SURGICAL MANAGEMENT OF CYSTIC ENDOMETRIAL HYPERPLASIA- PYOMETRA COMPLEX WITH UTERINE FIBROADENOMA AND VAGINAL LEIOMYOMA IN A DOG

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ABSTRACT

A seven-year-old intact German Shepherd bitch was presented to the University Veterinary Hospital, Kokkalai with a complaint of bleeding from the vulva and constipation for the past three months. On general examination, the animal was emaciated, and bleeding was noticed from the vagina. Per vaginal examination revealed the presence of growth in the vaginal cavity. The condition was tentatively diagnosed as cystic endometrial hyperplasia pyometra complex with a mass in the abdominal cavity and vagina. Exploratory laparotomy was performed under general anesthesia and ovariohysterectomy (OHE) was carried out, and episiotomy procedure was performed to remove the vaginal mass. Postoperatively animal was managed with antibiotics and supportive therapies, and the animal made an uneventful recovery, further no recurrence was observed. On histopathological examination of the uterine mass was confirmed as fibroadenoma and vaginal mass as leiomyoma. The present case report suggests that dogs suffering from CEH pyometra along with uterine fibroadenoma and vaginal leiomyoma can be successfully managed with surgical excision of the tumor mass and OHE.

Keywords: CEH-Pyometra, leiomyoma, fibroadenoma

INTRODUCTION

Canine pyometra is a common reproductive syndrome of intact, sexually mature diestrual bitches (Fransson, 2003) as a sequel of cystic endometrial hyperplasia (CEH) that occurs due to chronic exposure of uterine endometrium to progesterone (Johnston *et al*., 2001). Pyometra can be graded based on the status of patency of cervix as open or closed in any intact female dog with more predisposition for middle-aged ones. Progesterone and oestrogen play a predominant role in the pathogenesis of CEH pyometra (Hardie, 1995). The onset of clinical signs is gradual which depends on the patency of the cervix. In the open cervix pyometra, common signs include mucopurulent vaginal discharge, fever, inappetence, depression, vomiting, polyuria, polydipsia and vomiting. Bitches with closed cervix pyometra are more serious due to the chances of development of toxemia and peritonitis as a result of uterine rupture (Baithalu *et al*., 2010).

Common haematological findings of CEH pyometra include marked peripheral leucocytosis with more degenerative neutrophils, erythrocytopenia, reduced level of haemoglobin (Hb), and decreased packed cell volume (PCV). Biochemical analysis shows a considerable increase in serum urea nitrogen, creatinine, ALT, AST and ALP. Cytological examination of vaginal discharge generally shows neutrophilia with more degenerative neutrophils. The diagnosis of pyometra can be best made with the aid of ultrasonography, where the uterus is observed as an enlarged and hypoechoic tubular organ containing echogenic fluid (Gupta *et al*., 2013).

Uterine fibroadenoma is a benign tumour of stromal and glandular epithelium of the uterus. Neoplasia of the canine uterus occurs rarely in veterinary medicine, accounting for 0.3 to 0.4 percent of all canine tumors (Brodey, 1970). The most common canine uterine tumors are leiomyomas, which are benign mesenchymal tumors most frequently observed in the vaginal tract of dogs (Herron, 1983).

Leiomyomas are neoplasms of mesenchymal origin characteristically noninvasive, slow-growing tumors which can be difficult to distinguish from their malignant epithelial counterparts (leiomyosarcoma) without histological evaluation. The present case report summarizes the successful management of cystic endometrial hyperplasia-pyometra complex with uterine fibroadenoma and vaginal leiomyoma in a German Shepherd dog.

