

It can be done by 4 ways:-

- (i) External Examination.
- (ii) Internal Examination.
- (iii) Biochemical Examination.
- (iv) Radiological Examination.

(i) **External Examination :-**

Can be done by following ways :-

a. **Abdominal Palpation :-**

This way is mainly used in sheep and goat, which are hold b/w the legs and by pressing its abdominal area we try to feel hard muscles out there, if something is present then animal is pregnant.

b. **Examination of Udder & teats :-**

When animal gets pregnant, its udder and teat start swelling by which we can guess whether animal is pregnant or not.

c. **Foetal Ballotment.**

After animal gets pregnant its abdominal area start swelling from both the sides by which we can guess whether animal is pregnant or not.

(ii) **Internal Examination :-**

This way is used in Cattle, Buffalo and Mares. In this we put hand in rectum for examination so it is known as rectal examination. Before putting hand in rectum, nail should be well cut, Hand is Lubricated by liquid Paraffin, Soap or oil and then hand is given in rectum. After putting hand in rectum we feel node type structure. i.e cervix. After holding we feel its front portion i.e. root type in shape and smoother than cervix, it is body of uterus. Body of uterus gets divided into 2 – parts – one on right side and other on left side. These 2 structures are called horns of uterus. After each horn of uterus there is a narrow tube that is fallopian tube and upper side of each tube there is ovary.

During rectal examination, we feel both the horns. In normal animal both horns are of same size. But in pregnant animal one horn is thicker in which foetus is present due to which its size increases. If one horn is felt thicker than other then animal is pregnant with time the thickness of the pregnant horn increases. Till six months of Pregnancy rectal

examination can be done after that pregnant horn get shifted to the abdominal cavity and for rectal examination hand needs to be put deep into the body. After six months pregnancy diagnosis can be done by foetal ballotment.

**(iii) Biochemical Examination :-**

This is done in mares for PD. In this blood test of pregnant Mare is taken after animal is pregnant gonadotropin hormone is released in is blood. This hormone is released after 21 - 42 days of pregnancy and its amount is maximum in 50 - 80 Days of pregnancy. After that its level start decreasing in 150 days of pregnancy its release in blood stops. Buy this 37 - 150 days of pregnancy can be diagnosed.

**(iv) Radiological Examination :-**

This is done for small animal like ewe, doe and bitches. In this the X-ray of the abdomen area is done, if in photography foetus photo comes then animal is pregnant.

❖ **Methods for P.D. in Cows.**

- (i) Rectal examination
- (ii) Failure to return to oestrous & persistence CL. (21 days)
- (iii) Progesterone concentration in plasma and milk.
- (iv) Palpation of Amniotic vesicle.
- (v) Palpation of allantochorion (33 days).
- (vi) Unilateral cornual enlargement and disparity in size, thinning of uterine wall, fluid - filled fluctuation of enlarges horn. (35 Days)
- (vii) Palpation of early foetus when amnion loses its turgidity. (45 - 60 days)
- (viii) Palpation of the cotyledons & Caruncles (75 - 80 Days)
- (ix) Hypertrophy of the middle uterine artery until presence of fremitus (85 days)
- (x) Palpation of Foetus. (120 days)

**1. Rectal Examination :-**

2. If C1 does not regress with in 21 days, it is estimated that animal is pregnant.
3. After 21 days, test of blood is done then level of P4 hormone is high in pregnant animal then nonpregnant. P4 is milk soluble. If after 24 days estimation of P4 hormone is done in milk it is high in pregnant animal. For this 20 ml of afternoon milk it is taken and potassium dichromate or mercuric chloride tab or put in it for its preservation i.e. Milk preservation. This milk is kept protected from the high temperature and light and send to laboratory for examination.

For this below mentioned are kept in mind.

- Animal no should be well put on milk bottle.
  - Milk should be protected from UV and Temp.
  - If P4 is less secreted by CL then there could be false negative result.
  - If cows interoestrous interval is shorter than result could be false positive.
  - If embryonic if death occurs then result may be false.
  - If luteal cells start releasing P4 then result may be false.
4. Amniotic vesicle can be examine after one month of pregnancy. Amniotic sac can be palpated by midle finger and thumb, it is round hard object.
5. **Examination of Allantochorion :-**  
it is done after 5 weeks. In this intercotyledonary part of foetal membrane free .The enlarged horn is picked with the help of thumb and middle finger and it is slowly squeezed. In this way we find allantois as fine structure.
6. If animal is pregnant then one horn is enlarged than the other as it contains foetal fluid. It is like a balloon. When uterine wall is examined it is very thin then the non-pregnant horn. CL should also be checked as it confirm pregnancy.
7. After 40 – 50 days when amniotic sac become less turgid then, sometimes developing foetus can be palpated.
8. Cotyledons can be felt in 90 – 100 days of pregnancy these are like buttons or small potatoes.
9. It is impossible to palpate the middle uterine artery if animal is non-pregnant, but we can easily feel it if animal is pregnant.
10. It is diagnosed by abdominal ballotment. It depend upon – foetus palpation, degree of stretching, suspension of uterus & degree of relaxation of the rectum and uterine wall.

