



ISSN: 2456-2912

NAAS Rating (2025): 4.61

VET 2025; 10(11): 37-39

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www.veterinarypaper.com

Received: 23-09-2025

Accepted: 28-10-2025

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Surgical management of open cervix pyometra in a geriatric Labrador retriever: A case report

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DOI: <https://www.doi.org/10.22271/veterinary.2025.v10.i11a.2696>

Abstract

At the TVCC, ANDUAT, Ayodhya, an 11-year-old intact female labrador retriever was brought in with symptoms of fever, vomiting, depression, anorexia, abdominal distension, and serosanguinous-purulent vaginal discharge. Open cervical pyometra was suspected based on the patient's medical history and clinical observations. In order to stabilize the patient, the initial treatment consisted of supportive medications, antibiotics, non-steroidal anti-inflammatory drugs (NSAIDs), and fluid therapy. Pyometra was confirmed by ultrasound, which showed uterine distension with echogenic fluid. The infected uterus and ovaries were surgically removed during an ovariohysterectomy following three days of stabilization. After five days of post-operative care, the patient recovered without incident, and twelve to fifteen days later, the sutures were to be removed.

Keywords: OHE, pyometra, endometritis, estrus, polydipsia

Introduction

Pyometra a severe and more so life threatening illness in intact female dogs, which is an accumulation of purulent matter in the uterine lumen (Johnston SD, Kustritz MVR and Olson PNS, (2001) [2]. Canine and Feline Theriogenology. WB Saunders). It occurs most often in the luteal phase of the estrus cycle, when progesterone levels are high, inhibiting the uterine contractility and simulating endometrial gland secretions states that precondition the uterus to become colonized by bacteria. (Dow C, (1958) [7]. Pyometra can be clinically manifested in two ways, including open-cervix pyometra (evidence of purulent vaginal discharge) and closed-cervix pyometra (more insidious), which is more dangerous as there are no overt signs (Hagman R (2018) [3].

While the condition predominantly affects middle-aged to older bitches, it has also been documented in younger animals following their first Estrus (Bigliardi E, Parmigiani E, Cavirani S, Luppi A, Bonati L & Corradi A (2004) [5]. Common clinical signs include lethargy, anorexia, vomiting, abdominal distension, pyrexia, and in open cases, a malodorous vaginal discharge (Smith FO, (2006) [4]. If left untreated, pyometra can rapidly progress to systemic illness including endotoxemia, sepsis, and renal insufficiency.

The diagnosis depends on a blend between clinical history and physical examination, lab examination and diagnostic imaging specifically ultrasonography which is priceless in detecting any uterine distension and fluid build-up (Van Den Broeck W & Coryn M (2001) [2]. Surgical ovariohysterectomy is the most preferred method of treatment especially in severe or recurring cases. The incidence rate is about 2 -4 per annum among unspayed bitches that vary according to breed, age and past reproductive history. (Hagman, 2018 [3], Reproduction in Domestic Animals). Labrador Retrievers are said to be afflicted with pyometra with a percentage of 8 to 38 which is very high considering that most of the commonly affected dogs have high susceptibility. This case report outlines the clinical findings, diagnostic approach, and successful surgical management of an open cervix pyometra in a geriatric Labrador retriever, emphasizing the critical importance of early diagnosis and prompt intervention.

Case History and Observation

The case presented to the TVCC, ANDUAT is an 11 yr. labrador retriever that had a history of purulent-sanguineous vaginal discharge, vomiting, polydipsia, polyuria, pyrexia and anorexia. Dog was on physical examination found to be very depressed and lethargic. Systemic broad-spectrum antibiotics in the form of Ceftriaxone given by local veterinarians, although no improvement was seen. Haematological examination Revealed high lymphocytic count (44%), which is an indication of infection. Ultrasonography showed enlarged uterus with convoluted tubular horns full of anechoic fluid appearing as speckles. Therefore, the diagnosis was a case of pyometra and OHE was taken as the best treatment to avoid the disease occurrence again.

Haematological Profile

The haematology profile is indicative of a severe inflammatory response marked leukocytosis [$32.6 \times 10^3/\mu\text{L}$]

with neutrophilia [$14.34 \times 10^3/\mu\text{L}$] and monocytosis [$2.93 \times 10^3/\mu\text{L}$], consistent with bacterial infection. Anaemia [(low Hb8.5 g/dL), RBC ($3.3 \times 10^6/\mu\text{L}$), and PCV (23.9%)] is also present, likely of chronic disease origin.

Biochemistry

Random Blood Sugar (RBS): 194.7 mg/dL (The hyperglycaemia may be stress-induced or associated with underlying systemic illness, including sepsis secondary to pyometra).

Hormonal Profile

- **Estrogen:** 0.294 ng/dL ($\uparrow$ for diestrus/estrus)
Reference for anestrus: <1.5 ng/dL; for estrus: 2.5-6 ng/dL
- **Progesterone:** 5.89 ng/mL ($\uparrow$)
Reference >5 ng/mL post-ovulation, indicating diestrus phase



Fig 1: Abdominal distension and serosanguinous vaginal discharge observed in the geriatric Labrador retriever at presentation, characteristic of open-cervix pyometra. **Fig 2:** Ultrasonographic image showing enlarged uterine horns with echogenic fluid content, confirming pyometra diagnosis

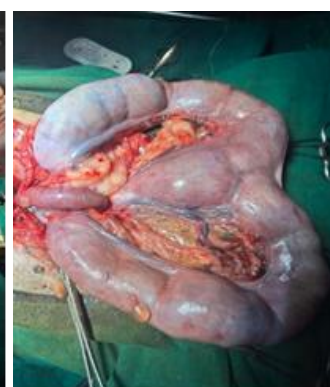


Fig 3: Haematological and biochemical findings indicating leukocytosis, neutrophilia, and mild anemia associated with systemic infection and inflammatory response **Fig 4:** Intraoperative view of the uterus during ovariectomy, revealing distended uterine horns filled with purulent material. **Fig 5:** Excised uterus and ovaries showing gross pathological changes-thickened uterine walls and purulent exudate, typical of pyometra.

