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Feline pyometra and its medicinal management by broad spectrum antibiotics and misopristol

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Abstract

The present case study was performed at Teaching Veterinary Clinical Complex, Veterinary College Anjora in 8 different felines with complaint of vaginal discharge from valva, distended abdomen, frequent vomition. Pyometra was confirmed by ultrasonography indicating fluid filled compartment appearing anechoic contents and enlarged uterine wall. The cases were divided into two Groups, in Group 1 the cats were treated with only antibiotics along with supportive treatment. Group 2 included 4 cats treated with antibiotic along with misopristone. The pus samples collected was subjected to culture and sensitivity. The female cats with pyometra in this study, were managed with the above treatment protocol. The study is focusing on the clinical observations, pathological findings, diagnostic methods, therapeutic procedure, and results.

Keywords: Feline, pyometra, misopristone, antibiotics

Introduction

Pyometra is the accumulation of purulent material inside the uterus. Pyometra, which can be fatal, happens to middle-aged or older queens three to four weeks after ovulation (spontaneous, induced, or mated). Due to presence of a corpus luteum (CL) which happens during the luteal phase. This luteal phase, which lasts 40 days instead of the full 63 days of pregnancy, is frequently referred to as a "pseudopregnancy" because there is no pregnancy. Hormonal impacts and localised factors are among the reasons that contribute to its incidence (Antonov, 2020) [1]. A complete approach is given by diagnostic techniques that include blood analysis, pathology evaluations, and ultrasound. Fluid resuscitation, targeted antibiotics, and surgical or medical treatment are all part of the management of pyometra (Hollinshead and Krekeler, 2016; Murugavel *et al.*, 2013) [11, 12]. Misopristol (PGE₂) had one major effect on the reproductive tract: contraction of the myometrium resulting in progressive expulsion of the uterine contents over a period of days (García *et al.*, 2014) [8]. But, the ability of PGF₂α to dilate the cervix could not be assessed. Therefore, uterine evacuation with PGE₂ may be used only in open cervix pyometra. The queen's physiological condition impacts which medical or surgical measures are best, highlighting the importance of individualised care (Misk and EL-Sherry, 2020) [10]. Here by applying current clinical knowledge and therapeutic approaches, this case study seeks to improve health comprehension and management of feline pyometra (Satheshkumar *et al.*, 2019) [14].

Material and Methods

In the present study 8 female domestic short hair cat, body weighs ranging from 2.5 to 4 kg were presented to Teaching Veterinary Clinical Complex, Veterinary College Anjora, DSVCKV, Durg, India with a history of progressive abdominal distension and reduced appetite over the preceding few weeks. The owner's main concern was that the cat was having trouble walking and seemed lethargic, which prompted an urgent clinical evaluation. The cat had significant abdominal distension at the time of the initial clinical examination, and when the abdomen was palpated, it appeared completely turgid (Fig. 1). Pyometra was a concern because the animal was showing signs of pain and had decreased appetite, polydipsia. A thorough diagnostic procedure was initiated in response to these clinical findings in order to determine the underlying cause of the reported abdominal distension and

related clinical symptoms. Ultrasonographic evaluations regularly showed a distinct pattern with a notable build-up of hypoechoic material and anechoic pockets inside the uterine horn's affected. The enlarged uterine horn, which measured 20.00 mm and 35 mm at different sacculations, further emphasised the pathogenic severity at the same time, according to dimensional measures (Fig. 2). The amount, type, and arrangement of the inflammatory processes inside the uterine horn affected by pyometra are summarised by these both quantitative and qualitative ultrasonographic measures taken combined. A HCT% and haemoglobin (Hb) levels and complete blood count were taken of each cases along with Blood Urea Nitrogen (BUN) and creatinine

levels respectively describe in the table no 1.

Treatment: Animals of group 1 and 2 were subjected to two different treatment groups. The first group was given broad spectrum antibiotics along with fluid therapy and intra uterine flushing. While in group 2 Tablet Misoprostol at the dose of 100mg was given intravaginally for 3 days along with antibiotic and intrauterine flushing to queens. The samples of uterine pus were collected from the queens with pyometra and processed for antibiotic sensitivity test examination and antibiotics was given for 15 days accordingly.

