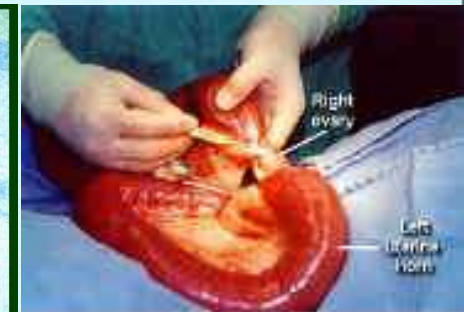
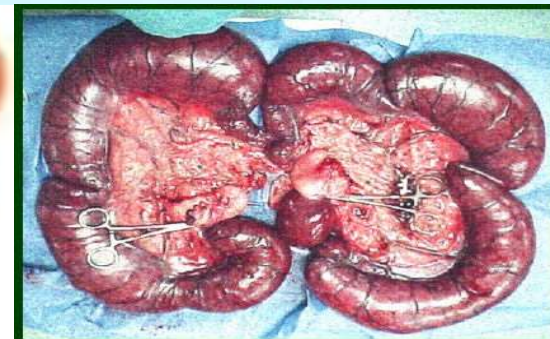


# CANINE INFERTILITY

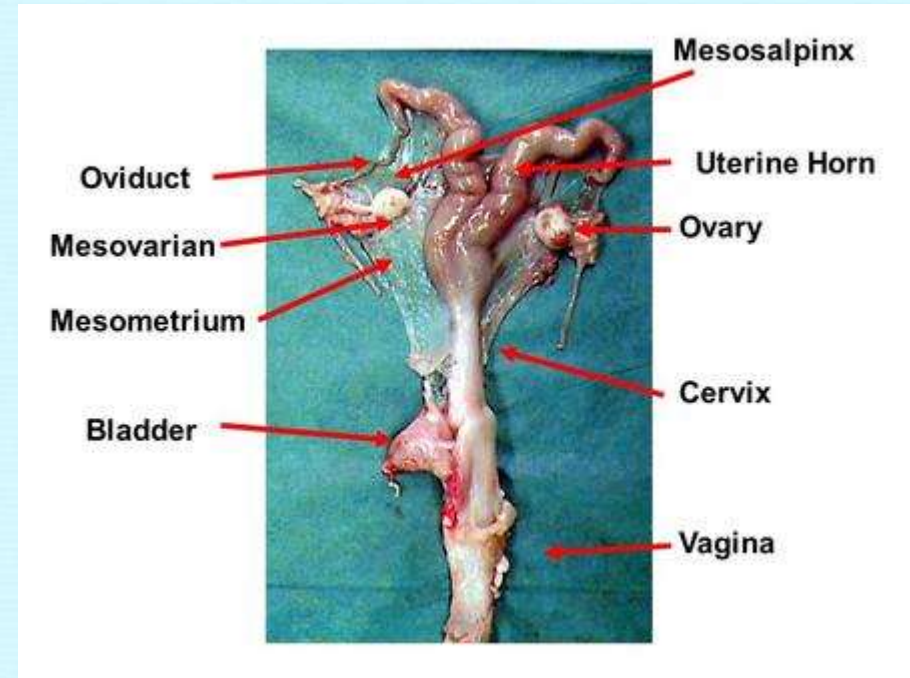
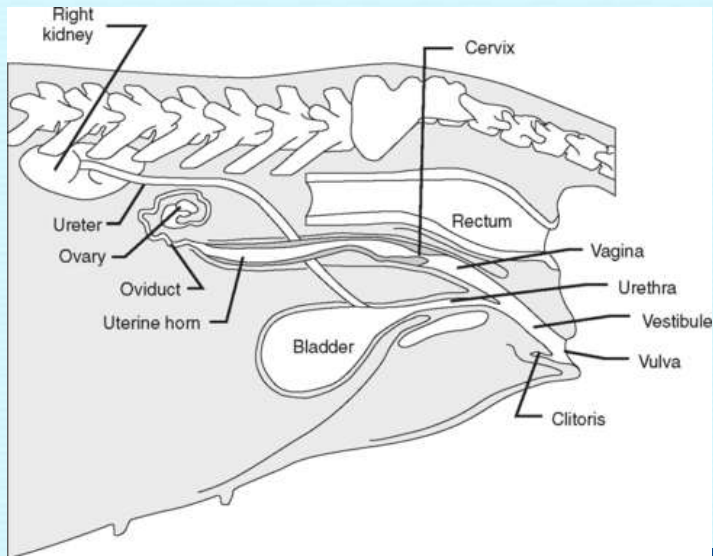


