



Post partum genital complications in the bitch

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Canine post-partum problems are comparatively less frequent and different from other domestic animals. The parturition is prolonged in the bitch (second stage of labor sometimes requiring up to 24 hours) hence the first thing a clinician must look for is the presence of any fetus.



In canines, normal postpartum discharge is dark green or greenish black in colour for the first 1 to 2 days which then becomes bloody and persists for 1 or 2 weeks or even up to 1 month. There is usually a lot of discharge for the first 5 to 7 days. It should gradually decrease in volume and become thick and clear or grey by day 10



Table 1 Incidence of reported post-partum reproductive disorders in the bitch

Condition	Incidence	Reference
SIPS	3.65% 19.8%	Nagar et al., 2008 Al-Bassam et al., 1981
Post partum metritis	11.58% 3.3% 4.3%	Nagar et al., 2008 Ajala and Fayemi, 2011 Sathiamoorthy and Raja, 2011
Eclampsia	2.6% 18.24% 13.0%	Biddle and McIntire, 2000 Dorbatz and Casey, 2000 Sabiri et al., 2007
Post partum hemorrhage	1.2%	Dickie and Arbeiter, 1993
Uterine prolapse	1.25%	Biddle and McIntire, 2000
Retained placenta	0.85%	Burke, 1977

Table 2 Incidence of post partum canine reproductive disorders at CVAS Bikaner 2008-2010

Clinical condition	Number of cases	Breed of bitches	Percentage
Retained fetal membranes	1	German Shepherd	5.88%
Sub involution of placental sites	4	German Shepherd 2; Pomeranian 1; Labrador 1	23.52%
Metritis	6	Non-descript 4; Pomeranian 2	35.29%
Uterine prolapse	1	Non-Descript 1	5.88%
Eclampsia	5	Pomeranian 4; Doberman 1	29.41%
Total	17		

Post partum haemorrhage

Etiology

Uterine or vaginal injury following dystocia handling
Blood coagulation disorders

Diagnosis

Long speculum or paediatric endoscope needed for exam

Therapy

Suture

Wool soaked with adrenaline must be placed in the vagina

Dose of oxytocin

If severe uterine haemorrhage is suspected an emergency laparotomy with blood transfusion is suggested.



Retained foetal membrane

Placentae are usually passed within 15 min of a birth of a puppy. Many a time's placental retention is suspected when in fact it has been eaten by the mother.

The condition is common in toy dog breeds

The persistence of greenish-black discharge for longer than 24-26 hours suggests retention



Clinical Signs:

Persistence of greenish discharge

Uterine distension and or placental parts in vagina.

Palpation is not reliable to diagnose a retained placenta.

Ultrasound may be used, but it too is very subjective in determining if a placenta is retained.

Exploratory celiotomy may be used to definitively diagnose retained placenta.

Diagnosis:

X-Ray/ USG not reliable/hysterotomy

Therapy:

Oxytocin 0.5U/Kg IM or IV Calcium gluconate (10%) 3-10 ml IV slowly. Followed by oxytocin, 5-25 IU, IM.

Oxytocin (5-25 IU IM) may be given routinely to all bitches once delivery has been completed. This has been suggested to aid in the expulsion of remaining placentas, and even retained fetuses(Fontbonne, 2010).

If metritis develops treat accordingly or Ovariohysterectomy (OHT) is suggested.

Sub involution of placental sites (SIPS) is a disorder that occurs in healthy bitches post-whelping. Young bitches (less than 3 years of age) are most commonly affected following the first whelping, the exact etiology continues to be obscure.

Normal placental separation: Degenerative changes in the spongy layer of endometrium. Degeneration of trophoblast cells (fetal cells)

In SIPS uterus continues to supply blood to tissue tags. The trophoblast cells do not degenerate and invade deeper in glandular layer.

Possible mechanisms Lack of thrombosis in endometrial vessels.

Failure of exposed placental blood vessels to occlude and damage of uterine vessels which leads to continued hemorrhage.

Maternal Decidual cells prevent trophoblastic invasion by secretion of tGF-B but in their deficiency this is prevented.

