

Case Report

PYOMETRA IN A GREAT DANE: A CASE REPORT

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INTRODUCTION

Pyometra is a condition mainly of middle-aged female dogs that have not been spayed. It is a hormonally mediated, diestrual disorder that results in abnormal uterine endometrium (Venugopalan, 1997, Amstutz *et al.*, 1998). Infection of the lining of the uterus is established as a result of the hormonal changes in the presence of bacteria. Following estrus (heat), progesterone levels remain elevated for 8-10 weeks thereby promoting endometrial growth while decreasing myometrial activity in preparation for pregnancy (Amstutz *et al.*, 1998, Chinaroad, 2006). If pregnancy does not occur for several oestrus cycles, the lining continues to increase in thickness until cysts form within it (Chinaroad, 2006). These cysts contain numerous secretory cells producing large quantities of fluids released into the interior of the uterus. This fluid along with the thickening of the walls of the uterus brings about drastic increase in the overall size of this organ (Foster and Smith, 2006). With this, the uterus becomes an enlarged, sac-like pouch of about 12-18 inches long (Foster and Smith, 2006). As the disease progresses, fluid spills out of the vagina causing the animal to lick the area in an attempt to keep itself clean. Through the cervix, bacteria enter the uterus and this produces even greater response by the body which produces additional fluid and white blood cells infiltrate into the affected organ (Foster and Smith, 2006). This may subsequently result in toxemia (Venugopalan, 1997). In an attempt to flush out the built-up endotoxins in the bloodstream, there is polydipsia and polyuria (Foster and Smith, 2006; Anon, 2006). There will be discharge of white fluid if it is an open cervix pyometra. The animal may also run a low-grade fever. As the condition deteriorates, kidney failure may occur and the animal becomes very lethargic. Because of the acute toxemia involved, urgent management is always advocated. Intravenous fluid infusion with antibiotic therapy is instituted for several days. Prostaglandin may be administered for 5-7 days, although restlessness, panting, vomiting, increased heart rate, fever and defecation may occur as side effects (Foster and Smith, 2006). In cows with postpartum pyometra injection of Fenprostalence has resulted in expulsion of large amount of pus within 3 days (Okada *et al.*, 1994). The treatment of choice in most cases is ovariohysterectomy unless the reproductive potential of the bitch is to be salvaged (Venugopalan, 1997). With the growing interest in exotic breeds of dogs in Nigeria in recent time, it becomes very imperative to present this case and its successful management for the benefit of pet owners and veterinarians.

KEYWORDS: Pyometra, Great Dane, Ovariohysterectomy, Nsukka, Nigeria

CASE HISTORY

A five-year old female Great Dane was presented at the University of Nigeria Veterinary Teaching Hospital (UNVTH) on 25th February 2002 with the history of anorexia and bloody discharge from the vulva few days after service. Prior to the referral, the dog had been given Vitamin K, Gentamycin, Vitamin B complex and fluid therapy. The dog had a history of vaccination against canine distemper, hepatitis and leptospirosis.

CLINICAL EXAMINATION

The dog weighed 46.5kg. The integument and the musculoskeletal systems were normal. There was bloody discharge from the genital tract. The dog was weak and unable to stand or walk. The rectal temperature was 39°C, pulse rate - 180/min, respiratory rate - 25/min. The dog drank a lot of water. There was polyuria. Vaginal swab was collected for culture and sensitivity. The culture yielded a heavy growth of *Escherichia coli* and *Staphylococcus species* both of which were sensitive to ciprofloxacin. A plain radiograph of the abdomen revealed a loop of soft tissue mass (uterus) in caudal and mid abdominal areas. Blood was collected for hematology.

The result of the haematological test was as follows:

Packed Cell Volume	17%
Red Blood Cell Count	$1.15 \times 10^6/\text{mm}^3$
Total Leucocyte Count	$= 237,300/\text{mm}^3$
Differential Leucocyte Count:	
Neutrophil	- 90
	(30% are band cells)
Lymphocytes	- 4
Monocytes	- 6
Basophils	- Nil
Eosinophil	- Nil

Based on the age, the history, physical manifestation of the condition as well as the laboratory and radiological findings a clinical diagnosis of open cervix pyometra was made.