❖ **Other methods of P.D. in Cow :-**

- (i) **Abdominal ballotment**
- (ii) **Mammary Glands**
- (iii) **External Examination of Cervix :-**

If animal is pregnant then there is not much difference in vagina. But there is tension in cervix. In non-pregnant animal cervix moves freely from one side to other

- (iv) **Foetal electrocardiography :-**

It is used to know about multiple pregnancy.

- (v) **Oestrus sulphate Test :-**

After 15 – 20 days of pregnancy conjugated E<sub>2</sub> level can be identify in milk. It not possible in non-pregnant animal.

## **Differential Diagnosis of Pregnancy**

In some condition one horn of uterus is thick than the other but animal is not pregnant as we do not feel the +ve sign of pregnancy Therefore pregnancy can be confused by following conditions.

### **(1) Pyometra :-**

This is the condition in which pus gets collected in uterus and when P.D. is done be rectal examination one horn is felt thicker than the other as pus is collected in it. But there are +ve sign of pregnancy so animal is not pregnant, pyometra generally occurs in both horns.

### **(2) Hydrometra :-**

In this condition one horn get swollen due to collection of H<sub>2</sub>O in it but during rectal examination no sign of pregnancy are feel so animal is not pregnant.

### **(3) Foetal mummification :-**

In this condition, the foetus is dead in the uterus and during rectal examination, we feel hard swollen uterus, also we don't feel the amniotic vesicle so the animal is considered as non-pregnant. This type of foetus is known as mummified foetus.

### **(4) Foetal Maceration :-**

This condition is same as mummification but the foetus is dead from many days due to which infection occurs in the uterus and when rectal examination is done and uterus is press then bad smell comes from it. This type of foetus known as macerated foetus.

### **(5) Tumour of ovary :-**

If there is tumor on the ovary due to this some hormones are developed in ovary which results in swelling of teats & udder. By this animal looks pregnant from external examination but when rectal examination is done +ve sign of pregnancy are not felt. Due to which animal is not pregnant.

### **(6) Tumour of uterus :-**

If there is tumor on any horn of uterus it is felt thicker than the other during rectal examination. But no +ve sign of pregnancy are felt in this horn and animal is not pregnant.



## Heat (Oestrus)

### ○ Symptoms of Heat :-

- (i) Animal do bellowing in heat.
- (ii) Animal mount on other animals and also allow other animals to mount on them.
- (iii) Mucus coming out of vulva which is sticky and colorless in nature.
- (iv) There is less feeding.
- (v) Milk yield also gets low.
- (vi) Frequent urination.

### Anestrous:-

There is a condition in which animals doesn't come to heat or the owner is not able to detect the heat symptoms. This is of 2 types.

(i) Organic anestrus.

(ii) Functional anestrus

(i) Organic Anoestrus :-

(i) When animal is pregnant is does not come to heat.

(ii) If there is any disease in uterus of animal eg. Pyometra, hydrometra.

(iii) Free martin :- This is a condition in which animal does not come to heat. This condition occurs in bovine mainly. If in bovine there are 2 calf in one horn at one time and one of them is male whereas other female then some hormone of male are transferred to female due to which the power of female hormone are suppressed.

(iv) If there is foetal mummification and maceration in animal then also animal doesn't come to heat .

(v) If there is deficiency of vitamins and minerals in animal diet.

(vi) If there is tumor on any genital organ in female .

(vii) If animal ovary is smooth.

(viii) If there are follicular or luteal cyst an animal ovary, then animal doesn't come to heat.

(ix) If there is persistence of CL an ovary.

▪ Treatment :-

(i) If anestrus is due to cyst then by giving hand in rectum the cyst of organ is rupture. LH can also be used to rupture the cyst.

Vetrophin (containing LH) – 5,000 – 10,000 I.U. I.m.

- (ii) When anestrus due to pyometra or hydrometra  $E_2$  2ml I/m is given, with this the cervix of animal gets open and pus & water comes out, antibiotic is kept inside uterus after cleaning uterus.  
Ex. Liquid Terramycin 30 ml into uterine.
- (iii) When anestrus due to foetal mummification or maceration then foetus is taken out. After that washing of uterus is done and antibiotic medicine are given.
- (iv) When animal come to heat for the first time then by  $E_2$  hormone 2ml I/m .then AI should not be done as they are in heat after giving  $E_2$  hormone inj. And ovulation has not occurred. After 21 days when animal comes to heat again there AI or mating is done.

(ii) **Functional Anoestrus :-**

In this, animal comes to heat but the animal owner is not able to detect the symptoms. For this heat symptoms are told to owner. This advice is also given to owner that we keep the date in mind on which animal comes to heat so that he can have a guess about the next heat date.

❖ **Metritis :-**

There 3 layers of uterus Endometrium, Myometrium, and Perimetrium.

Uterus is connected to vagina through cervix and vagina is connected with outer atmosphere with vulva. If any infection occurs in vulva or vagina it reaches to uterus. It mainly occurs at the time of parturition as cervix is open at that time and chances of infection are maximum. If only inflammation of cervix occurs, then known as cervicitis, if inflammation of muscles of uterus then mesometritis, if inflammation of mucus membrane of uterus or endometrium then it is known as endometritis. And inflammation of peritonium of uterus is called para-metritis.

