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Successful management of haematometra in a bitch

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Abstract

Hematometra is a rare reproductive disorder, characterized by the accumulation of blood within the uterine lumen in canines. A nulliparous intact bitch with distended abdomen was showing continuous vaginal bleeding for 7 days. On ultrasonographic examination, several anechoic masses (fluid filled) were noticed within the uterus. The myometrial thickness was relatively more than normal. Uterus was distended. Complete blood count, liver and kidney profiles, revealed anaemia (RBC-5.1 million/mm³, Hb-9.6 gm%), leucocytosis (WBC $16.4 \times 10^3/\mu\text{L}$), mild azotaemia elevated urea (48 mg/dL) and creatinine (1.8 mg/dL), AST (113 IU/L) and ALT (76 IU/L) parameters. The animal was treated medically with intravenous fluids, antibiotics and anti-inflammatory drugs for a week. Ovariohysterectomy was performed followed by post-operative therapy. Animal was recovered successfully within 5 days.

Keywords: Hematometra, canine, vaginal bleeding

1. Introduction

Hematometra is a rare uterine pathological condition in canines characterized by accumulation of blood in the uterine lumen, often confused with pyometra due to similar clinical signs (Johnston *et al.*, 2001) [6]. It may result from cervical stenosis, endometrial hyperplasia or hormonal imbalances affecting intact females during estrus (Root Kustritz, 2010) [11]. Mucometra, hydrometra, and pyometra are defined by the type of fluid present in the uterus and the degree of mucin hydration.

Pyometra is common in intact bitches of all age groups but mostly seen over 6 years of age (Jitpean, *et al.*, 2014) with increased incidence in nulliparous bitches (Pretzer SD, 2008) [5, 9]. It is characterized by genital and systemic illness resulting in impaired homeostasis, cystic endometrial hyperplasia, infiltration of inflammatory cells and accumulation of uterine exudates (Kempisty *et al.*, 2013) [7]. Affected dogs exhibit symptoms of vaginal discharge, loss of appetite, lethargy, vomiting and occasionally increased thirst or urination. This infection will induce anemia, leukocytosis, increased urea and creatinine and increased Aspartate Aminotransferase, Alanine Aminotransferase and Alkaline Phosphatase (Srinivas *et al.*, 2018) [13]. Besides, endotoxemia and septicemia also occur, leading to it being treated as an emergency (Hagman, 2012) [3].

Abdominal ultrasonography is the best diagnostic method for evaluating uterine infection in bitches and queen (Dennis and Brian 2012) [1]. The most effective treatment is ovariohysterectomy (Kumar and Saxena, 2018) [8]. Diagnosis of hematometra is not made until a laparotomy is performed and gross findings are assessed. This case describes hemodynamically compromised bitch with hematometra and its successful management.

2. Case history and Observations

A 6-year-old nulliparous intact Pomeranian bitch was presented to the Veterinary Clinical Complex, Garividi, with a history of persistent vaginal bleeding from the last 7 days. The owner reported no previous history of mating or any reproductive interventions. The dog's last estrus was occurred 2 months prior to admission and was reported by the owner to be a normal heat cycle.

On clinical and physical examination revealed that the body temperature, heart rate and respiratory were within normal range and continuous bloody vaginal discharge along with vomitions for 4 days.

3. Diagnostic Procedures Adopted

An ultrasound image showing a distended uterus with hypoechoic fluid (blood), characteristic of hematometra. The image highlights the abnormal thickening of uterine wall and the echotexture of the fluid was distinct from the echogenic

content typically observed in pyometra (Fig-1,2). The right kidney diameters were also noted (Fig-3). Laboratory assessment of Complete Blood Count (Table-1), Liver Profile, Kidney Profile (Table-2) was performed. On hematological and serum biochemical examination revealed anaemia (RBC-5.1 million/mm³, Hb-9.6 gm%), leucocytosis (WBC 16.4 × 10³/μL), neutrophilia and relative thrombocytopenia, mild azotaemia with elevated urea (48 mg/dL) and creatinine (1.8 mg/dL), AST (113 IU/L) and ALT (76 IU/L) parameters.



