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CASE REPORT

Surgical Management of Chronic Open-Cervix Pyometra in a German Shepherd Dog: A Case Report

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ABSTRACT

Pyometra is a hormone-mediated, severe life-threatening uterine infection commonly affecting intact female dogs during diestrus. This report describes the clinical evaluation and surgical management of a chronic open-cervix pyometra in a 4-year-old German Shepherd Dog, presented to the Department of Veterinary Gynaecology and Obstetrics, Veterinary Clinical Complex, Post-Graduate Institute of Veterinary Education & Research (RAJUVAS), Jaipur with a six-month history of persistent purulent vulvar discharge. The bitch had undergone multiple unsuccessful courses of antibiotic and hormonal treatments prior to referral. Clinical, ultrasonographic and hematobiochemical evaluation confirmed pyometra. The case was managed by ovariohysterectomy following appropriate stabilization. The outcome was favourable, emphasizing the role of early surgical intervention in medically refractory pyometra.

KEYWORDS

• Pyometra • German Shepherd • Ovariohysterectomy • Failed medical treatment • Ultrasonography

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INTRODUCTION

Pyometra is a common and potentially fatal reproductive disorder in intact bitches, characterized by the accumulation of purulent material within the uterus. It is most frequently observed in the luteal phase due to the immunosuppressive and secretory effects of progesterone on the endometrium (Verstegen *et al*., 2008). Pyometra often develops secondary to cystic endometrial hyperplasia (CEH), which creates a conducive environment for bacterial colonization, predominantly by *Escherichia coli* (Smith, 2006).

Clinically, pyometra is classified into open or closed-cervix types. While closed-cervix pyometra may present with systemic illness due to retained exudate, open-cervix pyometra is characterized by continuous or intermittent vaginal discharge and less acute signs (Pretzer, 2008). Chronic cases with prolonged discharge and failed medical therapy are particularly challenging. This case report describes a chronic, treatment-refractory pyometra in a GSD managed successfully by surgery.

CASE PRESENTATION

A 4-year-old intact female German Shepherd Dog weighing approximately 29kg was presented to the Department of Veterinary Gynaecology and Obstetrics, Veterinary Clinical Complex, Post-Graduate Institute of Veterinary Education & Research (RAJUVAS), Jaipur with a six-month history of purulent vulvar discharge. The discharge was occasionally blood-tinged and foul-smelling. The owner reported multiple unsuccessful treatment attempts by local veterinarians, which included repeated courses of broad-spectrum antibiotics (amoxicillin-clavulanate and enrofloxacin) and hormonal therapy (estradiol benzoate and medroxyprogesterone acetate). Despite temporary improvement, the discharge persisted.

Clinical Examination

On clinical examination, the dog was alert but appeared mildly lethargic. The rectal temperature was recorded at 102.7°F, which was within the upper physiological range. The heart rate was measured at 88 beats per minute and the respiratory rate at 28 breaths per minute, both of which were within normal limits. The mucous membranes were pale and slightly dry, indicating mild dehydration and possible systemic compromise. Abdominal palpation revealed mild, generalized distension without signs of discomfort or pain. Upon inspection of the perineal region, the vulva appeared swollen and was actively discharging a serosanguinous-purulent fluid. The character and chronic nature of the discharge, along with the history of failed medical treatment, were highly suggestive of an open-cervix pyometra.

DIAGNOSTIC INVESTIGATIONS

Ultrasonography: Transabdominal ultrasonographic examination was performed using a 5–7.5 MHz convex probe. The scan revealed bilateral, markedly enlarged, tubular uterine horns. The lumens were filled with varying echogenicities of fluid, ranging from anechoic to hypoechoic, suggestive of pus accumulation (*Figure* 1 & 2). The uterine wall appeared thickened and irregular, with signs of mucosal folding and cystic changes in the endometrium. No evidence of rupture or free peritoneal fluid was observed. These sonographic findings were consistent with the diagnosis of open-cervix pyometra and they corroborated well with the chronic history of vaginal discharge and clinical signs. Such early diagnostic use of ultrasonography has been previously advocated for its sensitivity in detecting uterine pathology before overt systemic involvement (Fayrer-Hosken *et al*., 1991).

Haematology and Biochemistry

Haematological evaluation revealed a marked leucocytosis, with the total white blood cell count reaching 41,200 cells/mm^3, predominantly neutrophils (86%) and accompanied by a left shift. This suggested an ongoing, severe bacterial infection. A mild thrombocytopenia was also noted, with platelet counts measuring 92,000 cells/mm^3. Serum biochemistry demonstrated elevated blood urea nitrogen (BUN) at 48 mg/dL and serum creatinine at 2.0 mg/dL, which were indicative of mild pre-renal azotaemia. These alterations were presumed to be secondary to dehydration and toxin absorption resulting from the chronic uterine infection. The hematobiochemical profile further reinforced the diagnosis and emphasized the need for immediate stabilization before proceeding with surgery.