Prof G.N.Purohit

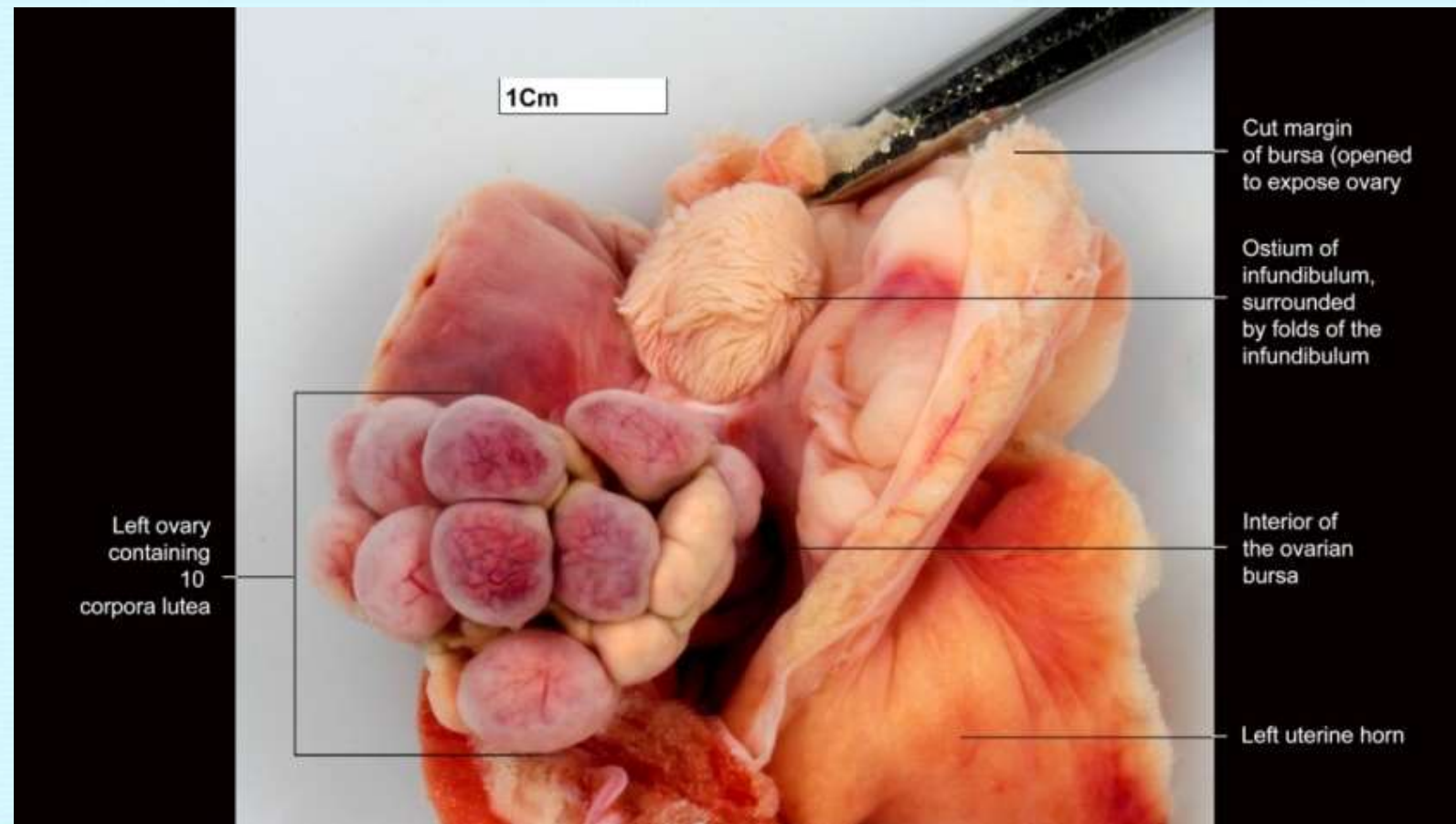
Department of Veterinary Gynaecology and Obstetrics Veterinary College, Bikaner  
DOG BREEDING, MARKETING AND SALE RULES



**Reproductive Anatomy** Anatomy of the bitches genitals limit passage of catheters and different breeds of the bitches have some differences in the location and shape of external genitals



- In the bitch the ovaries are located 1-3 cm behind the caudal pole of kidneys opposite 3<sup>rd</sup> lumbar vertebra between the last rib and crest of ileum. They are concealed in a bursa with a 0.6-2.0 cm slit.



