SUMMARY
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Analysis of clinical data of the bitches brought to hospital from Jan 2000 to December 2008 indicated an incidence of pyometra as 11.23 percent. Highest incidence of 16.51 percent was recorded in the year 2008 and lowest of 5.07 percent in 2000. A gradual increase in the incidence was observed from 2005.

Pyometra in the present study was found to be a disease primarily affecting the middle aged to older bitches and the mean age was 7.21± 2.34 years. Nearly 66 percent of the animals diagnosed to be suffering from pyometra were over five years of age. However, 7.006% of animals in which pyometra were diagnosed less than two years of age with no history of previous hormonal treatment suggesting that pyometra can occur even in younger animals in spite of absence of hormonal treatment.

Breeds with high risk of pyometra in the present study were Pomeranian followed by German Shepherd, nondescript, Labrador, Spitz and Dalmatian and breeds with low risk of pyometra are Golden Retriever, Great Dane, Doberman, Boxer, Dachshund, Pug, Cocker Spaniel, Lhasa Apso, Neapolitan Mastiff, Saint Bernad, English bull dog, and Weimerner.

The present study has revealed increased frequency of pyometra in nulliparous or maiden bitches (69.63 percent) as compared to bitches which had whelped at least once (30.36 percent).

The onset of clinical disease in relation to estrus in the present investigation was at 6.7±0.6 weeks and ranged between 1 to 20 weeks.
The most common complaint reported in dogs suffering with pyometra was vaginal discharge (90 percent), which is suggestive of open type of pyometra. The discharges were purulent in over 40 percent of the affected animals followed by serosanguineous (27 percent), and haemorrhagic (33 percent) with anorexia (70 percent) and depression (63.3) are the most common complaint reported in this study. The other clinical signs reported in the present study were polydipsia, polyurea, diarrhoea and vomiting.

The results of bacteriologic examination of the vaginal swabs of 60 bitches with pyometra revealed predominance of Escherichia coli. Other isolates identified were Klebsiella sp, Pseudomonas sp, Proteus sp, Staphylococcus aureus, Hemophilus sp, Serratia sp and mixed culture.

The cultures were tested for antimicrobial susceptibility and more than 75 percent of the samples were sensitive to ofloxacin, lincomycin, clarithromycin and roxythromycin. However, little over 50 percent of the samples were sensitive to chloramphenicol, erythromycin, enrofloxacin, tetracycline, norfloxacin, ciprofloxacin, amoxicillin, clindamicin, amicacin, cefadroxil, cefaclor, azithromycin and cefataxime.

The recorded mean rectal temperature, (°F), in Group II (AP= Antiprogestine+ Prostaglandin F₂α), Group IV (P=Prostaglandin F₂α), Group III(AE= Antiprogestine+ Prostaglandin E) and Group V (S= Surgical) animals with pyometra was slightly elevated than the normal physiological range (101 – 102.5°F) on day ‘0’ except in Group I (A= Antiprogestine). The pulse and the mean respiratory rate in different treatment
groups before, during and after completion of treatment were within the normal physiological range (70-80 and 20-30, respectively).

The mean hemoglobin concentration in bitches with pyometra in different groups before initiation of treatment ranged between 10.83±1.406 in Group III (AE) and 12.74±0.6696 g percent in Group IV (P). The mean hemoglobin concentration tends to be slightly lower in Group III (AE), Group II (AP), Group I (A) and Group V(S) before initiation of treatment. However, there was an increase in the mean hemoglobin concentration during and after completion of treatment compared to pre treatment values.

Marked leucocytosis as reflected by an increase in mean total white blood cell counts recorded on day ‘0’ before treatment in all the treatment groups (Group II (AP), Group IV(P), Group I(A), Group III(AE), and Group V(S) were 24054±5966, 38209±5038, 42867±16912, 50753±8678, and 51242±8085 respectively). The TLC was significantly (P< 0.05) decreased on day 9 (post treatment) in all the groups.

The segmented neutrophilic count in different groups before initiation of treatment ranged between 83.75±3.205 GroupI (A) and 89.00 ±1.273 GroupV(S) which is indicative of neutrophilia in all the treatment groups. The reduction in neutrophilic count in different groups during treatment (on day 4) was evident. There was a significant (P< 0.005) decrease in the mean segmented neutrophilic count on day 9 which were reported as 83.29±1.629, 78.60±1.360, 79.73±2.166, 81.36±1.330, and 85.33±1.345 (Groups I-V). In Group IV and Group V the reduction in mean neutrophil count was still higher than the normal physiological range (6 -17x 10).
The normal range of band forms of neutrophils in the present study, before initiation of treatment was significantly higher in all the treatment groups than the reported normal values.