○ **Etiology :-**

- (i) It occurs due to bacteria for eg. Streptococcus, staphylococcus, pseudomonas, coryne – bacterium species.
- (ii) After abortion inflammation occurs due to Brucella abortus which are main causes of abortion.
- (iii) After retention placenta, inflammation of uterus occurs.
- (iv) It can occur during AI or mating (coitus)
- (v) If during parturition condition of dystocia occur or more than one calf is present then injury may take place in uterus and inflammation occurs.

○ **Symptoms :-**

- (i) Due to metritis uterine discharge or mucopurulent discharge is collected there, it is yellowish or whitish in colour and when animal sits it comes out.

- (ii) During rectal examination the walls of uterus are feel thick and when we press its discharge comes out through vagina.
- (iii) If we examine it through vagina or vaginal speculum and try to see discharge on the walls of vagina or it is coming out of cervix. Sometimes animal feel pain. Also swelling of vagina and vulva occurs – temp. occurs during metritis, loos of appetite is also seen. Sometimes during acute metritis death may occur. Animal become repeater. And during oestrus, discharge is more.
- **Diagnosis :-**

It is diagnosed by rectal and vaginal examination. By rectal examination we find that walls of uterus are thick. And when we examine vagina by vaginal speculum we find that the mucus is coming out which is of uterus. If discharge is like pus then by culture of pus so that We can know that metritis is by which bacteria.
- **Treatment :-**
  - (i) Inj. E<sub>2</sub> hormone 2-3 ml I/m is used which opens the cervix and all mucus comes out of uterus. It shows its action after 2-3 hours.
  - (ii) When mucus comes out then uterus is washed with antiseptic solution this known as douching. Mainly acriflavin solution (1 = 1000 part) is used for this purpose, KMnO<sub>4</sub> or Alum Solution can also be used. After douching nostocycline, terramycin or any other antiseptic/antibiotic powder 2.5 – 5 gm in 100 ml distilled water used/given intrauterineLugol's iodine solution (1:300) can also be given intrauterine. If cervix is well open then terramycin bolus can also be placed there. If required antibiotic inj. Can also be given.

## **Pyometra :-**

This is a condition in which Pus gets collected in the uterus which varies from 50 ml to 1 litersin amount. Due to this animal does not come in heat and there is persistence CL on the ovaries.

- **Etiology :-**
  - (i) If there is difficulty in parturition, abortion takes place or more than one calf is present in the uterus then injury may take place due to which pus gets collected.
  - (ii) If there is retention of placenta during parturition and it is not treated well then it can lead to collection of pus.
  - (iii) If the uterus of pregnant animal is not properly developed and more than one calf is present or the size of calf is large then it will lead to pyometra due to infection. Diseases like Brucellosis and Trichomoniasis also can lead to pyometra.
  - (iv) Sometimes by mistake A.I. of pregnant animal is done. If the semen used during A.I. does not contain any antibiotic or it is injected then death of foetus takes place leading to maceration due to which pus formation is there in uterus.

- **Symptoms :-**
  - (i) Animal having pyometra does not come to heat as there is persistence of CL on ovary.
  - (ii) By rectal examination we will find that there is formation of pus in uterus which is of white, yellow, green or blue in colour. When animal sits, do urine or faeces it makes/but pressure on uterus due to which pus comes out in small amounts.
  - (iii) During rectal examination walls of uterus are feel thick but no +ve sign of pregnancy are seen so it can be said that the swelling of uterus is not due to pregnancy but due to formation of pus if ovary of this type of animal is felt then CL is there.
- **Diagnosis :-**
  - (i) By history and symptoms.
  - (ii) During rectal examination walls of uterus are felt thick but no +ve sign of pregnancy will be there.
- **Treatment :-**

By giving E<sub>2</sub> hormone 2-4 ml I/m, cervix of animal gets open & pus comes out. After that uterus is cleaned with antiseptic solution.i.e. known as douching. Antiseptic powder or tab are kept in uterus after douching. No. AI of this type of animal should be done as there are more chances of pyometra in AI, when animal comes to heat after full recovery, natural mating should be done.

## ❖ **Transport of material from abortion :-**

- **Abortion :-**

This is a condition in which parturition takes place before gestation period. It is symptom of many disease & can take place due to following reason :-

  - (i) Bacterial disease – eg. Brucellosis, Vibriosis.
  - (ii) Viral disease – eg. FMD, Rinderpest,
  - (iii) Due to fungus – Aspergillus,,rhizopus species, mucor species. Etc.
  - (iv) Protozoa disease :-Anaplasmosis, Trichomoniasis, Toxoplasmosis.
  - (v) Chemical poisoning :- Ergot poisoning, nitrate poisoning.
  - (vi) Hormonal cause – If pregnant animal is given any E<sub>2</sub> hormone preparation then cervix gets open and leads to abortion.
  - (vii) Malnutrition :- If less diet is given to animal or diet having less vitamin A can lead to abortion.
  - (viii) Transportation :- If pregnant animal is transported from one place to another by train or road, chances of abortion increases.
  - (ix) Lugol's paint :- if lugol paint is applies on cervix of pregnant animal then cervix gets open lead to abortion (KI + I<sub>2</sub>).
  - (x) Abdominal pain :- due to pain in abdomen, abortion may occur.
  - (xi) Physical causes :- Accident, kick from the other animal on abdomen etc.

○ **Treatment :-**

Diagnose the disease or treat acc. to that.