# CANINE ESTROUS CYCLE

Dogs are monoestrus with interestrus intervals ranging from 4.5 – 13 months Av. 7 months

**PROESTRUS BLEEDING** -Av. 9 days

Attracts Male but no mating vulvar edema

**ESTRUS** - Av. 9 days Sexual receptivity

Bitch Deviate tail

Estrogen ↓ and Progesterone ↑

Bitch ovulates primary

oocyte → 1<sup>st</sup> polar body 48 to 60 hr post ovulation



## **Diestrus(Metestrus)** Sexual Quiescence

Decreased Epithelial cells + Leucocytes

**Psuedopregnancy**: Mechanism of CL Regression not known clearly

Role of PG Unclear

Early CL (Day 20-30 Resistant to PG)

**Puberty** 8-12 months Large breeds are mated at 15-18 months  
Pubertal bitches show Split estrus Vulvar swelling without male acceptance

Sperm can penetrate primary oocyte sperm viable for 4-11 days

Bitches with vaginitis/ anal sac infection can attract male dogs.

# Reproductive Physiology

Bitch ovulates primary oocytes that mature in 48 h after ovulation  
Ovulation 2 days after LH surge

Transition from proestrus occurs 1 day after LH surge but can occur 3 days before to 5 days after LH surge.

Fertility usually declines very rapidly beginning 7 days after the LH surge, as oocytes undergo degeneration and the cervix closes over a 1 to 2 day period

- **The Fertile Period**

**The fertile period can be considered to extend from three days before the preovulatory LH surge until 7 days after the pre-ovulatory LH surge, and may be even longer when using stud dogs with exceptional semen quality or bitches in which the oocytes may survive another day or two beyond the norm.**

*Importantly, for many stud dogs, their sperm may survive no longer than 1 or 2 days in the female tract. Matings earlier than the day of the LH surge have reduced pregnancy rates, suggesting that in most cases sperm are not capable of penetrating oocytes after 2 days in the female tract.*

# Non-receptivity in bitches can be because of

Persistent Hymen  
Vaginal Hyperplasia  
Tumors / Strictures  
Clitoral enlargement





- Breeding management of the bitch

Optimal time to breed can be determined by LH surge/clinical methods

Average bitch may ovulate 12 days of proestrus and hence should be mated on day 14 and 16 however, a bitch may ovulate as early as day 5 of proestrus to day 30 of proestrus hence mating on a predetermined day may fail to result in conception

A poor correlation exists between behavioral events and endocrine events

Some bitches may refuse to accept particular males.



# Checks before breeding

- Breed in the second or 3<sup>rd</sup> estrus
- Look for health issues
  - Labrador Retrievers can inherit eye defects, and German Shepherds are prone to hereditary hip dysplasia.



**Progressive Retinal Atrophy (PRA)** (causes total blindness), **Retinal Dysplasia** (causes eventual blindness), **Collie Eye Anomaly (CEA)** (usually inherited), **cataracts** (inherited), and **entropion** are potential eye problems.

**Hip dysplasia** is the deterioration of your dog's hip joint, so the hip socket sits too shallow in the head of the femur. This condition can lead to arthritic changes that destroy protective cartilage and can cause severe pain for your dog. This affects **large breeds** but **Cocker Spaniels** and **Shetland sheepdogs** might also be affected.

- The female breeding dog must be checked for Osteochondrosis Dessicans (OCD), an elbow joint problem.
- Dog must be checked for patellar luxation if he is a smaller dog.
- Diagnosis for this condition is straightforward and surgery can correct this condition, but no dog with patellar luxation should be bred, as this is a hereditary condition.
- The **hearing test** known as the brainstem auditory evoked response (BAER) **detects electrical** activity in the cochlea and auditory pathways in the brain. Dogs that fail a BAER test should not be bred.
- Many breeds will need to be check for heart issues like Subaortic stenosis (SAS) and other malformations of the heart or valves.