The pre treatment lymphocyte count was low in all the treatment groups which were significantly increased on post treatment day 4 and 9.

The mean Blood Urea Nitrogen (BUN) concentration on day 0,4 and 9 in all the groups were in the normal reference range (10-30 mg%) reported for clinically healthy dogs however, in Group I(A), Group III(AE) and GroupV(S) the mean Blood Urea Nitrogen (BUN) levels before initiation of treatment slightly exceeded the normal limits. There was no significant variation in mean creatinine values estimated in animals with pyometra in different treatment groups on Day 0, 4 and 9 and were with in the normal reference range (1-2 mg/dl) for clinically healthy dogs.

The mean total protein and globulin recorded in the present study before treatment ranged from 7.55 ± 0.23 Group III (AE) to 8.31 ± 0.26 Group I (A) and 2.37 ± 0.19g/dl Group I (A) to 2.84 ± 0.22g/dl GroupV (S) g/dl respectively. After completion of treatment, mean total protein and globulin concentration values recorded ranged between 6.63 ± 0.31 g/dl (Group II) to 7.11 ± 0.31 g/dl (Group IV) and 2.31 ± 0.14 g/dl (Group V) and 2.61 ± 0.28 g/dl (Group I) respectively. These findings indicate a gradual decrease in total protein and globulin concentration to normal range in all the treatment groups.
The mean albumin level prior to treatment was slightly lower in all the treatment groups compared to normal physiological range and gradually increased after completion of treatment in all the groups.

The mean serum alkaline phosphatase activity recorded before initiation of treatment in all the groups was almost double than the normal range (97 to 280 U/L).

The mean concentration decreased significantly ($p< 0.05$) in all the groups on day 9 and reached very close to normal physiological range with the completion of treatment.

The mean serum alanine amino transaminase concentration in animals with pyometra in different groups before initiation of treatment, during and after completion of treatment were within the normal physiological range.

The pre treatment serum progesterone concentration recorded in bitches affected with pyometra in surgical and different pharmacological treatment groups were elevated 8 to 10 times compared to post treatment values in all the groups. The level of progesterone concentration declined significantly ($p< 0.05$) at day 4 following different treatment regimes and reached almost basal level.

The uterine diameters in the successfully pharmacologically treated bitches gradually reduced to less than 5 millimeter with in the course of treatment.

Group of bitches that received antiprogestins alone showed a recovery rate of 41.66 percent which is lower than all other treatment groups. In addition to lower recovery there were higher relapse rate and mortality rate of 33.33 percent was observed
in this Group which may be attributed to jaundice and leucopenia. The success rate observed in Antiprogestins + PGF$_2\alpha$ treatment group was 83.33 percent. The side effects observed with the initiation of PGF$_2\alpha$ treatment were, vomiting, straining, diarrhea, pyrexia, and occasional respiratory distress.

The Misoprostol (Prostaglandin E) along with antiprogestins was used in Group III (AE) bitches with pyometra. Seventy five percent recovery rate was observed with 16.66 percent relapse rate and 8.33 percent mortality rate. Fifty percent success and relapse rate were observed in bitches treated with PGF$_2\alpha$ in Group IV (P). The higher relapse rate may be attributed to lower doses of PGF$_2\alpha$ used in the present study.

Overall success rate observed in different groups irrespective of surgical group or medical treatment groups was 66.66 percent, mortality and relapse rate was 16.66 percent. However, success rate observed in medical treatment groups was 62.5 percent compared to 83.33 percent in surgical group. The mortality rate in surgical group and medical treatment groups was identical (16.66 percent) with a relapse rate of 20.83 percent in medical treatment groups.

As a conclusion, ovariohysterectomy as a treatment for cystic endometrial hyperplasia-pyometra complex in bitches still maintains its success as a radical and effective solution. It has been determined that carrying out pharmacological treatment with aglepristone with PGF2$\alpha$, or PGE, preceded by general, gynaecological, haematological and ultrasonographical examinations constitute a safe alternative for bitches in dioestrus without ovarian cysts.
In the pharmacological treatments performed in this study, it was realized that the decrease in the uterine diameters from day 1 give important clues about the prognosis of the case. Consequently, this helps in deciding whether to perform an operation or to continue the pharmacological treatment, thus increasing the survival chance of the patient.