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A Case Report of Pyometra in the Bitch

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A list of instruments placed in each pack is very helpful in getting the instruments back into the appropriate packs. Color coding is another method of keeping the packs in order. Place a band of colored autoclavable tape around a handle of each instrument.

Thirty days is the standard shelf life for all sterile packages when using double thickness muslin wrappers, paper wrappers, or cellophane wrappers. However, if you use a nylon film the package will remain sterile indefinitely.

In preparing a pack for surgery all locks must remain open for the instrument to be completely sterile. After the pack is wrapped, it may be secured with a small piece of autoclave steam indicator tape. It is also a good idea to place a small piece of this tape inside the pack to make sure the steam is getting through to all parts of the pack.

A Case Report of Pyometra in the Bitch

by
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Introduction

Pyometra is a common clinical entity seen in the intact middle-aged bitch. This paper reports the diagnostic findings, anesthetic, surgical, and post-operative management of one such case presented to the I.S.U. Small Animal Clinic.

Pyometra must be differentiated from gastrointestinal disorders i.e. gastroenteritis, renal disease (especially chronic interstitial nephritis), other endocrine disorders, diabetes mellitus and diabetes insipidus and lymphosarcoma. The vomiting which may accompany pyometra can also be seen with gastroenteritis and the build-up of toxins from chronic interstitial nephritis. The polyuria and polydipsia can be found with diabetes mellitus and insipidus and the high white blood cell count may be found with lymphosarcoma. These conditions are eliminated primarily on the basis of history (occurrence of an estrus cycle approximately 4 to 6 weeks previous, polyuria, polydipsia), physical exam (pendulous abdomen, palpable uterine horns, slight to profuse vaginal discharge), clinical pathology tests (proteinuria, no glucosuria, elevated white blood cell count) and radiographs (demonstrating the enlarged uterine horns).

A Case Report

A 15-kg., 5½-year-old female Keeshond was referred to the I.S.U. Small Animal Clinic with a distended abdomen, depressed mental state, indigestion, vomiting of two-days duration, and a history of diarrhea two weeks prior. On admission a blood sample was collected and abdominal radiographs were taken (Table 1). As a result of physical examination. radiographs, and laboratory findings a diagnosis of pyometra with a closed cervix was made and preparation for surgical intervention was started.

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TABLE 1
LABORATORY RESULTS

	10–19–72	10–20–72	10–23–72	10–25–72	11–4–72
Hb	11.1	5.9	10.1	8.6	8.6
PCV	30	17	29	25	26
RBC	5.02	3.16	4.18	3.17	3.41
WBC	136,000	130,000	108,600	7,750	22,000
Eosinophils				1 (78)	1 (220)
Segmented Neutrophils	53 (72,080)	64 (83,200)	82 (89,052)	72 (5,579)	93 (20,460)
Band Neutrophils	44 (59,840)	29 (37,700)	17 (18,462)	16 (1,240)	1 (220)
Lymphocytes	3 (4,080)	4 (5,200)	1 (1,086)	7 (542)	1 (220)
Monocytes		3 (3,900)			4 (880)
Platelets	adequate	adequate	adequate	adequate	adequate
RBC morphology	normal	normal	normal	normal	3 nucleated RBC
Total Protein	9.9	6.3	7.0	6.5	6.9
Fibrinogen PP:F Plasma Protein	600	200	300	200	200
Fibrinogen Ratio	16.5	31.5	23.3	32.5	34.5
Blood Urea Nitrogen	100	68	17	12	25
Creatinine				1.0	.75
SGPT	22				67
MCV	60	56.7	72.5	83.3	86.7
MCHC	37	34.7	34.8	34.4	33.1

Preanesthetic medication consisted of 1/60 gr atropine injected subcutaneously. Two cc of droperidol-fentanyl (Innovar-Vet, Pitman-Moore, Inc.) combination was diluted to 30 ml with saline and administered slowly to effect (approximately 20 ml of the mixture) by the intravenous route. The trachea was intubated using a cuffed MaGill endotracheal catheter and immediately placed on a low level of halothane and a 50–50 mixture of O_2–N_2O for the duration of the surgical procedure.

Following preparation of the surgical site, a midline abdominal incision was made revealing a friable convoluted uterus that occupied approximately ⅔ of the abdomen. The uterus was exteriorized, the ovarian pedicles ligated with a 2–0 poly-dek (Deknatal, Inc.). The vessels of the uterine stump were ligated with 2–0 poly-dek suture material. A routine three-layer abdominal closure was made.