**The dam (female dog) and the sire (male dog) both should be tested for brucellosis before breeding.**



BAER TEST

# APPROACHES TO TIME BREEDING IN BITCH

## Clinical methods

### Vulval softening

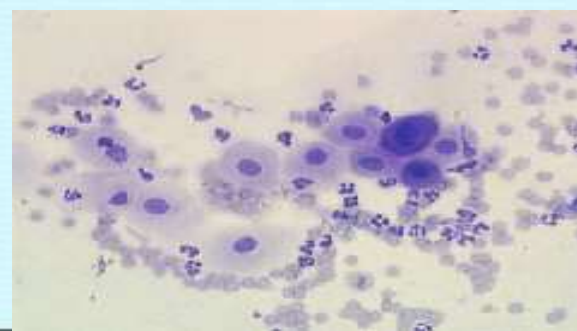
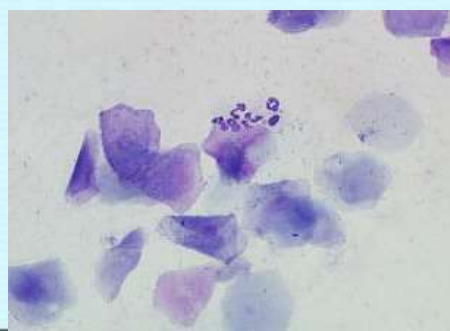
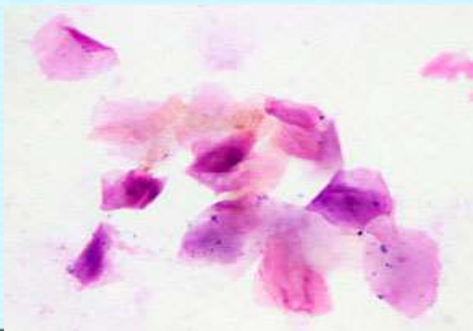
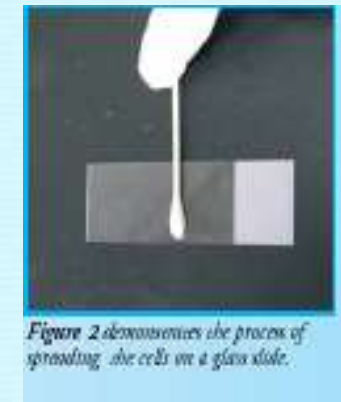
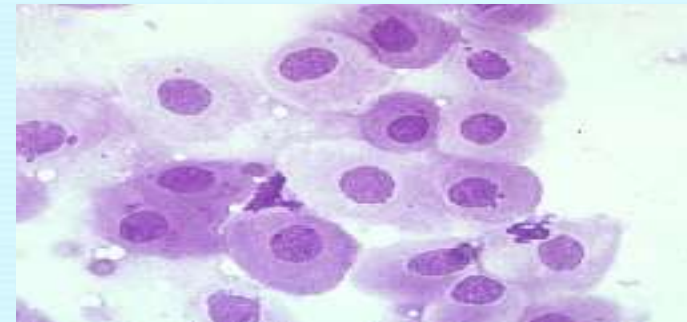
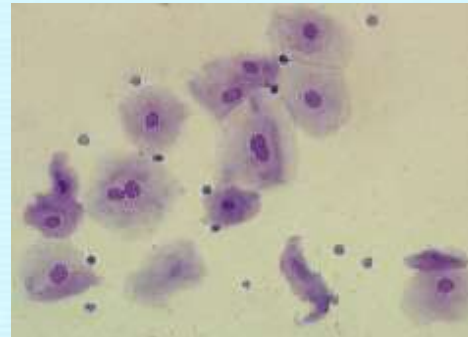
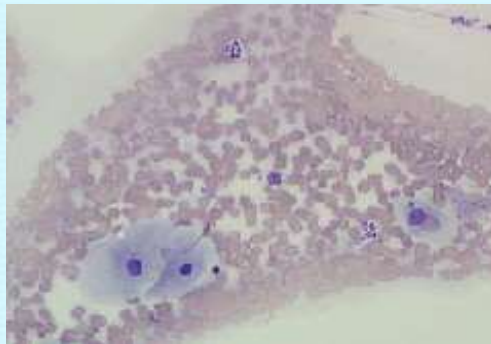
This occurs 1-2 days

Before ovulation and

The turgidity disappears

Vaginal cytology Reliability good but not high Vaginal Cells change from cuboidal to squamous epithelium

Early Proestrus RBCs + PMNs---Late Proestrus—Parabasal cells—Estrus—Epithelial cells---Nearing ovulation  
-80% or more cornified cells



