

Medical Management of Open Cervix Pyometra in a Bitch: A Case Report

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Abstract: A two year old female Caucasiandog weighing 25kg was presented with a history of sternal recumbence, emaciation, rough hair coat with some hairs falling off. On clinical examination the rectal temperature was 39.5°C, heart rate 160 b/m, slight pale mucus membrane, inflammation of the pelvis with evidence of pain on palpation and swollen vulva with mucopurulent discharges. Based on the history, clinical signs and laboratory results, the condition was diagnosed as open cervix pyometra and was successfully managed medically.

Key words: Estrus, Medically, Open cervix, Progesterone, Pyometra.

I. Introduction

Pyometra is a condition of middle aged female dogs that have not been spayed and a hormonal mediated estrus disorder that results in abnormal uterine endometrium [1, 2]. It is the accumulation of pus within the uterus due to progesterone dominance, which can be classified as open and closed cervix pyometra. The elevated progesterone levels help to create the ideal conditions for infection and stimulate uterine glandular secretions within the uterus, which suppresses uterine contractions [3] and inhibits the effect of infection fighting blood cells in the uterus. The effects are cumulative in that each estrous cycle results in more glandular activity and higher levels of inflammatory cells and fluid or mucous within the uterus. After the establishment of a bacterial infection, which may originate from vaginal infection, urinary tract infection or fecal contamination, the bacteria enter the uterus and multiply. In approximately 90% of cases, *Escherichia coli* are the main causative agent [4]. This bacterium produces endotoxins that are capable of initiating the cytokine cascade and the release of many inflammatory mediators. *E. coli* is thought to be the cause of the local and systemic inflammatory reactions associated with pyometra.

The incidence of pyometra in dogs is approximately 24% before 10 years of age [5]. The clinical manifestations of canine pyometra depend on the patency of the cervix. In open cervix pyometra, bitches are less systemically affected than in closed cervix pyometra. Common clinical signs include mucopurulent discharges, inappetence, depression, polydipsia, polyuria, lethargy, vomiting, diarrhoea and abdominal distension. Bitches with closed cervix pyometra are usually presented at terminal stage of the illness and death may occur due to toxemia or may be associated with peritonitis due to rupture of the uterus [6]. Cystic Endometrial Hyperplasia (CEH) often precedes the disease, but can also be found in many older bitches with no signs of pyometra. Some breeds are more prone to uterine infection like; golden retriever, miniature schnauzer, Irish terrier, Saint Bernard, Airedale terrier, Cavalier King Charles spaniel, rough collie, Rottweiler and Bernese mountain dog and some at lower susceptibility rate of developing the disease include Drovers, German shepherds, miniature dachshunds, dachshunds (normal size) and Swedish hounds [7].

Severe pyometra sometimes leads to fatal and systemic infection and infertility in some bitch. It has also been reported secondary to postpartum metritis [8]. Pyometra can occur at any age after the first estrus cycle and approximately at a mean age of two years. Pyometra can be treated surgically or medically. However, the decision depends on several factors such as open or closed cervix pyometra, health status of the animal and if the animal is intended for future breeding. In this present study, it was successfully managed medically.

II. Case History

A two year old female Caucasian dog weighing 25kg was presented to Veterinary Teaching Hospital, Michael Okpara University of Agriculture, Umudike on the 8th September 2014 with a history of sternal recumbence, emaciation, rough hair coat with some hairs falling off. The client also reported that dog whelped and after three weeks, she became sick and has been treated with procaine penicillin and streptomycin, Iron dextran and Dextrose saline for five days without improvement. On clinical examination the rectal temperature was 39.5°C, heart rate 160 b/m, slight pale mucus membrane, inflammation of the pelvis with evidence of pain on palpation and swollen vulva with mucopurulent discharges (Figure. 1).