High progesterone post whelping. **Exact etiology continues to be obscure**

Predisposing factors obesity, high calcium and low zinc in the diet, sub-clinical hypoglycaemia, uterine inertia and premature birth

Clinical signs



Sero-sanguineous or bloody discharge 8-16 weeks post partum

Progressive weakness and mild fever in a few cases

Anemia

Death is rare and occurs in uterine perforation.



Diagnosis:

Vaginoscopy reveals blood clots or pure blood or sanguineous discharge

Vaginal cytology reveals RBCs and trophoblastic(decidua like) cells

On gross examination, affected sites are larger than involuted sites and contain nodular protrusions of endometrium. Histologically, these nodules are made up of eosinophilic tissue with necrosis and hemorrhage.

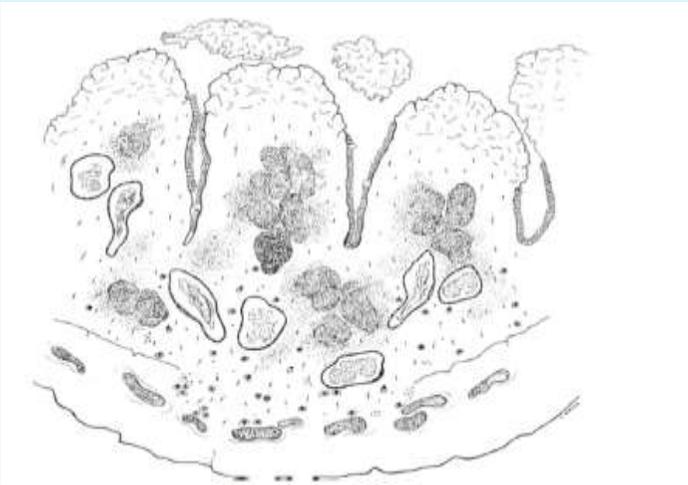
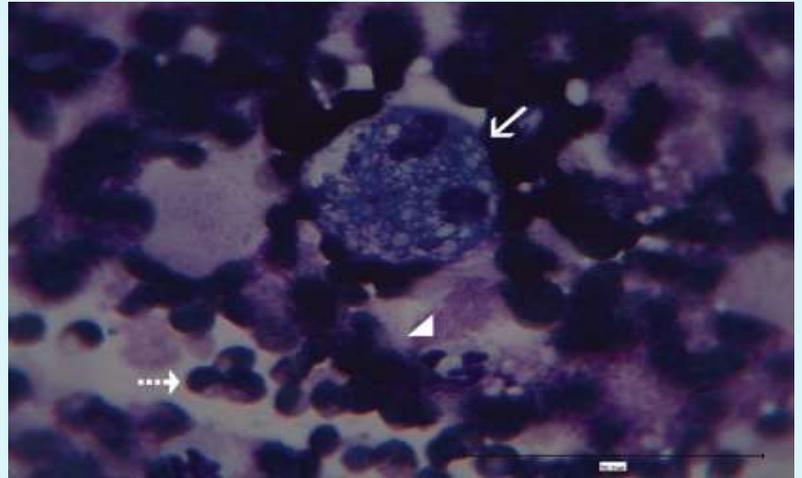
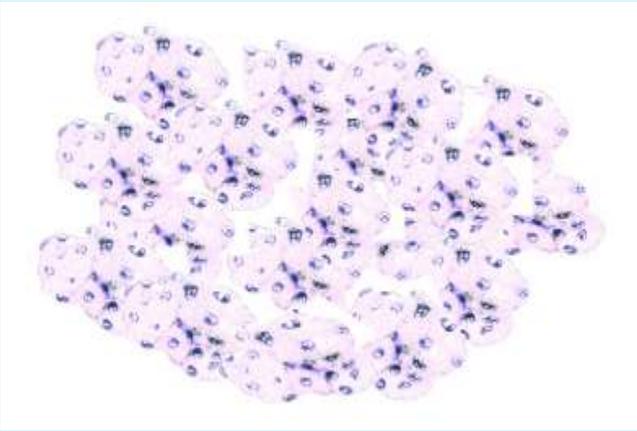
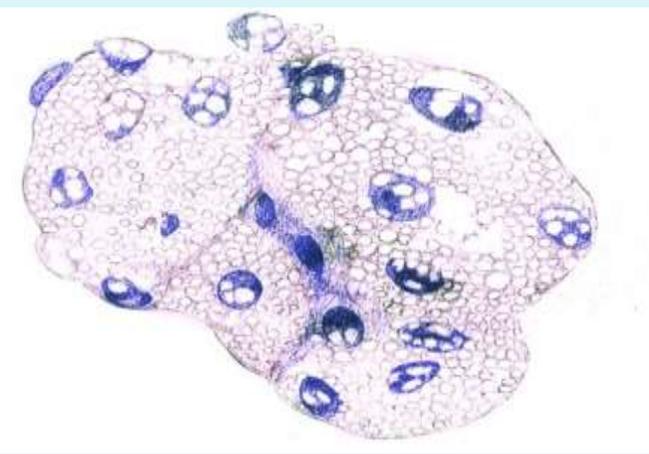