○ **Retention of placenta :-**

This disease is more seen in dairy animals. After 5-6 hr. of parturition foetal membrane comes out. If foetal membrane does not come out till 8-12 hours, then this condition is called ROP.

○ **Etiology :-**

In uterus, placenta is connected to uterus walls with the help of foetal cotyledons. These cotyledons are of two types :-

- (i) Maternal caruncles
- (ii) Foetal cotyledons

**Maternalcotyledons** -maternal caruncles are on uterus wall where as foetal cotyledons on chorion. Maternal & foetal cotyledons are attached to each other. Normally after parturition both get separated from each other. Animal through out placenta after 5-6 hours of parturition. If due to any reason these cotyledons don't separate some part of placenta comes out where as some remains inside, then it is known as ROP.

- (i) Abortion take place.
- (ii) When more than one calf is present in uterus or dystocia occurs then ROP take place.
- (iii) Deficiency of vitamin A in animal diet.
- (iv) If there is deficiency of calcium in blood.

○ **Symptoms :-**

- (i) Animal owner do a complain that its 2 days after parturition but placenta has not come out.
- (ii) Some part of placenta is seen hanging out & if it long that placenta has not come out then bad smell comes from vagina & uterus. If infection occurs in ROP that leads to metritis. Following condition are seen in animal :-

Increased pulse rate, increase respiration rate, increase temp., Anorexia, Decreased milk yield, depression, diarrhoea, straining & vaginal discharge.

- (iii) If placenta does not come out with in 36 hours, then it will not come out in 6-10 days. Because after 36 hours contraction of uterus decreases. If dystocia occurs & placenta is retained for longer time, that can be dangerous for animal as chance to severe metritis&toxemia increases. There will be no problem to animal in next breeding if metritis does not occur.

○ **Diagnosis :-** By history and symptoms.

○ **Type of ROP :-** two types

- (i) **Real ROP** :- when maternal & foetal cotyledons get separated from each other and foetal membrane is laying loose in uterus.

- (ii) **Apparent ROP** :- when foetal & maternal cotyledons does not separate from each other and foetal membrane is attached to wall of uterus.
- o **Treatment :-**
- First of all it is find that which type of ROP is there by giving hand in vagina. If it would be real ROP type, then it will come out easily by pulling it. Otherwise it will be apparent type it would be attached to wall of uterus & don't come out by pulling. To treat apparent type, it is changed to real type. For this oxytocin 60 IU I/m or stillbestrol 4ml I/m is given after 48 hours, it is changed to real time & real ROP can be treated as.
- (i) Manual removal of retained placenta done by pulling out placenta with hand.
- (ii) after placenta is taken out then hostocycline powder 5 gm in 50 - 100ml. Distilled water is given intrauterine. if hostacycline powder is not present then antibiotic tablets like terramycin, steclin, oblecycle or Paula bolvs (4-8) can be given.
- (iii) If temperature is there in animal then antibiotic positive antipyretic inj. are given.
- (iv) oxytocin can be repeat till placenta as totally come out.

## **Repeat breeder**

It is that animal whose estrous cycle is normal but whose mating is done three or more than three times with an healthy animal or a is done 3, then also it does get pregnant.

### **Etiology :-**

- (i) Failure of fertilization
- (ii) Early embryonic death.
- (i) **Failure of fertilization :-**

When due to any reason sperm or ova are not able to meet, this condition is known as failure of fertilization. It occurs due to reason :-

(a) **Obstruction of oviduct :-**

Sperm or ova are not able to meet if there is obstruction in fallopian tube. Main reason for this are salpingitis, pyosalpinx & hydrosalpinx.

(b) **Defect in ovulation :-**

There are following problem in ovulation.

- If ovulation doesn't occur.
- If ovulation occurs late.
- If ovulations occurs too early.
- If ovulation occurs in large quantity ie. Formation of premature ova take place.

(c) **Defect in ova :-**

If AI or mating is done very early, or too late to ovulation, then sperms and ova are not able to meet.

(d) **Inability of sperm to fertilize ova :-**

If there is any defect in any part of sperm like head, neck, body and tail then sperm can't fertilize. If sperm is more diluted during A.I., then chance of fertilization decreases. Temp. of semen should be taken care, giving hot or cold shock to semen decreases chance of fertilization. Giving less dose of semen during AI also reduce chances. Semen use during AI if contains antibiotic in high amount, then death of sperms take place, they can't fertilize. If semen is not deposited at right place during AI, then also reduce chances of fertilization.

(ii) **Early Embryonic death :-**

In this condition, death of the embryo formed by fertilization of sperm & ova occurs & then abortion take place. This can happen due to following.

- Any disease is there in uterus like metritis.
- Deficiency of Vitamin A.
- Bad management of animals.
- When level of P4 hormone is less, it occur due to increase in level of E2 hormone.
- In Pregnancy, E2 hormone should not be given.

**Treatment & control :-**

- (i) Semen used in AI should not be much diluted.
- (ii) Antibiotic should not be present in more/high amount of semen.
- (iii) Dose of semen should be proper during A.I.
- (iv) Semen qualities should be well checked.
- (v) AI should be done 2 time so that in late estrous also fertilization occurs.
- (vi) If metritis is there, it should be treated.
- (vii) Animal nutrition & management should be taken care.
- (viii) If any case of repeat breeder is there, first antibiotic powder is given in uterus when animal is not in heat. It is done 2-3 times. After that AI or mating is done.
- (ix) If deficiency of P4, then 2ml of uniP4 I/m is given.
- (x) In repeat breeder after AI (8hr - 24hr) streptomycin 1/2 ml & penicillin 4 lacs. I.U. is given intrauterine.