CASE HISTORY AND OBSERVATIONS

A seven year old intact female German Shepherd bitch was presented to the University Veterinary Hospital, Kokkalai with a complaint of bleeding from vulva, polyuria, polydypsia and constipation for the past three months. The dog had its oestrous cycle two months back and a mass could be felt on abdominal palpation. On general examination, the animal was emaciated and bleeding was noticed from vagina. Per vaginal examination revealed the presence of multiple growths in vaginal cavity. On trans-abdominal ultrasonography, anechoic sacculations and hypoechoic uterine mass (Perimeter 6.16 cm; Area 2.51 cm^2) were noticed (Fig. 1). Heamatological analysis revealed leucocytosis

(17.4×10^3/µL), anaemia (RBC- 2.10×10^6/µL, Hb-2.4g.dL and HCT 10%) and thrombocytopenia (46×10^3/µL). On biochemical evaluation, elevated creatinine (2.5mg/dL) and BUN (25mg/dL) could be noticed. On vaginal cytology examination, numerous neutrophils erythrocytes and intermediate cells were observed.

Based on the above findings, the condition was tentatively diagnosed as pyometra complicated with a mass of unknown origin in the abdominal cavity. Surgical removal of mass and OHE were performed with the owner's consent to avoid further complications.

TREATMENT AND DISCUSSION

Animal was premedicated with glycopyrrolate at the dose rate of 0.02 mg/kg intramuscularly followed by butorphanol @ 0.2 mg/kg and midazolam @ 0.2 mg/kg bwt. intravenously. Anesthesia was induced with propofol at a dose rate of 3.5 mg/kg intravenously and maintained with two per cent isoflurane. Animal was treated preoperatively with antibiotic ceftriaxone @ 25 mg/kg and pain management with tramadol @ 2 mg//kg.

Ovariohysterectomy (OHE) was performed following a ventral midline laparatomy. On exteriosation of uterus a sharply circumscribed, round and firm mass of about 3 cm diameter (Fig. 2) could be noticed on the lumen of uterine body. On vaginal examination a well circumscribed lobulated large mass could be appreciated and was difficult to exteriorize the mass. Episiotomy was performed on the dorsal aspect and the mass was removed after proper ligation to avoid bleeding. Animal was treated postoperatively with ceftriaxone (25 mg/kg) for seven days along with supportive therapies. Sutures were removed on 10th postoperative day and the animal had an uneventful recovery.

Representative tissue samples were collected in 10 per cent neutral buffered formalin for histopathological examination. Histopathological examination of uterine mass (Fig. 3) revealed whorled pattern of smooth muscle bundles separated by vascularized connective tissue suggestive of leiomyoma and vaginal mass (Fig. 4) disclosed as proliferation of both glandular and stromal elements indicative of fibroadenoma.

CEH and pyometra could be difficult to distinguish clinically (Fransson *et al.,* 1997) and the incidence of pyometra was more among nulliparous dogs (Pretzer, 2008). Pregnancy was reported to have some protective effect against pyometra (Kushwaha *et al.*, 2015). Clinical signs vary from animal to animal depending on the patency of cervix. The clinical signs depended on the existence of endotoxemia, patency of cervix and general health of the animal (Sokolowski,1992). Higher body temperature could be indicative of uterine inflammation, septicaemia, bacteraemia or a systemic inflammatory response in canines and these were due to effects of endotoxins released from circulating bacteria (Murthy *et al*., 2013).

The animal had a history of its previous oestrus two month back and serum progesterone value of 45 ng/mL indicated that the animal was in progesterone dominant phase (diestrus) of oestrous cycle. Dullness among the pyometra affected dogs might be due to the effect of inflammatory mediators produced by the body during septicaemia and reflect a local uterine as well as generalised disease (Unnikrishnan, 2018). Polyuria, polydypsia and azotaemia are common features of pyometra which are due to a decreased response to antidiuretic hormone (ADH), glomerular dysfunction and renal tubular cell damage, caused by the deposition of immune complexes within the kidneys (Fransson and Ragle, 2003). Vomiting and diarrhoea could be due to adverse effects of higher endotoxic doses, as opined by Hardie and Kruse-Elliott (1990).