Figure 1: Transabdominal Ultrasonographic Image Showing Dilated Uterine Horns

Figure 2: Ultrasonographic View of Pyometra-Affected Uterus

TREATMENT AND SURGICAL MANAGEMENT

Pre-operative Stabilization: The patient received intravenous fluids (Ringer's lactate and 5% DNS), pantoprazole (1 mg/kg IV BID), ceftriaxone-tazobactam (20 mg/kg IV BID) and meloxicam (0.2 mg/kg IV SID) for 24 hours prior to surgery.

Surgical Protocol

The dog was premedicated with atropine sulphate at a dosage of 0.04 mg/kg intramuscularly to reduce vagal tone and secretions. Sedation was achieved using xylazine hydrochloride at 1 mg/kg intramuscularly. Anaesthesia was induced with ketamine hydrochloride at 5.5 mg/kg administered intravenously and anaesthesia was maintained intraoperatively through a constant rate infusion (CRI) of ketamine at 10 µg/kg/min. The dog was positioned in dorsal recumbency and the ventral abdominal region was aseptically prepared (*Figure* 3). A midline laparotomy was performed, beginning just caudal to the umbilicus and extending toward the pubis. Upon entering the abdominal cavity, the uterus was found to be significantly enlarged, turgid and filled with purulent exudate. No adhesions or rupture were observed. The ovarian pedicles and uterine body were isolated and ligated with suture vicryl no.1, using standard triple clamp techniques as described by Pearson (1973). Complete ovariohysterectomy was performed with care to prevent contamination of the peritoneal cavity (*Figure* 4). The abdominal incision was closed routinely in three layers with suture vicryl no.1 & Silk no-1 and the surgical site was dressed with povidone-iodine and protected with G-Dress.

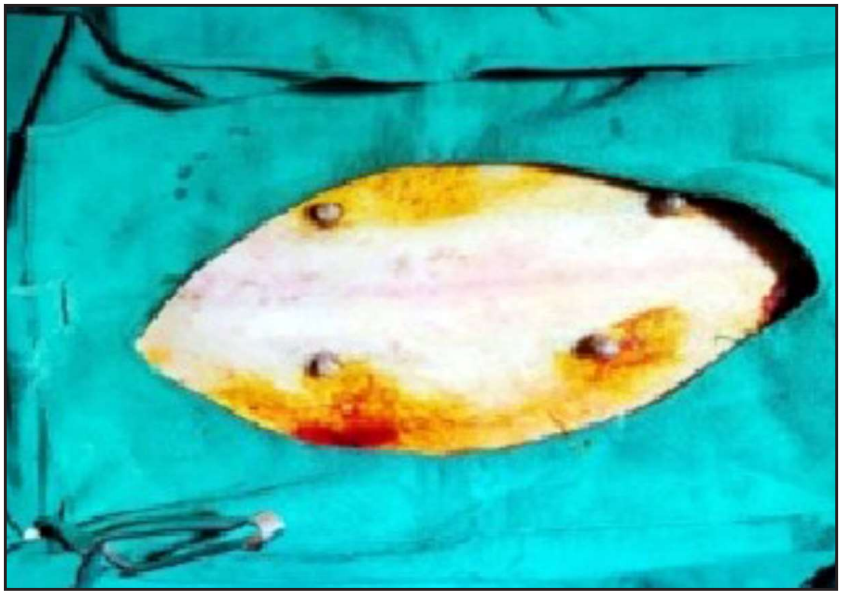

Figure 3: Preoperative Surgical Site Preparation

Figure 4: Gross Appearance of the Excised Uterus

Post-operative Management

Postoperatively, the patient was monitored for vital parameters and signs of pain, sepsis or wound dehiscence. Intravenous antibiotic therapy with ceftriaxone-tazobactam at 20 mg/kg twice daily was continued for a total of seven days. Meloxicam was administered orally at 0.1 mg/kg once daily for three days to provide ongoing analgesia and anti-inflammatory support. The dog was fed a soft, palatable diet and housed in a quiet, clean environment with limited physical activity (avoid stairs movements and jumping from bed) to promote healing. Antiseptic dressing of the surgical wound was performed daily with ointment mupirocin after cleaning with liquid betadine. The sutures were removed on the 14th postoperative day and the surgical wound had healed by primary intention with no evidence of seroma, infection or dehiscence. The patient resumed normal appetite and activity within 48 hours of surgery. At 20-day follow-up, the owner reported complete recovery with no recurrence of vaginal discharge or behavioural abnormalities. Recovery was uneventful. Sutures were removed on day 14. No recurrence was observed during a 30-day follow-up.

DISCUSSION

Chronic open-cervix pyometra is rarely reported and poses a diagnostic challenge due to its intermittent signs. In this case, prolonged discharge masked systemic illness until late stages (Jitpean *et al*., 2014). Failed medical therapy with hormonal agents may contribute to CEH and exacerbate disease progression (Dow, 1959).

Ultrasound is a reliable modality for early detection and characterization of uterine pathology (Fayrer-Hosken *et al*., 1991). Ovariohysterectomy remains the treatment of choice for pyometra, particularly when medical therapy fails (Smith, 2006; Verstegen *et al*., 2008).

CONCLUSION

This case emphasizes the limitations of medical management in chronic pyometra and advocates for early surgical intervention. A detailed clinical history, imaging and stabilization are essential for successful outcomes in such cases.

Conflict of Interest Statement

The author declares no conflict of interest related to this case report.

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