**Prolapse of uterus and vagina :-**

This is a condition in which uterus comes out through cervix & vagina it is known as prolapse of uterus.

**Etiology :-**

- (i) In case of apparent ROP, if placenta taken out forcefully pulling it out then prolapse of uterus can occur.
- (ii) When foetus forcefully taken out in case of dystocia, it can occur.

- (iii) Due to deficiency of calcium and magnesium, prolapse of uterus occurs.
- (iv) Due to high level of E2 hormone it occur.
- (v) If there is pressure of other organ on uterus, prolapse can occur.
- (vi) This condition is heredity.
- (vii) If there is infection in vagina then irritation occurs & animal do straining due to that prolapse can occur.

### **Symptoms :-**

After prolapse of uterus, uterus part is seen hanging out from vulva. if prolapse occur before parturition it is known as pre - partum prolapse & if it occur after parturition, it is known as post - partum prolapse.

if only vagina comes out of vulva, it is known as prolapse of vagina.

- (i) Straining
- (ii) Frequent urination & defecation.
- (iii) if Animal having impaction then while standing & sitting time , defecation and urination occurs.
- (iv) Sometimes temperature decreases.
- (v) if This type of case is not treated, then abortion can take place. Sometime, animal Stop straining but this is for sometime.
- (vi) If there is inflammation on prolapse part, then look more red. Sometime faeces part also seen on it. If case is advanced, the putrid odor comes out from prolapse part.

### ○ **Diagnosis :-**

It is diagnosed by its symptoms.

### **Treatment :-**

If case is before parturition, then calbrol, mifex, calcium borogluconate or cal.Mg Magnesium borogluconate.

I/v & S/c are given. Its amount should be 300 ml.

I/v & 150 – 200 ml S/c.

### **Prolapse part can be treated s:-**

Epidural anesthesia 5ml is given. If animal looks weak. i.e. do less straining then 5ml injisquil I/m is given. Prolapsed part is washed with antiseptic solution. In pre partum prolapsed, this should not be done as it can lead to abortion, after that cold water or Alum lotion is applied so that the part get squeezed & get small then xylocaine jelly is applied on it & pushed inside with hand. While doing this, animal back portion should be upward.

After putting back to its place, suturing of vulva is done by following ways.

- (i) Vaginal clamp.
- (ii) Flessa sutures or ordinary horizontal suturing.
- (iii) Bunner's suture or purse string suture.

These suture are applied for 7 – 12 days, then they are open & ASD of the wound created due to this is done it. & its full recovery.

If prolapsed is post – partum, then antibiotic bolus can be kept in it. Broad spectrum antibiotic are also given to animal.

OR

## Treatment of prolapse:-

‘7R’ Principle

- (i) Restraining the animal :-
- (ii) Removing of dung, dirt and dust.
- (iii) Removal of urine.
- (iv) Reduce the size.
- (v) Repair the tissue.
- (vi) Replace the mass.
- (vii) Recurrence prevention.

## Parturition and its mechanism :-

- (i) Birth canal should be fully open.
- (ii) Foetus size is normal & its position, presentation, posture are normal.
- (iii) Uterus contraction is powerful & normal.

○ Stages of parturition :-

- (i) **Stage of cervical dilation.**
- (ii) **Stage of expulsion of foetus.**

(iii) **Stage of expulsion of fetal membrane & Uterine involution.**

## Dystocia

When normal delivery of foetus is not possible and calf is taken out by operation. It is known as caesarean section.

Caesarean section.

### Maternal dystocia :-

Difficulty in parturition caused by mother body parts.

### Foetal Dystocia :-

Difficulty in parturition caused by foetus.

### Following are the reasons of maternal dystocia :-

(i) Uterine torsion :-

In this condition uterus rotate from its position due to this, the way it is closed i.e. cervix. And there is difficulty in parturition. Slowly death of foetus occurs and toxemia and septicemia occurs. In septicemia, temp. of animal increases and eyes get red. In toxemia, temp. gets subnormal and eyes get shrunken.

(ii) Juvenile Pelvis :-

In this condition, size of pelvis get smaller, Due to fracture in pelvis, size of pelvis cavity get smaller and foetus is not able to come out.

(iii) Induration of cervix :-

When fibrosis occurs on cervix, then it is known as induration of cervix. In this condition cervix does not open and caesarean operation is done.

(iv) Uterine Inertia :-

When there is no movement/contraction of uterus it is known as uterine inertia. If it does not get recovered by medicine then caesarean operation is done.

(v) Lack of abdominal contraction :-

(vi) Improper dilation of cervix

### Foetal dystocia occurs due to following reasons :-

▪ Abnormal presentation of position :-

When position of foetus is abnormal/different from natural one. It is of following types :

(a) Downward deviation of head.