During the surgical procedure 500 ml of 5% dextrose solution, 1 gm of chloramphenicol (Chloromycetin, Parke-Davis) and 100 mg of prednisolone sodium succinate (Solu-Delta-Cortef, Upjohn) were administered intravenously. Throughout the surgical procedure the physiological parameters remained remarkably stable. The excised uterus weighed 2.7 kg or approximately 18% of the animal's preoperative body weight.

Postoperatively, the patient was covered and left on a heating pad for 24 hours, her temperature was 99.5 degrees F, but she would nibble food offered. At this time, the patient was anemic and 200 cc of whole blood was transfused intravenously. Two days following surgery, her temperature was up to 102.6 degrees F and she was more alert, eating and drinking. Chloramphenicol, Vitamin B solution, and Vitamin A, D, E solution (Injacum 100, Roche) were administered for five days following the surgical procedure.

Six days following surgery, a walnut-sized swelling was noted over the incision line and a hernia ring could be palpated. The patient was again anesthetized and the hernia ring repaired. Following surgery, she was given 500 ml lactated ringer's solution, 10 mg dexamethasone (Azium, Schering) and 1gm chloramphenicol, and uneventful recovery followed.

The patient was discharged after nine days of hospitalization period, quite alert, active, eating and drinking normally. One week following discharge she was brought in again for a checkup. At this time she

was quite alert and active but had a case of infectious tracheobronchitis. Blood was collected for CBC and the patient was sent home with sulfachlorpyridazine (Vetisulid, Caba) and antitussive tablets (Sedakof, Burns) for tracheobronchitis.

Discussion

On admission the dog was determined to have a normochronic, normocytic anemia with normal RBC morphology, indicative of a nonregenerative depression anemia which resulted from the pyometra. The severity of the anemia was partially masked by the dehydration which was clinically observed and demonstrated by the hypoproteinemia. The following day the anemia appeared more severe most likely due to better hydration of the animal. Three days following surgery the transfusion of whole blood was probably responsible for the increase in Hb concentration, PCV, and RBC count, MCV, and MCHC. Also the elevation in MCV reflected a macrocytic anemia due to release of immature RBC's. However, the RBC morphology was normal. Five days following surgery, the MCV continued to increase, though the Hb concentration, PCV, and RBC count decreased. Fifteen days following surgery the increase in Hb, PCV, RBC count, MCV and presence of nucleated RBC's in the blood indicated the body was attempting to correct the anemia.

The first blood sample showed a marked leukocytosis with a regenerative left shift and a normal absolute lymphocyte count. Monocytosis, reported to be a characteristic feature of pyometra was not observed. The marked leukocytosis was maintained for at least four days following surgery. The drastic return of the leukocyte count to within the normal range reflected the removal of the source of inflammation and decreased adrenergic response. The left shift was still present and a lymphopenia observed. Fifteen days following surgery the dog was determined to have a leukocytosis characterized neither by a left nor right shift and a lymphopenia, presumably in response to infectious canine tracheobronchitis which developed during convalesence.

On admission an elevated blood urea nitrogen was observed. It is probably due to the purulent process of the pyometra and the dehydration. The return of the BUN to normal limits the following day indicated better hydration and less demand placed on the kidneys.

The elevated SGPT observed fifteen days following surgery indicated liver cell permeability changes.

SUMMARY

Pyometra is often seen in intact bitches, usually over 5 years of age. It is mostly due to a hormonal imbalance with increased progesterone secretions. The contents of the uterus are often sterile, but bacterial contamination may occur and the common bacteria seen are *E. coli* and *Streptococcus*. The bitch is anorexic, polydypsic, vomiting, and the respiration rate may be increased. The temperature varies from subnormal, normal to elevated, depending on the case. The abdomen is distended, the vulva enlarged, and in open cases the discharge is cheese-colored, and diarrhea is often seen.

The blood picture shows marked leukocytosis with a shift to the left.

The treatment of choice, in dogs used as pets, consists of ovariohysterectomy after correction of fluid and electrolyte balance. Antibiotics must also be used in heavy doses. In selected cases, however, where the bitch is used for breeding, medical treatment may be attempted but the success rate is low.

In open pyometra, the uterus may be catheterized using a Foley catheter and flushed with Alevaire (Breon Laboratories, Inc.) solution (contains tyloxepol, sodium bicarbonate and glycerin) until the fluid is practically clear and free of exudate. Following flushing, 20–30 ml of Nitrofuraazone (with or without penicillin G) is injected into the uterus. This procedure is repeated at 12–24 hour intervals. The animal should also be kept on high levels of systemic antibiotics as well as supportive treatment.

Diethylstilbesterol followed 3–4 days later by posterior pituitary hormone may be given in order to evaluate the uterus.