Diagram of subinvolution with invasion of myometrium, necrosis, retention of collagen

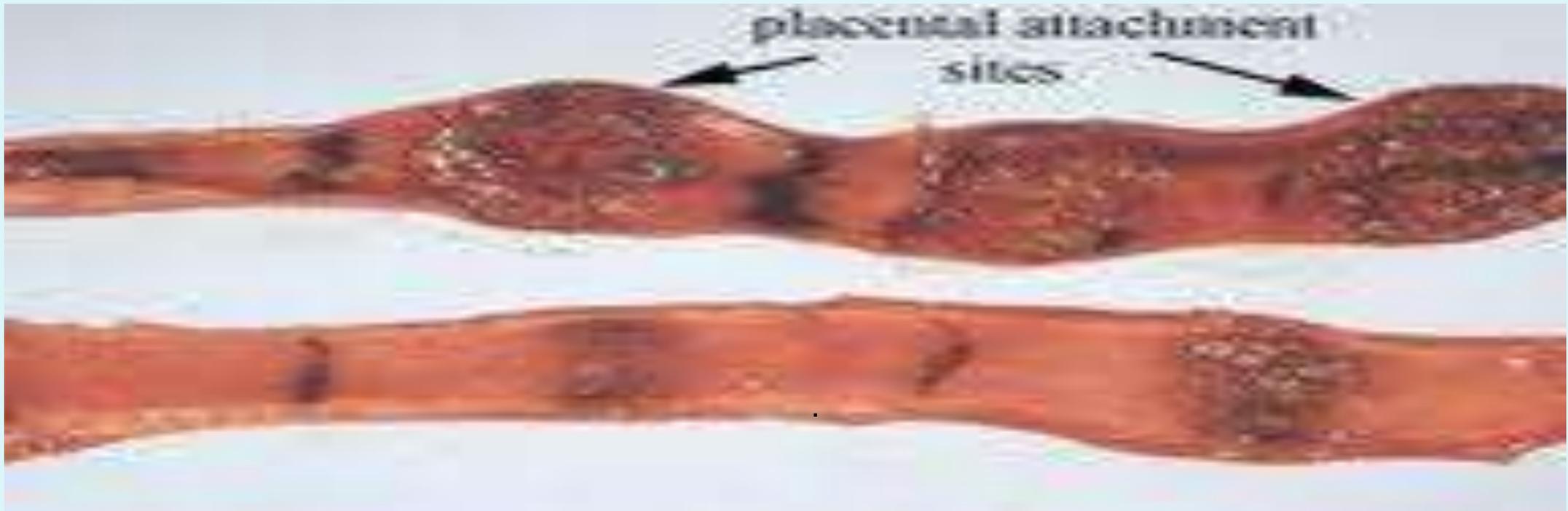


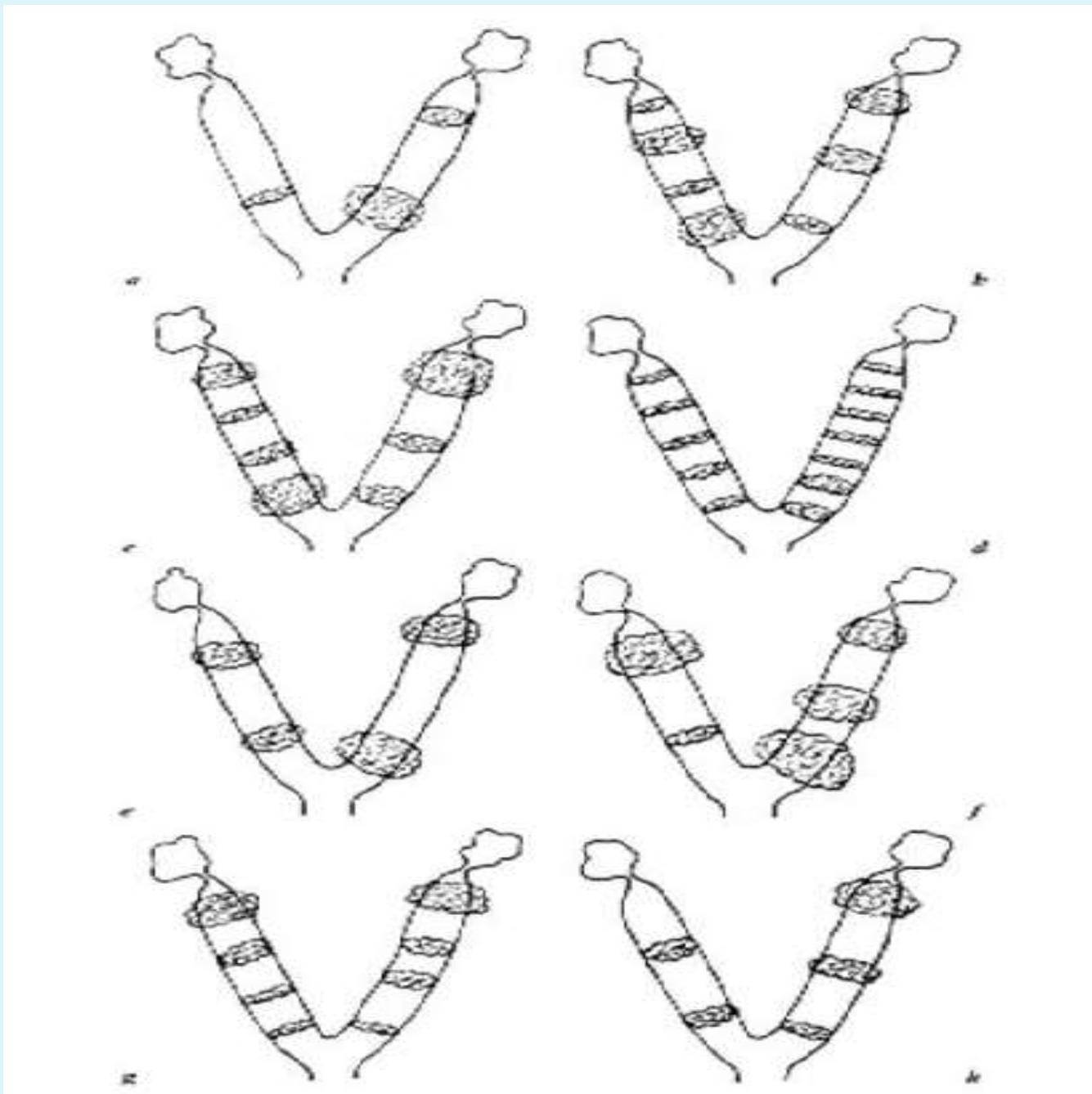


Normal placenta sites in a postpartum bitch



Sub involution of a placental site.





Schematic drawing of *sub-involution of placental sites in dogs (Al-Bassam et al., 1981) 45-65 days of whelping*

Sonographic features have been described but require good instrumentation and sufficient expertise.



Postpartum 3 weeks, normal uterine involution. Abdominal sonogram of a pregnant bitch at 3 weeks after parturition. The uterine horn is shown in longitudinal plane, with a placental site (p) in the right half of the image (England et al., 2003).



The placental site (PS) is indicated between + symbols and the arrows mark the normal uterine tissue (Sontas et al., 2011).



Postpartum 1 week. Abdominal sonogram of a bitch 1 week postpartum. The uterine horn is shown in longitudinal plane, with a placental site in the left half of the image (England et al., 2003).



Postpartum 5 weeks, normal involution. Abdominal sonogram of a pregnant bitch 5 weeks after parturition (England et al., 2003).

It is important to perform a **differential diagnosis** with

Coagulopathies

metritis

brucellosis

caudal reproductive tract inflammation

trauma

and neoplasia.