- (b) Lateral deviation of head.
- (c) Upward deviation of head.
- (d) Foot nape posture (legs crossing over head)
- (e) Shoulder flexion.
- (f) Knee/carpel flexion.
- (g) Fetlock flexion.
- (h) Dog sitting posture.
- (i) Thigh & group presentation (Breech position)
- (j) Hock presentation.
- (k) Transverse presentation.
- **Abnormal size of foetus :-**
  - (a) Do
  - (b) Due to monsters.
  - (c) In foetal emphasis air get collected under skin in lower part and size increases.

○ **Techniques of caesarean section :-**

This operation is done on left side of abdominal cavity and incision is given on parallel upwards side of milk vein. length of incision is 7-8 inch. on anesthesia local infiltration of 2% procaine HCL is used. Before operation shaving of the area is done and antiseptic field is created. after that local anesthesia is given and operation is done. while giving incision bunches of artery from milk vein are held with artery forceps and ligated. After layer by layer incision peritoneum layers comes which is also incised. Then omentum comes. After incising omentum uterus can be felt, and rumen is pushed upward and after that well felt and some clothes are kept around it. So that the fluid coming out does not infect peritoneum. Then uterus is incised from such a place where cotyledons are not present and by putting hand in uterus position of foetus is felt. And by pulling the hind limbs they are taken out slowly from the incision. Precaution should be taken that incision does not get lacerated. Slowly foetus is taken out after taking out foetus position of placenta is seen. If it can be taken out easily then it is taken out and blood vessels are tied. Uterine incision and uterine cavity are washed with antibiotic solution.

Uterine incision is sutured in double row of lambert suture of serosa with muscular coat. Future lambert is folded inside, so that healing occurs serosa to serosa. Then omentum is closed with continuous suture other muscles are closed in single

layer but firstly peritoneum and obliqueabdominusinternus are closed together in one layer with continuous suture. In last, skin is closed with interrupted suture.

After operation following medicine are given :-

- (i) Inj. Dextrose saline 5% 4 ltr. I/v
- (ii) Inj. Dexona 5ml I/v for 3 days to prevent shock.
- (iii) Inj. Chromostate = 40 – 60 ml I/v.
- (iv) Inj. Ampicillin and Inj. Oxysteclin – 2.5 – 5.0 gm I/mx6-7days.
- (v) Inj. Pituitary extract – 60 IU I/m

After operation medicine should be given acc. To operation. Antibiotic should be given 6 days suture should be open after 12 days of operation.

## **Torsion of uterus :-**

### **Etiology :-**

- (i) In cow and buffalo uterus is unstable, so in shallow water, torsion of uterus occurs in pregnant animal.
- (ii) Sometime, in starting of parturition position of uterus is normal but in its later stage of labour due to more foetus movement, uterus also get rotates with it and torsion of uterus occurs.
- (iii) Due to more size and weight of foetus torsion of uterus occurs its chances increases.

### **Symptoms :-**

During parturition when 1<sup>st</sup> stage of labour start animal get disturbed and abdominal pain occurs, and there is let down of milk in teat, ligaments get loose, vulvar edema occurs, but if watery bag does not comes out it means parturition occur but foetus doesn't come out. If it is not treated on time then foetus gets dead inside because due to 1<sup>st</sup> stage parturition due to contraction of uterus placenta get detached from foetus. Loss of appetite constipation and toxicity occur to animal.

### **Diagnosis :-**

- (i) **By symptoms.**
- (ii) **pre - vaginal examination :-**

By giving hand in vagina it is seen torsion is on which side if it is before cervix then by vaginal speculum, cervix is not seen. To take hand to cervix hand to be rotated.

- (iii) **By rectal examination :-**

By this, we can find cervix is on which side.

○ **Treatment :-**

- (i) In recumbent condition :-

No treatment.

Only slaughter.

In early cases – stilbestrol – 2ml (100mg) I/m.

This will lead to the opening of cervix and then manually removal of foetus.

- (ii) **Caesarean operation** :-Early adoption will lead to the best results and these case will show metritis later on which lead to the delayed conception.

- (iii) Dexamethasone – 20mg I/m.

Flumethazone – 5-10 mg I/m.

After 4-5 days cervix will relax then give oxytocin 60 – 120 I.U. by mean of I/v drips injdextrose for 30 min after delivery of the calf. Next dose of oxytocin I/v will reduce the shock. In mare only oxytocin is given but not in Dexamethasone.

## **Dropsy of foetus**

Foetal dropsy is of many types but in case of vety. Obstetrics, only three types of dropsy is important. These are as follows.

- (i) Hydrocephalus  
(ii) Foetal ascites  
(iii) Foetal anasarca

In above three condition size of foetus increase and as a result dystocia occurs.

- (i) **Hydrocephalus :-**

When there occurs swelling due to filling of fluid in cranium then it is known as hydrocephalus. This fluid is between brain and durameter. This condition is found in almost all species but mostly seen in pigs, puppies and claves. usually cranial bone get thin in size.

### **Etiology :-**

- (i) Due to deficiency of Vit. A.  
(ii) Due to infective agent.  
(iii) Due to genetic factor.

### **Treatment :-**

For this, caesarean section should be done/preferred but in this condition, foetus has been dead.

**(ii) Foetal Ascites :-**

It occurs due to infectious disease and development defects. There is a dropsy of peritoneum due to which dystocia happens.

**Treatment :-**

Foetus should come outside by giving incision with help of foetotomy knife in abdomen of foetus or foetus should be relieved.