Before treatment

Case no:	Group 1			Group 2		
	Haematological values	Biochemical values	USG finding	Haematological values	Biochemical values	USG finding
1	Hb : 8.5 g/dl WBC: 22.5 X 10 ³ /uL Gran% : 95% HCT: 46%	BUN : 46.2 mg/dL Creatinine : 1.2 mg/dL	Fluid filled pocket seen in uterus	Hb : 12 g/dl WBC: 26.5 X 10 ³ /uL Gran% : 80% HCT: 56%	BUN : 21.5 mg/dL Creatinine : 0.9 mg/dL	Fluid filled pocket seen in uterus
2	Hb : 11.2 g/dl WBC: 34 X 10 ³ /uL Gran% : 83% HCT: 30%	BUN :23.5 mg/dL Creatinine : 0.8 mg/dL	Fluid filled pocket seen in uterus	Hb : 16.5 g/dL WBC: 17 X 10 ³ /uL Gran% : 85% HCT: 36.5%	BUN : 35 mg/dL Creatinine : 1.5 mg/dL	Uterine lumen thick appear anechoic
3	Hb : 9.5 g/dl WBC: 19.5 X 10 ³ /uL Gran% : 92% HCT: 39.2%	BUN : 104.5 mg/dL Creatinine : 2.5 mg/dL	Uterine lumen thick appear anechoic	Hb : 11.4 g/dL WBC: 37.5 X 10 ³ /uL Gran% : 89% HCT: 45%	BUN : 48 mg/dL Creatinine : 2.1 mg/dL	Fluid filled pocket seen in uterus
4	Hb : 10.5 g/dl WBC: 25 X 10 ³ /uL Gran% : 95% HCT: 36%	BUN : 54 mg/dL Creatinine : 1.5 mg/dL	Fluid filled pocket seen in uterus	Hb : 13.5 g/dL WBC: 19.3 X 10 ³ /uL Gran% : 90% HCT: 38%	BUN : 25.2 mg/dL Creatinine : 1.1 mg/dL	Fluid filled pocket seen in uterus

After treatment

Case no:	Group 1			Group 2		
	Haematological values	Biochemical values	USG finding	Haematological values	Biochemical values	USG finding
1	Hb : 10.5 g/dl WBC: 14.5 X 10 ³ /uL Gran% : 83% HCT: 40%	BUN : 27 mg/dL Creatinine : 1.2 mg/dL	Uterine lumen appear normal	Hb : 10 g/dl WBC: 15.4 X 10 ³ /uL Gran% : 80% HCT: 40%	BUN : 21.5 mg/dL Creatinine : 0.9 mg/dL	Uterine lumen appear normal
2	Hb : 11.5 g/dl WBC: 18 X 10 ³ /uL Gran% : 79% HCT: 36%	BUN :23.5 mg/dL Creatinine : 0.8 mg/dL	Uterine lumen appear normal	Hb : 12.3 g/dL WBC: 17 X 10 ³ /uL Gran% : 85% HCT: 36.5%	BUN : 35 mg/dL Creatinine : 1.5 mg/dL	Uterine lumen appear normal
3	Hb : 10.9 g/dl WBC: 10.5 X 10 ³ /uL Gran% : 80% HCT: 39.2%	BUN : 48.5 mg/dL Creatinine : 1.7 mg/dL	Uterine lumen appear normal	Hb : 11.7 g/dL WBC: 19.4 X 10 ³ /uL Gran% : 89% HCT: 45%	BUN : 20.5 mg/dL Creatinine : 1.8 mg/dL	Uterine lumen appear normal
4	Hb : 14.6 g/dl WBC: 13 X 10 ³ /uL Gran% : 87% HCT: 40%	BUN : 30 mg/dL Creatinine : 1.3 mg/dL	Uterine lumen appear normal	Hb : 11.5g/dL WBC: 14.5 X 10 ³ /uL Gran% : 90% HCT: 38%	BUN : 25.2 mg/dL Creatinine : 1.1 mg/dL	Uterine lumen appear normal

Results

Vaginal discharge was noticed post administration in female cats of groups 1 and 2. After the treatment immediately followed by administration of second dose Misoprostol PGE² in groups B. Responses in group 1 cats were observed after 48hrs post treatment. In animals of groups 2 there was evidence of higher evacuated uterine pus as compared to group 1. The general health of animals of Group 1 was better with no evidence of rapid respiration compared to animals of groups 2. There was evidence of a general health response with the maximum resumption of feeding in cats of

groups 1 and 2. The current study indicated a moderate evacuation of uterine pus in cats of group 1 while a higher uterine pus evacuation was recorded in animals treated with Misoprostol of group 2. respectively).