Laparotomy is one means of diagnosis



Therapy:

Ergonovine maleate 0.2 mg/Kg

Medroxyprogesterone acetate 2 mg/Kg

PG

Progestagen (Niagestin 25-50 mg per bitch)

For bitches presented in good health without significant anemia, benign neglect can be suggested

Laparotomy and curettage

Ovariohysterectomy

Post partum Metritis



Acute infection of uterine endometrium during the immediate postpartum period (usually within 1 week) or after an abortion, often associated with a retained placenta or a retained dead pup.

The most common organism is E Coli although Streptococcus and Staphylococcus are also seen.



Clinical signs

Foul smelling vaginal discharge

Lack of interest in pups

Dull and depressed

Pups may cry and have red edematous ani

Vomiting, diarrhea, congestion of mucus membranes

Fever 103-105⁰C

Anorexia and Tenesmus

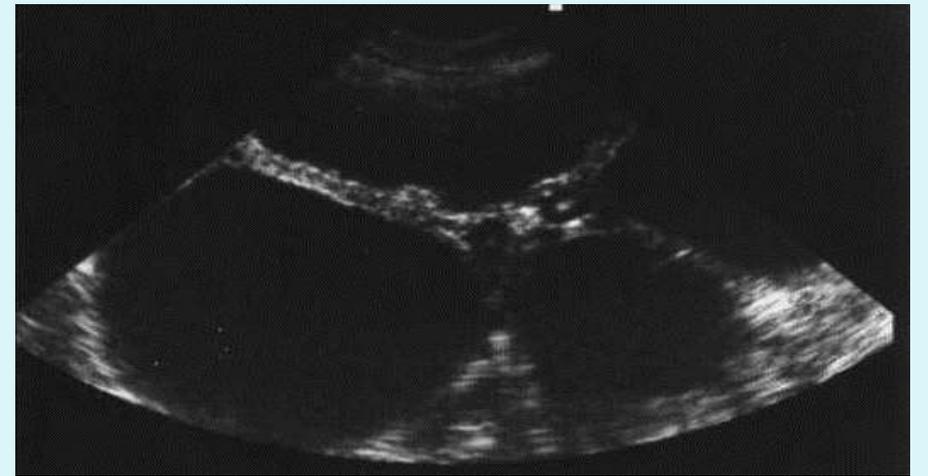


Diagnosis:

Culture of vaginal discharge

Hematology increased leukocyte count and shift to left

Ultrasonography

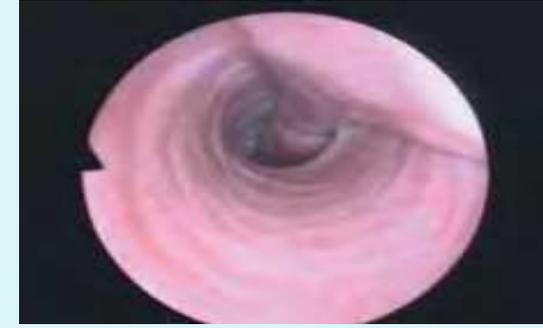


Hysteroscopy

Done under sedation

A urethral catheter (Ureteral CRU[®], 5Fr, Rusch, France) inserted inside the operating channel is used for cervical catheterization and remained close to the cervical opening. Then filtered air is insufflated (GastroPack[®], Storz, Germany) through the catheter to allow distension of the cervix in order to allow the passage of the scope inside the uterus.

Tran cervical cannulation via endoscopy has been recorded for collection of uterine samples for microbiology and or evaluation of retained placenta or detecting uterine sub involution



cranial vagina with the dorsal median fold:



uterine cervix:



Therapy:



IV fluid and electrolytes

Broad spectrum antibiotics safe for nursing pups for ex: Ampicillin 20 mg/Kg; Trimethoprim or oxacillin. Amoxicillin (15 mg/kg body wt/48 h) and/or gentamicin (4 mg/kg body wt/day) administered as intramuscular (i.m.) injections

PG 0.10-0.20 mg/Kg every 12-24 h for 3-5 days.