The elevated progesterone level confirms the patient is in diestrus, a period where the uterus is under the influence of progesterone, favouring the development of pyometra due to suppression of uterine immunity and promotion of glandular secretions.

Surgical Intervention and Management

Ovariectomy (OHE) was aseptically performed following the standard procedure. The animal was withdrawn from the feed for last 12 hours and off water for last 6 hours.

Shaving was done while maintain aseptic conditions and scrubbed with povidone iodine solution. Premedication was intramuscular atropine sulphate (0.04 mg/ kg body weight) and anesthetized with Xylazine (1 mg/kg body weight) and ketamine (5 mg/kg body weight) intramuscularly. Induction and maintenance of anesthesia were maintained with the intravenous infusion of a xylazine and ketamine hydrochloride combination (1 and 5 mg/kg-1, respectively). During the entire operative time, normal saline was intravenously infused to compensate ongoing fluid loss. After

exposing the abdomen after performing laparotomy, the uterine and ovarian blood vessels were properly secured and the ovaries, uterine horns and uterus were completely removed. The gross examination showed voluminous uterine horns containing abundant sanguine purulent fluid. The abdominal wall was closed with Vicryl No 1 according to a standard procedure. Finally, the skin was sutured using simple interrupted sutures with Silk. The wound was then disinfected with an antiseptic solution and protected with an adhesive dressing. Postoperatively, the animal was fed with moist food and maintained on daily parenteral antibiotics for 5 days. Sutures were removed on the 14th day after the surgery.

The postoperative animal was subjected to inj. DNS 300 ml IV, inj. metronidazole 100 ml intravenously, along with inj. cefotaxime sodium 250 mg IM @ 30 mg/kg body weight, inj. meloxicam 1 ml IM and inj. B-complex 1 ml IM daily for five days. Daily aseptic dressing of wound was done with povidone iodine ointment. The post-operative hemato biochemical revealed all parameters within normal reference ranges wrt animal, indicating systemic recovery and absence of ongoing infection or organ dysfunction and also favourable prognosis.

Case Discussion

During initial luteal phase, increased progesterone concentration decreases the cellular immunity. Oestradiol causes cervical dilation during estrus and so allows bacteria that are the part of normal flora of vagina (Especially *E. coli* and *Streptococcus* spp.) to ascend in the uterus. The combination of reduced local immunity and favourable uterine conditions allows bacterial to colonize and proliferation of these pathogens. It has been reported that inoculation of *E. coli* in the uterus on days 11 to 20 and 20 to 30 after luteinizing hormone peak caused canine pyometra because at that time, uterus is most susceptible to infection. Subacute endometritis followed by CEH is believed to cause pyometra. Endometrial hyperplasia as the result of cystic deformation of endometrial glands and stromal proliferation of fibroblasts with inflammatory reaction. However, the CEH pyometra complex also develops as a consequence of an abnormal response of uterus to repeated progesterone stimulation during luteal phase of estrous cycle CEH is not associated with clinical signs unless the uterine content becomes infected, this is referred to as pyometra. Pyometra induces disturbed organ functions which are noted in haematological and blood biochemical finding. Typically, there was leucocytosis, with neutrophilia and left shift in differential white blood cell count Neutrophilia was the characteristic findings in the present report. OHE is usually the recommended treatment for pyometra associated with CEH in bitches. 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. *Escherichia coli* is the most cultured organism from uterus of the Bitch with pyometra. Some studies suggest that some specific breeds are more susceptible to pyometra. However, the prevalence of pyometra appears to fluctuate according to studies conducted across various countries, and the hypothesis of breed predisposition remains unknown.

Conclusion

The given case of an 11 year old female Labrador retriever with diagnosed open-cervix pyometra shows the need to

recognize and intervene promptly in life threatening reproductive crises. Hematological indications of anemia and leukocytosis, clinical findings of vulvar discharge, lethargy, and inappetence, and increased progesterone levels were all indicative of pyometra secondary to a long period of diestrus. The increased neutrophil count of white blood cells, especially in monocytosis was an indication of systemic inflammatory response, whereas anemia was probably caused by chronic disease and endotoxemia. The hyperglycemia can have been coexisting and could have been caused by stress or implied underlying endocrinopathy. The progesterone-mediated pathogenesis of pyometra was supported by hormonal assays to prove the luteal phase.

This case highlights the importance of careful post estrus observation in intact elderly bitches and advocates ovario hysterectomy as the ultimate treatment. The prognosis is favourable provided it is treated in a timely manner through surgical intervention and proper perioperative and postoperative care.

Conflict of Interest: Not available

Financial Support: Not available

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How to Cite This Article

Kharb A, Awasthi A, Rai A, Saurabh, Jaiswal S. Surgical management of open cervix pyometra in a geriatric Labrador retriever: A case report. *International Journal of Veterinary Sciences and Animal Husbandry*. 2025;10(11):37-39.

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