Discussion

The current study indicated a moderate evacuation of uterine pus in cats of group 1 (treated with antibiotics alone), while a higher uterine pus evacuation was recorded in animals treated with Misoprostol (groups 2). This finding is

consistent with a previous report, indicating that specific treatment with Misoprostol evacuates the uterine pus and stimulates immunity (Bagri 2022) [3]. The harmony in this finding is associated with the fact that PGF₂ α possesses luteolytic and uterotonic activity (Verstegen *et al.*, 2008) [16] which makes it a better option for treating pyometra even at repeated doses. However, there are reports indicating that the clinical status of animals treated with PGE does not usually start to improve until at least 48hr post treatment (Bagri 2022) [3]. The current study is also in harmony with that of Sanchez-Morales *et al.* 2022 [15], who have stipulated that Misoprostol stimulates uterine contractions and causes the uterine contents to be expelled at a rate of about 94% and higher. These findings might also be linked with the fact that Misoprostol has many advantages over other agents such as osmotic dilators, prostaglandins and mifepristone recorded by Gober *et al.*, 1999 [7]. The use of Misoprostol has been found to improve cervical dilatation, reduce the need of further dilatation and ease of dilatation without any complication (Chidambaram *et al.*, 2022) [4].

More recently the uterine lavaging procedures are uncommon; in small animals, pyometra is mainly treated with medical treatments (Hollinshead and Krekeler 2016, Hagman 2022) [11, 9]. In rare cases, however, these procedures are ineffective (Hagman 2022, Nak *et al.*, 2009) [9, 13] and there is a need for alternative solutions for animals who cannot be spayed. Moreover, using broad-spectrum antibiotics while awaiting the susceptibility test and then moving on to more effective molecules resulted in prolonged therapeutic times, to the detriment of the patients as stated by Funkquist *et al* 1983 [6]. Regarding bacteriological tests performed on samples collected during treatment, the absence of bacterial growth could be related to the inhibiting effect of activated neutrophils on the bacteria. Regarding antibiotic treatment, a wide range of options available amoxicillin and clavulanic acid is the most common association (Agudelo 2005, Hafman 2022, Hollinshead and Krekeler, 2016) [2, 9, 11] is reported. Till date, there are no reports of pyometra medical treatment not including a covering antibiotic treatment.



Fig 1: Showing cat with distended abdomen and dehydrated and lethargic

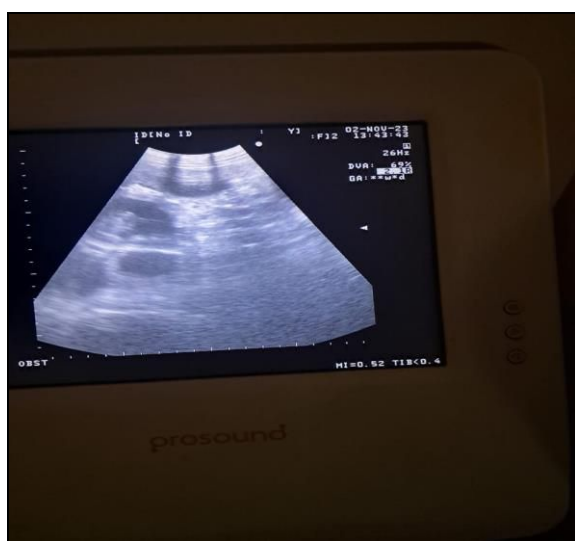


Fig 2: Ultrasonography showing fluid filled pockets (Before treatment)



Fig 3: Ultrasonography showing normal uterine lumen (After treatment)



Fig 4: Pus discharge from the valva



Fig 5: Intravaginal administration of misoprostol



Fig 6: Intra uterine administration of antibiotics

Conclusion

Compared to bitches, queens are less likely to exhibit pyometra. Medical management is similar as well though. In summary, the present study clarified an alternative approach to treating pyometra, which has the benefit of full healing

and recovery, as well as the favourable reaction of animals given Antibiotic along with PGF2 or Misoprostol. Early detection and customized therapeutic approaches are essential, as delay can intensify systemic issues, highlighting the necessity for immediate veterinary attention in cases of unilateral pyometra in cats. Continued research is warranted to refine diagnostic techniques and therapeutic strategies for this condition. The prognosis is good with rigorous therapy, and in the right situation, fertility may recover.

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