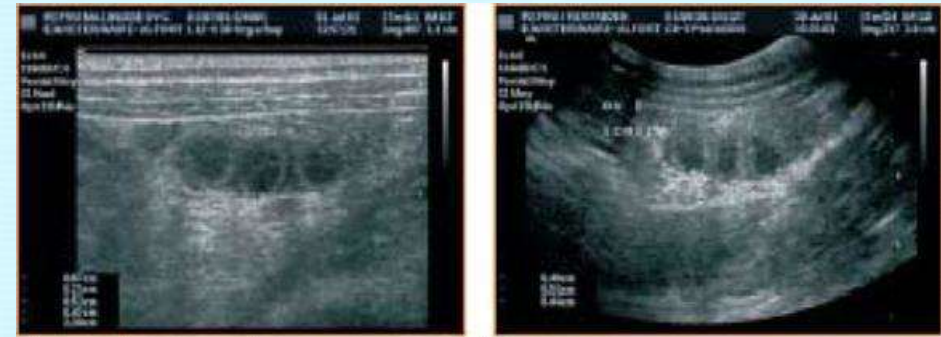
## Vaginal endoscopy

At proestrus vaginal mucosal folds edematous and turgid but they shrink at estrus



## Ovarian Ultrasound Examination

Mostly inconclusive as follicles do  
Not collapse and echogenecity  
Changes are inconsistent

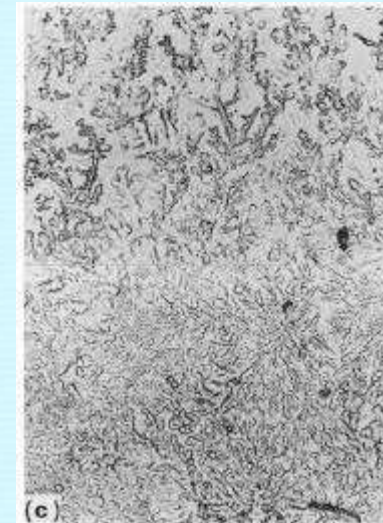


## Cervical Mucus Examination

Fern pattern is of value when combined with other methods

Plasma progesterone  $\uparrow$  2 days before ovulation

Plasma LH Daily recording required



- Mating in the bitch

- Sniffing, play, mount and lock tie

- Reasons for a lock tie

- The bulbus glandis, located at the head of the dogs penis, starts to swell and enlarge. The female vagina contracts and the narrow passage makes it impossible for the male to withdraw his organ. This normally lasts 15-20 minutes but can last for as long as 30 minutes.



# CANINE INFERTILITY

**Most common cause of infertility - poor breeding management**

- **Investigations**
  - Interestrus interval
  - Length of proestrus
  - Breeding history

Structural Abnormalities of reproductive tract

**Ovarian and uterine** abnormalities rare diagnosis by exploratory laparotomy



## **Vulva** Structural Abnormalities

### Hypoplastic (Recessed) Vulva in Dogs

Symptoms include excessive licking of the vulvar area, scooting, malodor, hematuria and sometimes even urinary incontinence

Treating the skin infection followed by episioplasty

### **Congenital vestibulo-vulvar stenosis**

Vaginal septa and circumferential vaginovestibular strictures are the most commonly reported congenital vaginal anomalies of the dog.

Surgical correction

## Vulvar atresia

Recessed or juvenile vulva is frequently observed in female dogs of all ages. This may be a normal finding unaccompanied by clinical problems. However, some dogs with recessed vulva develop persistent, repeated infections of the vagina or bladder, and owners may confuse associated symptoms with urinary incontinence. It is often impossible to achieve long-term relief with antibiotic therapy alone, and surgical correction of the recessed conformation of the vulva facilitates treatment of lower urinary tract infection.