Leiomyomas are characteristically noninvasive, slow-growing tumors during oestrous cycles (Kendall, 2017). Uterine fibroadenoma is a benign tumour of stromal and glandular epithelium of uterus Ovariohysterectomy remains the choice of treatment, if the breeding life of the animal is not a concern for the owner. The procedure should be performed after stabilizing the animal by proper medical management. In the present case, the patient recovered uneventfully due to timely intervention by OHE and post-operative medical management.

REFERENCES

Baithalu,R.K., Maharana, B.R., Mishra,C.,Sarangi, L., Samal, L. (2010). Canine pyometra.*Vet.World.* **3**: 340-342

Brodey, R. S. (1970).Canine and feline neoplasia.*Adv. Vet. Sci. Comp. Med.* **14**:309–354

Fransson, B.A. (2003). Systemic Inflammatory Response in Canine Pyometra.The Response to Bacterial Uterine Infection. *Doctoral thesis*, Swedish University of Agricultural Sciences, Uppsala, 49p.

Fransson, B.A., Lagerstedt, A.S., Hellmen, E. and Jonsson, P. (1997). Bacteriological findings, blood chemistry profile and plasma endotoxin levels in bitches with pyometra or other uterine diseases. *J. Vet. Med. A*. **44**:417-426.

Fransson, B. A. and Ragle, C. A. (2003). Canine Pyometra: An Update on Pathogenesis and Treatment. Compendium on Continuing Education for the Practicing Veterinarian. 25. 602-612.

Gupta, A. K., Dhami, A. J., Patil, D.B., Kumar, D. andDarr, M. (2013) Clinical and ultrasonographic evaluation

of Bitches affected with pyometra.*IndianJ. Field Vet.* **8**: 1-4.

Hardie, E.M. (1995). Life-threatening bacterial infection.*Compendium of continuing education for the practicing veterinarian.* **17:** 763-777.

Hardie, E.M. and Kruse-Elliott, K. (1990).Endotoxicshock.Part 1.A review of causes.*J. Vet. Int. Med.* **4**: 258-266.

Herron, M.A. (1983). Tumors of the canine genital system.*J. Am. Anim. Hosp.Assoc.* **19**:981–994.

Johnston, S.D., Kustritz, M.V.R. and Olson, P.N.S. (2001).*Canine and Feline Theriogeneology.*(1st Ed.). W B Saunders Company, Philadelphia. 591p.

Kendall, E.H. (2017).A literature review on the welfare implications of gonadectomy of dogs.*J.Am.Vet.Med.Assoc*. **250**:1155–1166.

Kushwaha, R.B., Shankar, U., Kumar, P**.** and Kumar, M. (2015). Pyometra in canines: an appraisal. *Theriogenology*. **30**: 25–27.

Murthy, C.V., Chithra, P.A., Krishnaswamy, A., Rao, S. and Ramesh, P.T. (2013).Studies on certain clinical, haematological and biochemical parameters in pyometra of Bitches.*Indian J. Canine Pract.* **5:** 672-678.

Pretzer, S.D. (2008). Clinical presentation of canine pyometra and mucometra: a review. *Theriogenology.* **70**: 359–363.

Smith, F.O. (2006). Canine pyometra. *Theriogenology*. **66**: 610-612

Sokolowski, J.H. (1992). Metritis Pyometritis. In: Thomus, J.B (Ed). *Small Animal Reproduction and Causes of Infertility* – A Clinical Approach of Diagnosis and Treatment.(1st Ed.). Lea and Febiger, Philadelphia, pp. 279-283.

Unnikrishnan, M.P. (2018). Diagnosis and therapeutic management of canine pyometra for restoring breeding efficiency.*Ph.d Thesis*.Kerala Veterinary and Animal sciences University, Pookode.127p.