Fig 1: Uterus & Uterine wall diameter D1-22.8mm, D2-6.1mm respectively

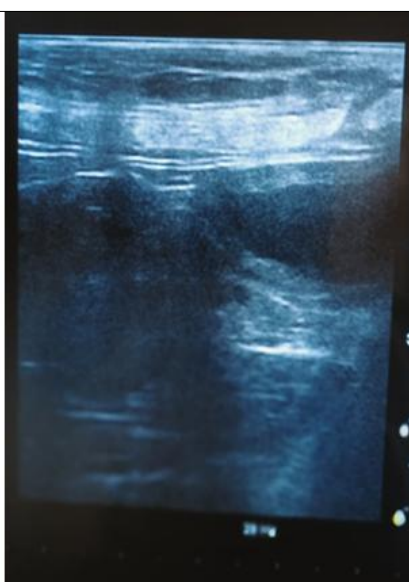


Fig 2: Anechoic to Hypoechoic sacs in uterus

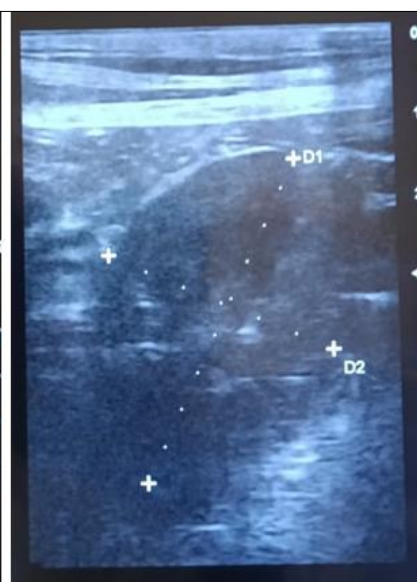


Fig 3: Right kidney, D144 mm, D2 30 mm

4. Results

Table 1: Complete Blood Count (CBC) findings

Parameters	Result	Unit	Reference
WBC	16400	cells/mm ³	5000-14000
Lymphocytes	22	%	8-21
Neutrophils	59	%	64-78
RBC	5.1	million/mm ³	5.0-7.9
Haemoglobin	9.6	gm%	12-18
PCV	25.7	vol%	35-57
Platelets	1.22	lakhs/mm ³	2.11-6.21

Table 2: Kidney and liver profile

Parameters	Result	Unit	Reference
Serum creatinine	1.8	mg/dL	0.4-0.8
Blood urea	48	mg/dL	13-45
Urea/creatinine	26.66	-	21-59
AST (SGOT)	113	IU/L	6.2-13
ALT (SGPT)	76	IU/L	21-73
Alkaline Phosphatase	386	IU/L	20-156

5. Therapeutic Management

The dog was administered with Inj. Ringer's Lactate-150 mL, Inj. DNS-100 mL, Inj. Metrogyl-100 mL, Inj. Potassium clavulanate-180 mg, Inj. Ranitidine-1.3 mL, Inj. Ondansetron-1.2 mL intravenously, Inj. Dexamethasone-1.5 mL intramuscularly and Syr. Hepamust and Syr. Enterogermina for a week.

6. Treatment Outcomes

After one week of medical treatment, laparotomy with Ovariohysterectomy was performed, the bitch was

preanaesthetized with butorphanol (0.2mg/kg, IV) and diazepam (0.25mg/kg, IV). Anaesthesia was induced with propofol (3mg/kg, IV) and maintained with isoflurane. At laparotomy, the uterus was enlarged and filled with fluid, evidence of haemorrhage was noted. The uterine wall felt thickened and edematous. The uterine body was incised, revealing a diffuse, cystic appearance of the endometrium with an accumulation of blood clots which confirmed hematometra. The dog was maintained on IV fluids, Antibiotics, Anti-inflammatory drugs postoperatively and recovered uneventfully within 5 days.

7. Case Discussion

This case demonstrates that chronic vaginal bleeding in intact female dogs should be a prompt consideration of Hematometra. The most important symptom is persistent vaginal bleeding was evident, aligning with literature descriptions (Romagnoli, 2006) [10]. The haemoglobin level was decreased in bitches affected with haematometra indicating anemia which is in agreement with the findings of Jena *et al.* (2013) and samantha *et al.* (2018) [4, 12]. Initial leucocytosis (WBC 16.4 × 10³/μL) suggests inflammation due to secondary uterine pathology, which had resolved with antibiotics. Thrombocytopenia (PLT 122 × 10³/μL) and haemoconcentration (PCV-25.7 vol%) indicate blood loss or dehydration, managed by IV fluids. Elevated urea (48 mg/dL), creatinine (1.8 mg/dL) and urea/creatinine ratio (26.6) suggest prerenal azotemia, likely from chronic inflammation, dehydration or systemic stress (Dennis and Brian 2012) [1]. Bacterial endotoxemia and reduced liver perfusion are thought to contribute to elevated liver enzyme activities.

When hemometra is suspected, ovariohysterectomy should be performed as soon as possible due to life threatening complications associated with bacteremia and endotoxemia. Although medical management could be effective in some cases, ovariohysterectomy is the preferred treatment, with a higher survival rate and the assurance that the dog's condition would not recur. Additionally, it removed the hormonal factors that contribute to haematometra, resulting in long term health benefits.

8. Conclusion

This case report demonstrates successful surgical management of hematometra in a bitch. Early diagnosis and treatment can prevent further complications like multiple

organ dysfunction, especially involvement of kidneys due to endotoxins. Ultrasound is a rapid diagnostic method for detecting hematometra, even mild fluid accumulation can be detected. Pathologically altered uterus in ultrasound typically will appear as enlarged, distended tubular structure filled with anechoic to hypoechoic contents. There was significant alteration in haematological and biochemical parameters in hematometra affected bitches compared to healthy bitches. The blood flow in the uterine artery increases significantly, a key parameter for diagnosis as well as therapeutic evaluation in hematometra. It was recommended that the best prevention for all types of uterine infections would be to spay all female dogs that are not meant for breeding before six months of age.



Fig 4: Pre-operative preparation of animal

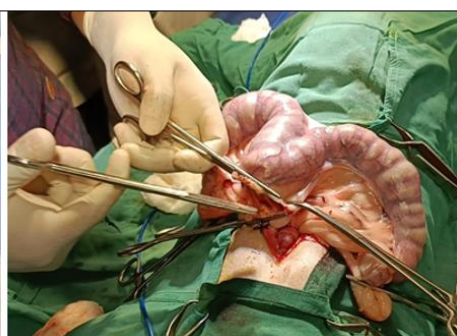


Fig 5: Exteriorization of uterus

9. Conflict of interest

The author declares no conflicts of interest.

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