**Clitoral hypertrophy**    Hermaphrodite  
Hyper-adrenocorticism  
Prolonged androgen therapy  
Therapy: Clitoral resection + neutering

Abnormal Discharge  
Abnormal Placement

## Diseases of Vagina

Congenital defects

**Persistent Hymen** - Pain during mating

Vaginal septa may be removed surgically  
via episiotomy

Vaginal anomaly must be suspected in urinary  
incontinence.

catheter

Vaginograms radio-opaque material thru

# Acquired Abnormalities

## Vaginal hyperplasia

Due to high estrogen

Common in 1<sup>st</sup> estrus

Recurrence common

Common in St Bernard, Bull dog, Boxers

## Treatment

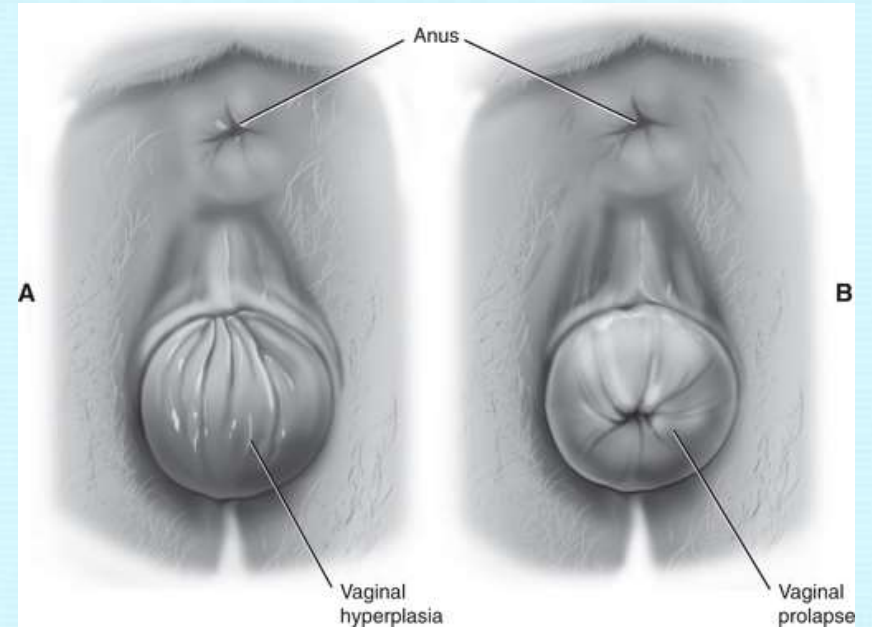
Megesterol acetate 1 mg/lb for 7 days in proestrus

GnRH 50 µg once IM

**Vaginal Prolapse** Entire circumference protrudes

Cause Constipation, Dystocia, Forced separation during lock tie

**Therapy** Repositioning under general anaesthesia/epsioplasty.



# PYOMETRA (Pyometra CEH complex) -open or closed

Hormone mediated diestral disorder of bitches 8-10 yes old.

Bacterial interaction with an endometrium under prolonged progesterone exposure resulting into accumulation of uterine glandular secretion.

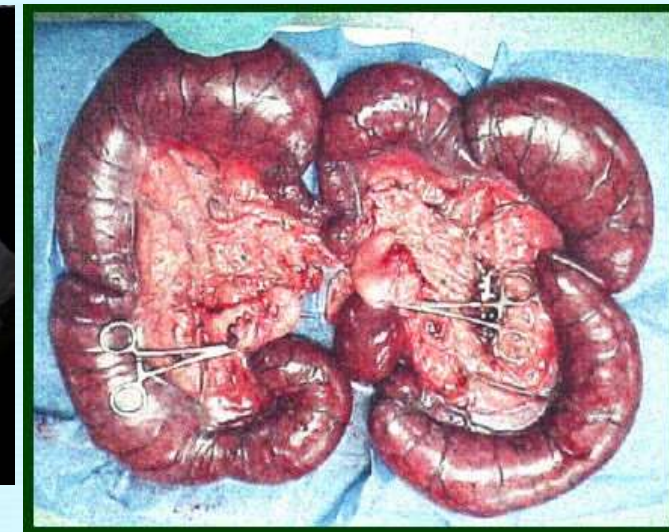
## Symptoms

Appear in 4-10 weeks of estrus    Depression  
Polyuria  
Vomiting  
Fever  
Pus discharge

## Diagnosis

Radiography/ultrasonography

Treatment: PG 125-250 µg Sc for 3-5 days + antibiotics  
Ovariohysterectomy



- **Psuedopregnancy**

physiological event occurring once or more times in the life of a bitch

false signs of whelping nesting behaviour, mammary enlargement

exact etiology unknown possibly high prolactin levels and a failure of proper LH surge