Fig.1



III. Haematology

Blood sample was collected from the cephalic vein into EDTA bottle and the result is as follows;

PCV	27%
HB	9.2g/dl
RBC count	$1.4 \times 10^6/\text{mm}^3$
TWBC count	$6.75 \times 10^3/\mu\text{l}$
Differential leucocyte counts:	
Neutrophils	71%
Lymphocyte	23%
Monocyte	4%
Eosinophil	2%
Basophils	nil

IV. Culture and Sensitivity Test

Vaginal swab was collected for both culture and sensitivity. The culture yielded a pure growth of proteusspecies, which was sensitive to ciprofloxacin and streptomycin.

V. Results and Discussion

Based on the case history, clinical signs and laboratory results the condition was diagnosed as open cervix pyometra. The animal was admitted and condition was managed medically, because of the poor condition of the patient at presentation. Ciprofloxacin and Metronidazole infusion was given IV, followed by dextrose saline for five days. After the infusions the animal was given 2mls of dexamethasone IM and 10 ml of multivitamin syrup and supportive care. On day two post treatment, the condition improved and the animal was able to raise its head and was foster fed with pap (Figure. 2). Seven days post treatment the animal showed remarkable improvement, was able to stand, eat, drink and walk around the hospital premises, even though the gait has not fully returned (Figure. 3). The animal was further placed under Neurobion 2ml IM and monitored for additional 7 days before discharging.

Fig. 2&3



Haematological result was characterized by neutrophilia. This result is consistent with the findings of other workers like Mahesh et al. [6], but contradicts the works of Seiellus et al. [9] who did not observe any significant increase in the white blood cell count in their study of 103 cases of pyometra in dogs. The leukocytosis was characterized by neutrophilia and marked leucopenia and was an indication of severe infection. The low packed cell volume and haemoglobin concentration is an indication of anaemia. It is believed that the success of this treatment was as a result of meticulous use of the right antibiotics sensitive to the organism and adequate fluid therapy.

Pyometra is best managed either by medical or hormonal therapy (prostaglandins) in patients not fit for surgery. However, adverse side effects ranging from simple allergy to anaphylactic reaction were reported after prostaglandin therapy by several researchers. Hence, Prostaglandins were not administered to the patient, considering the severity of the case at the time of presentation to the clinic. The side effects of prostaglandins outweighed the benefits of prostaglandins in systematically compromised dogs [10]. In pyometra, ovariohysterectomy is always more complicated and carries a higher risk than routine spaying because of infection. This justifies the use of fluid therapy and a corticosteroid to stabilize the patient. Blood tests were carried out weekly to assess the prognosis of the case.

Breeding bitches with a history of pyometra should be mated on the cycle following treatment using appropriate antibiotic therapy and surgical insemination to minimize contamination of the uterus. The interval

between estrous cycles is usually shortened (4 - 6 weeks) following medical treatment because of the shortening of the luteal phase (progesterone secretion) resulting from prostaglandin therapy. Bitches treated medically will be predisposed to recurrence on subsequent cycles, so should be spayed as soon as their reproductive careers are concluded [11]. Mated bitches must be monitored carefully after breeding for any signs of recurrence of the pyometra prior to and after diagnosis of pregnancy. Pyometra and pregnancy can occur simultaneously. Approximately 30 – 50% of bitches medically treated for pyometra can be successfully bred on subsequent cycles. The prognosis depends on the amount of damage to the endometrium. This is dependent on the amount of pathology in the uterus, the length of time the pyometra was present prior to diagnosis, the response to treatment and the incidence of relapse.

Prevention of pyometra is difficult because of the normal aging changes in the uterus due to progesterone dominance during estrous. The greater the number of estrous cycles the greater the chances of pyometra occurrence. Intact bitches with short inter-estrous interval and aged bitches are more predisposed to pyometra because of the number of times the endometrium is exposed to progesterone production. The changes that lead to pyometra are normal aging changes in the uterus so most intact bitches if they were to live long enough, would eventually develop pyometra. For this reason it is recommended that any bitch not being actively used for breeding or planned future breeding should be spayed before six months of age to prevent occurrence of this disease [12].

VI. Conclusion

It was concluded that open cervix pyometra can be successfully managed medically and pet owners should be educated on the pathology and pathogenesis of pyometra.

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