**(iii) Foetal Anasarca :-**

Volume of foetus increase due to excess fluid in subcutaneous tissue of head and limbs. This condition is known as foetal anasarca. There is so much deep swelling and as a result, shape of foetus diminishes. The presentation of foetus is posterior and foetal membrane could be edematous. Sometimes hydroallantois could be seen weight of foetus could be from 39 - 102 kg.

**Etiology :-**

Infectious agent and genetic factor.

**Treatment :-**

If this Condition is less developed then foetus can be delivered by attraction. If this condition rises then firstly limbs should be removed by cutting it if foetus is not delivered, after cutting then foetus and should come outside through multiple incision or subcutaneous tissue. If this condition is severely effected, then on that case, caesarean operation should be done. In many species, this condition is determined through heredity and autosomal recessive genes. In this cardiovascular & renal system is approximately fine, but in some cases, pituitary gland is cystic in size.

## **Coital Diseases**

Such disease which are transmitted from male to female and female to male by mating is known as coital disease.

**Bovine Trichomoniasis :-**

This disease mostly found in cattle. It is due to protozoan flagellate known as trichomonas foetus. Due to this disease pyometra, early abortion and infertility.

found in female animal. In male animal, there is inflammation of penis known as balanitis

### **Etiology :-**

It is due to protozoan trichomonas flagellate which is of pear shaped on which one edge has three thread like structure and other edge has single thread like structure which is known as flagella. It has a single membrane on its one side which is known as undulating membrane. The middle path it is known as anostyle. This protozoa moves from here to there with the help of flagella and undulating membrane. In pigs, it is due to trichomonas suis and in human beings it is due to "trichomonas vaginalis".

### **Transmission :-**

This disease is transmitted through mating instead of artificial insemination occurs from 80 - 90% in case of mating why in case of artificial insemination it is from 20 - 30%. Despite of this, disease can be spread from infected vaginal speculum. This disease from male to female and female to male while through artificial insemination.

### **Symptoms :-**

- (i) In this disease abortion occurs from 1- 16 weeks (4 weeks) the size of the foetus is about 6-7cm. But in normal cases its size is double or tripled.
- (ii) After abortion, there are chances of pyometra, uterus become oedematous and from vulva, profuse mucopurulent discharge is seen.
- (iii) Due to pyometra, infertility occurs and for becoming pregnant two animals, artificial insemination or mating should be done from 5 for more than 5 times.
- (iv) In male animals, inflammation of glans penis known as balanitis.

### **Diagnosis :-**

Its diagnosis is done by examination of symptoms example PUS and mucus discharge. Despite of this, protozoa is found in stomach of foetal fluid and aborted foetus it can also be done by test of content of aborted foetus.

### **Treatment :-**

#### **(a) Herd Treatment :-**

Mating should be stopped in the herd in which the disease is spread and for becoming pregnant to animals artificial insemination should be done in case of pyometra, animals are treated

#### **(b) Individual treatment :-**

The animal which is infectious to the disease should be given sexually rest the rest is of 3 months and treatment of pyometra is done.

**(c) Treatment of male animal :-**

The animal which is infectious to the disease, penis and prepuce should be cleaned carefully for this we can use hydrogen peroxide in 1:10 or lugol Iodine 1:3000 and by cleaning it apply ocriflavin aintment, antiseptic aintment on penis and prepuce. Give sodium iodide log per 1 thousand pound body wt. orally. It is not much effective.

Dimetriclazole (flagyl) 50 – 125 mg/kg body wt. for 5 days (I/v or orally)

○ **Vibriosis :-**

**Synonyms :-**

Comphylobacteriosis, ovine genital comphylobacteriosis.

**Defination :-**

This disease is mostly found in cattle and seep it is due to comphylobacteria foetus venerealize, intestinalis&comphylobacter (Vibrin) sub species jejuni. Due to this disease there is borto I pregnancy from 4-7 months due to which in fertility occurs. In male animal, there is inflammation of penis.

**Transmission :-**

It is transmitted through coitus or AI or oral route. Despite of this, it can be due to contaminated veginal speculum. In male, bacteria depends on penis and in female they depend on uterus, vagina, cervix and foetal membrane.

**Etiology :-**

It is G-ve bacteria known as camphylobacter foetus when or venrealisintestinalis and complynlobacterjejuni, shape is double spiral or 5 or 2 shaped. These bacteria are motile.

**Symptoms :-**

- (i) In this disease, there is abortion in pregnancy from 4-7 months, in female animal, vaginitis, cervicitis, salphinigitis and endometritis takes place.
- (ii) Such animal becomes infertile and for becoming pregnant animal. AI or mating should be done in 6 times or more than 6 times.
- (iii) Estrous cycle of female animal increased. In mostly cases, it is about 27-53 days.
- (iv) In this disease, pyometra takes place I a few cases.
- (v) In male animal, there is inflammation of glans penis.

**Diagnosis :-**

By history and symptoms.

Bacteria is found in vaginal discharge , aborted foetus and contents of infected female animal.

It is found in semen of male animal.

**Treatment :-**

- (i) Animal should be given 3 months sexual rest.
- (ii) After giving sexual rest mating or AI of female animal should be done of healthy semen.

- (iii) While sexual rest, if animal come into heat then we should give antiseptic powder dissolved in distilled H<sub>2</sub>O to uterus by intra uterine, solution mastalone – u 1 vial I/uterine.
- (iv) If this disease is in male animal, then apply anti – septic ointment on penis of that animal by cleaning it with antiseptic solution, also apply anti – biotic injection.