**Therapy:**

40 µg mibolerone PO for 5 days

1 mg / Kg testosterone IM once

2-5 mg/Kg bromocryptine orally

**Metritis**

Common Post whelping

Therapy Antibiotics + PG

# Tumors Ovarian and Uterine tumors uncommon

Benign tumors of vagina and vestibule common

## TVT (Transmissible Venereal tumor)

lymphosarcoma, histiocytoma

Coitally transmitted neoplasm affecting both sexes of dogs

**Transmission** cell allograft transmission

Nodular to cauliflower like growths 5mm-10cm that ulcerate and are inflamed

Lesion on glans in male & vagina in female

Haemorrhagic discharge most common clinical finding in the bitch

**Diagnosis** Symptoms/biopsy/impression smear.

**Therapy** Inj Vincristine 0.025mg/Kg IV once weekly for 2-5 weeks

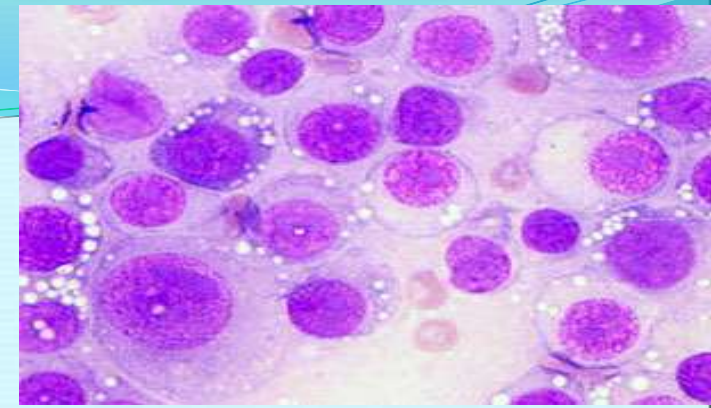
Methotrexate 0.3 mg/Kg orally daily for 10-15 days

Cyclophosphamide 1 mg/Kg orally daily for 10-15 days

Radiation therapy

Surgery or surgery + vincristine

**Prognosis** Good tumor is self limiting There is a growth phase followed by regression phase.



# **Dystrophia adiposogenitalis**

(Frolichs syndrome)

Disease of both sexes of dogs due to tumors of pituitary

## **Symptoms**

Obesity of neck

Genital atrophy

Ulcers of extremities

Diabetes insipidus

## **Treatment**

Surgical removal of pituitary

Administration of thyroid extracts

## **Hypoestrogenism**

Disorder of spayed bitches

Alopecia of perineum, abdomen, thighs

Often occurs in bitches spayed before 1<sup>st</sup> estrus

Treatment 1 mg DES daily for 2-3 weeks.

# INFECTIOUS INFERTILITY

## **Brucella Canis**

Most common cause of Abortion

Occurs 30-57 days of gestation

Prolonged vaginal discharge for 1-6 weeks after abortion

## **Toxoplasma Gondii**

Causes abortion, premature birth and neonatal death

## **Canine Herpes Virus**

Infertility, abortion, fetal mummification, premature birth

Venereal transmission possible

Vesicles on vestibule

# Functional Abnormalities

## Delayed Puberty and prolonged anestrus

Bitches not showing estrus even after 2 yrs of age

Unobserved estrus common in fastidious bitches

Prolonged inter-estrus intervals 26-36 weeks

Difficult to define prolonged anestrus.

Basenji breed shows first estrus at 300 days and then annually.

## Induction of estrus

DES 5 mg daily for 7-9 days

FSH/LH, GnRH agonists leuprolide acetate 100 µg/Kg or long acting deslorelin implant

Most common Antiprolactins: Bromocryptine 20-100 µg/Kg daily for 7-12 days

## Silent estrus

25 % of greyhound bitches show silent estrus

## Split estrus

Vulval discharge for few days without estrus.

## Unpredictable Ovulation time

Prolonged Pro-estrus/estrus

In bitches with longer than 30 day proestrus/estus ovulation must be induced with hCG 20 IU/Kg body wt IM or IV.

## Ovarian cysts

Mostly detected in older bitches at ovariohysterectomy

Frequently of parabursal origin and less important as clinical entity

Estrogen producing cysts may sometimes produce persistent estrus with vulval discharge, flank alopecia and hyperkeratosis.

Hypoleutidism

Lack of progesterone support – abortion

Progesterone 2-5 mg/ Kg orally daily from day 20.

- The above lectures are also explained in video lectures at my YouTube Channel Govind Narayan Purohit
- Kindly share the videos and subscribe to my channel if you like them
- Thanks