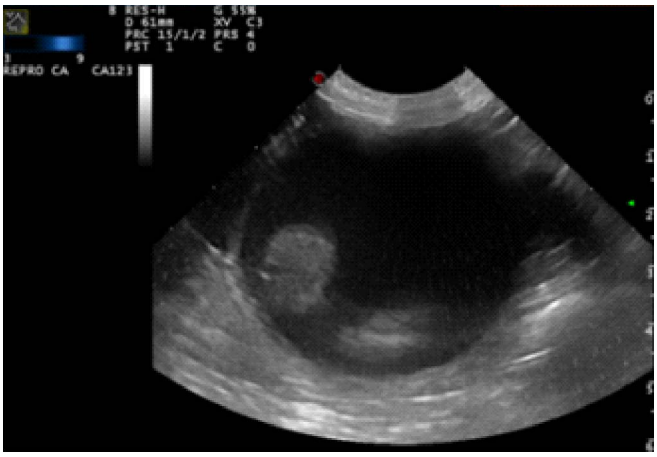

Fig. 1: Anechoic sacculation with hypoechoic mass inside uterus

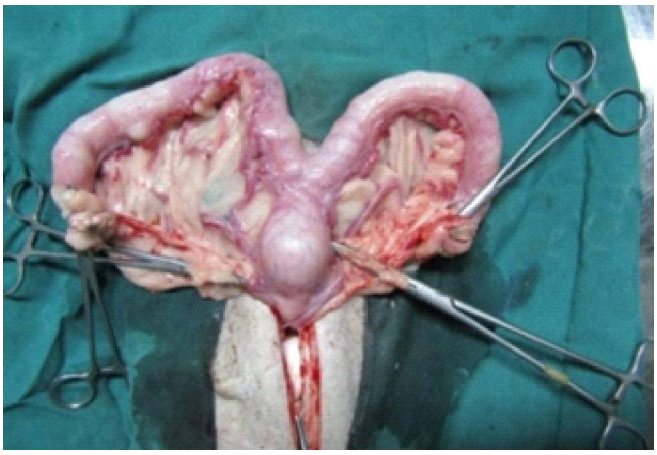

Fig. 2: Round and firm mass

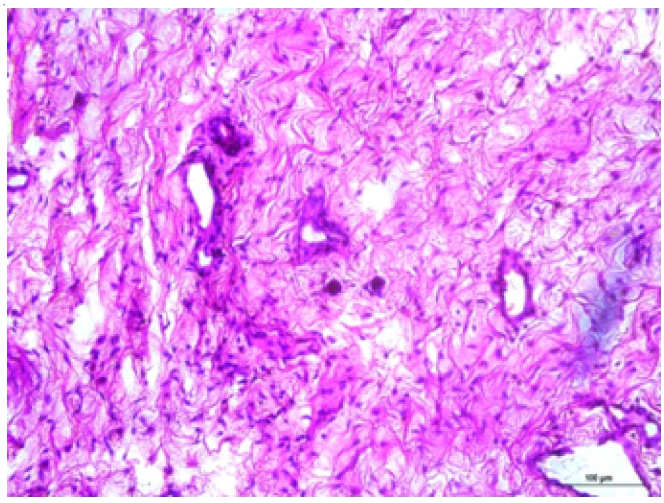

Fig: 3

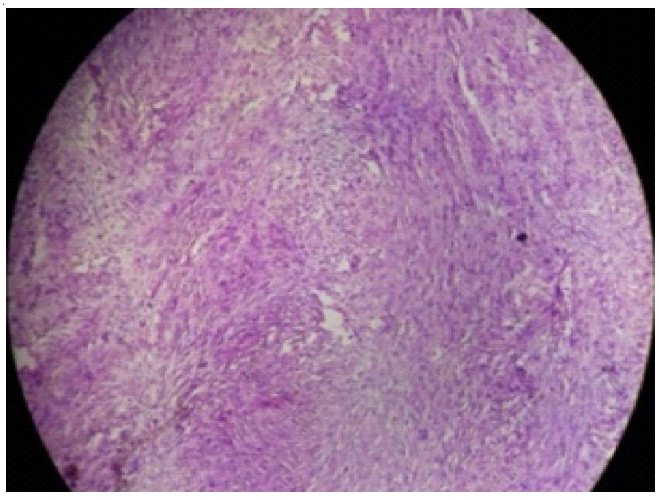

Fig. 4: HP section of fibroadenoma