MANAGEMENT

Ovariohysterectomy was recommended. Prior to the surgery, the dog was maintained with intravenous fluid (750 ml of Dextrose-Saline solution). Atropine sulphate and xylazine were used as premedicants at 0.02mg/kg and 0.03mg/kg body weight respectively. The surgery was aseptically carried out under general anaesthesia using Pentobarbital Sodium at 30mg/kg body weight. The pus-filled uterus was carefully exteriorized through a laparotomy incision avoiding spillage. The ovaries, ligaments and blood vessels were carefully identified, ligated and removed. The Laparotomy incision was then closed routinely.



Plate 1

The following postoperative treatment was given: Dextrose-Saline, 500ml IV daily for 2 weeks, Tab. Ciprofloxacin 500mg per Os x 5/7 and Inj. Vitamin B complex 2ml im x 5/7

The dog was hospitalized and hematology was carried out weekly to monitor the response of the animal to treatment. By the 14th day post-surgery when the cutaneous stitches were removed, the bitch generally appeared strong with good appetite and no vulva discharges.

DISCUSSION

Ovariohysterectomy was used to manage the condition. Although the incriminating organisms (*Escherichia coli* and *Staphylococcus spp.*) were sensitive to Ciprofloxacin, the case was not managed conservatively because of the severity of the condition. Ovariohysterectomy was performed to prevent recurrence and avoid the problems associated with heat periods such as messing up of the environment with bloody discharges and waywardness (Noakes *et al.*, 2001).

The clinical, laboratory as well as the radiological features of this case are consistent with the previously described features of open cervix pyometra (Foster and Smith, 2006; Anon, 2006; Amstutz *et al.*, 1998; Arthur *et al.*, 1998). These features ruled out transmissible venereal tumor and oestrus due to bloody discharge. Haematological result was characterized by neutrophilia. This neutrophilia is consistent with the findings of other workers except for that of Seielius *et al.* (1990) where there was no significant increase in the white blood cell count in their study of 103 cases of pyometra in dogs. The leukocytosis characterized by neutrophilia and marked leucopenia was an indication of severe infection. The low packed cell volume of the patient was an indication of anaemia. It is believed that the success of the treatment was as a result of meticulous surgery, the use of the right antibiotic sensitive to the bacterial infection and adequate fluid therapy.

The choice of ovariohysterectomy was to stop the endotoxaemia and avert probable kidney failure (Foster and Smith, 2006). Ovariohysterectomy also prevents unwanted breeding and the nuisance associated with heat periods in pet animals (Noakes *et al.*, 2001).

The surgery involved the removal of both ovaries and the uterus. This is always more complicated and carries a higher risk than routine spaying because of infections. This goes to justify the sensitivity test carried out and the use of

ciprofloxacin and fluid therapy in management of the patient. Blood tests were carried out weekly because this was useful in monitoring the prognosis of the case.

The isolation of *E. coli* and *Staphylococcus spp.* from the vagina was not surprising as these have always been the predominant isolates in dog pyometra (Arthur *et al.*, 1998). Amstutz *et al.* (1998) also discovered that the progesterone-sensitized endometrium and myometrium had affinity for *E. coli*, *Staphylococcus*, *Streptococcus*, *Pseudomonas* and *Proteus spp.* It was because of these organisms isolated that ciprofloxacin was administered.

Prostaglandin was not administered to the patient considering the severity of this particular case at the time of presentation to the UNVTH. Moreover, the side effects might outweigh the benefits, since the dog was already recumbent and may not have survived within the next 48 hours during which the drug was expected to manifest its beneficial effects (Anon, 2006).

It has been reported that the best prevention for pyometra is to have all female dogs that are not meant for breeding spayed before six months of age (Foster and Smith, 2006). This information is quite important to pet owners in Nigeria who have little or no knowledge of the pathogenesis of pyometra.

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