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Sub Involution of Placental Sites (SIPS) in bitches – Its Diagnosis and Treatment

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Introduction

- SIPS is the exudation of sero sanguinous, non-inflammatory vulvar discharge beyond the normal postpartum lochial period i.e., more than three weeks postpartum. SIPS occurs when the uterine involution process is delayed.
- Sub-involution of placental sites (SIPS) is a disorder which generally occurs in she dogs of younger than 3 years of age after the First whelping when normal healing of site of placenta where foetuses attached to the endometrium does not occur and is characterised by freshly discharged blood from the vulva from several weeks to months' post-partum (Kumar et al., 2018).

- Normal lochial discharge which changes from greenish to brownish to mucoid lasts up to three weeks postpartum. Several postpartum conditions lead to persistent sero sanguinous vaginal discharge beyond the normal duration like trauma of genital tract, metritis endometrial hyperplasia, tumours of genital tract or urinary bladder, cystitis, coagulopathy, sub involution of placental sites (SIPS) and brucellosis.

- Sub-involution of placental sites in a bitch was reported first in 1966 (Becka, 1966).

- Sub-involution of placental sites (SIPS) occurs when normal healing of does not take place at the sites of the placentas of the fetuses attached to the wall of endometrium. It is characterized by a fresh bloody discharge passing from the vulva. The discharge may for several weeks or months (7 to 12 weeks) post-partum.

- This condition occurs mostly in bitches younger than three years of age following the first whelping (Al-Bassam et al., 1981; Olson et al., 1984; Johnson, 1989). Physiological vaginal discharge after delivery lasts normally for approximately three weeks If hemorrhagic vaginal discharge is prolonged beyond these three weeks, it refers as SIPS (Orfanou et al., 2009).

The pathogenesis of SIPS is not well known. However, Johnston (2001) describes that in bitches with SIPS, trophoblastic cells do not regress or degenerate normally, instead they continue to invade deep into the glandular layer or even into the myometrium, preventing normal involution. Normally, the lining of the uterus (endometrium) repairs itself once the placenta tears away from the wall as the puppy is born (Slatter, 1985).

Etiology

It was reported that any form of premature parturition, uterine inertia, infection, mineral and vitamin deficiencies were incriminated as predisposing to retention of placenta in cattle (Fitzpatrick, DBR 1988/89).

1.Prolonged parturition

A. Obesity (fatique and poor muscle tone)

B. Ca-Zn deficiency (abnormal ration: Calcium↑, Zinc↓)

C. Subclinical hypoglycemia

D. Subclinical hypocalcemia (slow initiation of labour)

E. Dystocia

F. Uterine inertia (primary and secondary)

G. Uterine torsion

2. Premature parturition

A. Abortion (E. coil, Brucella canis)

Clinical Signs

SIPS occurs often in the young bitch, usually after the first pregnancy. Bitches with SIPS usually appears to be healthy in all respects except for a pinkish sanguineous vulvar discharge passing from the vulva for several weeks postpartum.

Condition took the form of excessive uterine bleeding (metrorrhagia) post-partum and, of prolonged vaginal discharge lasting 8-13 weeks' post-partum. Duration is variable, lasting a few weeks in some cases but persisting to the next proestrus in many others.

Differential diagnosis from

Persistent pinkish sanguineous vulvar discharge postpartum in female dogs can be due to numerous causes, including trauma, genital tract neoplasia, endometritis, brucellosis, coagulopathy and sub-involution of placental sites (SIPS) [Johnston et al., 2001]

Diagnosis

The diagnosis of SIPS is done by the basis of historical and physical findings, cytologic findings and histopathological examinations generally (Al-Bassam et al., 1981).

Vaginal Smear Test

Regarding to vaginal smear, trophoblastic-like cells can be observed in smear. Eighter its absence does not rule out the presence of SIPS. Trophoblast cells are polynucleated and heavily vacuolated and could be observed in the vaginal smears from bitches with SIPS (Arbeiter & Dickie 1993).

Abdominal Ultrasound

In abdominal ultrasound may show an enlarged fluid-filled uterus with a more or less heterogeneous content and enlarged implantation sites. Ultrasonography does not always provide a conclusive diagnosis. An abdominal ultrasound, and abdominal palpation, are done to assess the size of the uterus and to rule out the possibility of retained fetuses or placental material. Presence of excess the fluid within the uterus is more suggestive of an inflammation or infection of the uterus rather than SIPS (MM Rivera del Alamo 2017; Dickie et al., 1993).

Uterine Biopsy

Definitive diagnosis of SIPS can be made by a pathologist examines a biopsy of uterine tissue, but uterine biopsies are rarely done. Endometrial epithelium showed papillary and tubular projections into the uterine lumen. These projections penetrated into the lamina propria and the muscular layers. In the apical zone, the projections showed the presence of fibrin, erythrocytes and degenerated inflammatory cells. Endometrial lamina propria was edematous and with small hemorrhagic areas and infiltrates, mainly lympho plasmacytic. Lymphatic vessels were distended and both endometrium and myometrium showed diffuse congestion. Histology showed endometrial glands invaded by trophoblastic cells (Dickie et al., 1993).

Treatment and Discussion

Treatment with different antibiotics have had no results in bitches with SIPS (Schall et al., 1971: Beck et al., 1966), Seven-day course with 8 µg/kg twice daily of methyl ergometrine hydrogen maleate orally resulted in no improvement in clinical signs (Sontas et al., 2011). Medical treatment with oxytocin or careful use of megestrol acetate however, but no further information on results with this treatment is given (Arbeiter, 1993). Another study where bitches with persistent postpartum uterine hemorrhage were treated with a single subcutaneous dose medroxyprogesterone acetate suspension (2 mg/kg bodyweight) vulvar discharge disappeared on day three (Arbeiter, 1975). Daily administration of megestrol acetate over 2 weeks may be superior to single-dose parenteral administration, although optimal duration of treatment has not been studied yet. Treatment with megestrol acetate in a dose of 25-50 mg subcutaneous in combination with antibiotics intrauterine diminished the symptoms of vulvar discharge within 3-5 days (Dickie MB et al., 1993). A fast and successful treatment of postpartum uterine bleeding and sub-involution of placental sites was injection of a single dose of 25 to 50 mg of medroxyprogesterone. (Sontas et al., 2011).

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