○ **Brucellosis :-**

**Synonyms :-**

Contagious abortion, Bang's disease, Malta fever, undulating fever.

**Defination :-**

It is a chronic contagious disease which is mostly found in cattle and seen in swine, goat, dogs and equine. It is spread due to brucellaspecies bacteria, due to which there is abortion in female and after that it create infertility cause. In male, there is inflammation of testis known as orchitis. This disease is spread from human beings to animal and animal to human beings. Therefore, it is known as zoonotic disease.

**Etiology :-**

In cattle, it is due Brucellaabortus. In goat, it due to brucellamelitenis and in pigs, it is due to brucellaswiss in Equine it is due to brucellaabortusequii and in dogs, all three diseaseegbrucellamelitenis is and brucellaabortus and brucellaswiss occurs.

G(-ve) bacteria and coccobacillus type shaped [coccoround bacillus – Red]. This bacteria is infected through uterine discharge of animal and found in milk. In infected animal, it is found in semen. This bacteria remain alive in aborted foetus & membrane for many months when it is placed in dry place or dark sunlight then it filled very early.

**Transmission :-**

- (i) By ingestion
- (ii) By injected/inoculation.
- (iii) By conjunctiva
- (iv) Through teat canal.
- (v) By mating or AI
- (vi) Licking of aborted foetus.
- (vii) By skin wound.
- (viii) Instead of mating, this disease spread from AI because in AI the semen is put down directly on uterus.

**Symptoms :-**

In this disease, abortion occurs in female animal, it happens in last stage of pregnancy fowl smell starts to come from uterus and aborted foetus female animal become infertile. This bacteria is found in uterine fluid and stomach of aborted. Foetus of female animals usually aborted foetus is very weak and membrane dried up. This disease found in form of outbreak in animal farm .despite of this, sometime, there is lackness in lactation of female animal and mastitis occurs. In male animal, there is inflammation of testis known as orchitis. In weak culveshygroma (swelling of knee joint) takes place.

**Diagnosis :-**

(i) By history & symptoms.

(ii) **By Agglutination :-**

By putting one drop of serum on slide of diseased animal then also put one drop of Brucella antigen. This slide is put for 24 hour at 37<sup>0</sup>C on any case, if there is Brucella (+ve) then there will be precipitation formation. Despite of this test another screening procedure is as follows:-

- (i) Milk ring test :-
- (ii) Market cattle testing
- (iii) Supplementary test.
- (iv) CFT – complementary fixation test.
- (v) Merceptoethanol Agglutination test.
- (vi) Rivanol precipitation test.

**Treatment :-**

For treatment of such animal, put gloves on hand because, due to little/same/few infection this disease is transmitted in human beings. By washing uterus & vagina with antiseptic sol<sup>n</sup>, put tablet of broad spectrum antibiotics on uterus. Also give broad spectrum antibiotic injectection to animals.

**Control :-**

- (i) Animal form should be neat & clean.
- (ii) Healthy animal should be kept separate, from brucellosis disease animal so that they may not contact with them.
- (iii) The point of abortion or in case of effected discharge apply phenyl. The aborted foetus should be disposed of very carefully despite of this. Vaccine are also given :-

a. **Brucella – abortus strain – 19 :-**

It is a live antigen which is given to calves of 4-8 months. This vaccine is also given to adult animals. Its immunity is upto 4-5 lactation.

Doses route – 5ml S/c

b. **Brucellaabortus :-**

45/20 Bacterian in adjacent should also used. Its immunity is about equal to strain – 19 but two injection are given. But there is a disadvantage of this vaccine that the animal in which vaccine is given then there could be Brucella test (+ve).

Dose & route – 5ml S/c

## **Care of New Born**

(i) **To initiate respiration :-**

- a. Remove mucus from the nostril and mouth with the help of fingers.
- b. Draw out the tongue to and fro.
- c. Blow air in to the nostril.
- d. Vigorously rup the chest with a gunny bag or towel.

(ii) **Prevention of umbilical infection :-**

Umbilical cord should be ligated at about 2 inches from the umbilicus and severed with scissors, and the stamp should be cleaned with antiseptic.

(iii) **Thermo – regulation :-**

- a. Adequate milk intake.
- b. Neutral environment - new born puppy should be place in an environment temp of 30 – 33°C for first 24 hours, which can be reduced to 26 – 30°C by 3 days.

(iv) **Milk feeding :-**

The rate of milk feeding should be about 10% of calf weight per day up to a maximum of 5-6 litre/day.

(v) **Colostrums feeding :-**

The young one should get first colostrums with in first two hours after birth.

In case colostrums is not available, 200-250ml of dam's blood or serum should be injected S/C to young one of large animal and in smaller animale. 20-100ml to their young one.

(vi) **Regular vaccination.**

(vii) **Dehorning in 15 days.**

(viii) **Inspection of natural orifices.**

(ix) **Retained meconium :-**

- a. Show symptoms of colic& lack of appetite.
- b. The enema of saline, soap and water of glycerine or castor – oil should be given

(x) **Diseasi :-**

- a. Naval ill or joint ill
- b. Calf diphtheria.
- c. Calf pneumonia.