Ergonovine 0.2 mg/Kg

Ovariohysterectomy

Nowadays the most used treatment are the progesterone antagonists, Alizine[®]. Dose used is 0.33 ml /Kg, two injections 24 hours apart and repeated every week until the uterine content has disappeared.

Eclampsia

A life threatening disease occurring 2-4 weeks post partum because of low calcium levels.

Affects small to medium sized bitches at peak lactation.

Serum calcium concentrations fall to about 4 to 7 mg/dl (normal 9 to 11 mg/dl)

Bitches with a heavy litter are most affected

Excessive prenatal supplementation of calcium

Alkalosis can exacerbate eclampsia

Clinical signs

Restlessness followed by nervousness and panting



Loss of maternal behavior

High body temperature 107°C

Increased salivation

Stiff gait rapidly progressing to muscle tremors, tetany and seizures



Diagnosis:

History, clinical signs and serum profile of calcium

Therapy

10% calcium gluconate 1-20 mL IV

Vitamin D 10,000-25,000 Units daily

Dextrose (Because hypoglycemia is often concurrent)

Diazepam 1- 5 mg IV in case of seizures

S/C calcium diluted with 50% saline should be administered after IV infusion

Oral calcium gluconate or carbonate 10-30 mg/Kg every 8 h

Precautions

Monitor heart beat for arrhythmia and bradycardia during calcium infusion. Infuse more slowly or discontinue temporarily if this happens. Response in 15 minutes of therapy.

Stop feeding pups till recovery.

Avoid Corticosteroids as they promote calciuria and decrease intestinal calcium absorption.

Also avoid diets high in legumes like soya bean or cottage cheese as they tie up dietary calcium.

Uterine prolapse

Cause: Obstetric manipulation
Intense tenesmus

Diagnosis : Tubular inverted mass is visible

Abdominal pain

Restlessness

Therapy

Replacement under sedation or general
anesthesia

Laparotomy

Ovariohysterectomy



Uterine rupture

This is an emergency

Cause:

Large litters leading to thinning of uterine wall

Multiparous dams

Dystocia

External trauma

Uterine torsion

Clinical signs:

Depend upon extent and time since rupture
and presence of infection

Diagnosis: Cytological evaluation of peritoneal
fluid

Therapy: Emergency laparotomy
Unilateral hysterectomy



Rupture of the uterus in 2 locations during
dystocia for maternal - fetal size miss match

Vaginitis

Vaginal discharge

Licking of vulva

Urinary incontinence

Frequent urination

Attraction of male dogs

Occasionally, dogs have clinical signs associated with a concurrent disease (e.g. diabetes mellitus or hepatic disease)

that exacerbates the vaginitis

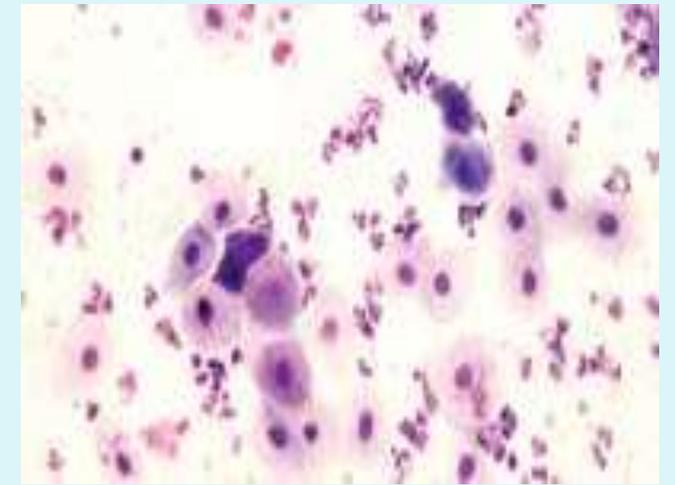
Erythema in the vaginal vault

Diagnosis: Vaginoscopy

Cytological examination of vaginal epithelial cells and vaginal discharge, vaginal and urine bacterial cultures and antimicrobial sensitivity testing, urinalysis, a digital vaginal examination, and vaginoscopy

Therapy: Local antibiotics

Phenylpropanolamine may also help control subclinical urinary incontinence.



Cytological examination of a vaginal specimen from a bitch with vaginitis reveals noncornified vaginal epithelial cells and polymorph nuclear cells (modified Wright's stain; 100X).

Thank You

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