Short communication

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Surgical Management of Unilateral Pyometra in a Queen Cat

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ABSTRACT

This report presents a case of unilateral pyometra in an 8-year-old intact female cat, focusing on clinical observations, pathological findings, diagnostic techniques, surgical intervention, and outcomes.
Key words: Mifepristone, Misoprostol, Ovariohysterectomy, Queen, Ultrasonography, Unilateral pyometra.
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INTRODUCTION

Unilateral pyometra in queens, though less documented than the bilateral form, is recognized as a distinct clinical condition, comprising a smaller percentage of cases in feline clinical practice. Factors contributing to its occurrence include hormonal influences and localized factors (Antonov, 2020). Diagnostic methods involving ultrasonography, pathological assessments, and blood analyses provide a comprehensive approach. Management of pyometra involves fluid resuscitation, targeted antibiotics, and surgical or pharmacological interventions (Hollinshead and Krekeler, 2016; Murugavel *et al*., 2013). The selection between medical and surgical interventions depends on the queen's physiological status, highlighting the need for personalized treatment (Misk and EL-Sherry, 2020). This case study aims to enhance veterinary practitioners understanding and management of feline unilateral pyometra through current clinical insights and treatment strategies, (Satheshkumar *et al*., 2019).

CASE HISTORY AND OBSERVATIONS

An 8-year-old intact female domestic short hair cat, which was previously queened twice and currently weighs 3.4 kg was presented to the Small Animal Unit of Veterinary Gynaecology and Obstetrics at Veterinary Clinical Complex, RIVER, Puducherry, India with a history of progressive abdominal distension and reduced appetite over the preceding six weeks. The primary concern reported by the owner was the cat's difficulty in voiding faeces, prompting immediate clinical evaluation. Upon initial clinical examination, the cat exhibited pronounced

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abdominal distension, with the abdomen appearing fully turgid upon palpation (Fig. 1). The animal was displaying signs of discomfort and exhibited a reduced appetite, raising concerns about potential underlying reproductive or gastrointestinal pathology. Given these clinical findings, a comprehensive diagnostic workup was initiated to clarify the underlying etiology of the observed abdominal distension and associated clinical signs.

Fig. 1: Queen presented with a distended abdomen

Ultrasonography: morphological and dimensional characterization

Ultrasonographic assessments consistently revealed a distinct pattern characterized by a significant accumulation of hypoechoic content with noticeable anechoic pockets within the confines of the affected uterine horn. At the same time, dimensional measurements further clarified the pathological severity, as indicated by distended uterine horn measuring 42.00 mm and 50.60 mm at two different sacculations (Fig. 2). These quantitative and qualitative ultrasonographic parameters collectively summarize the extent, nature, and arrangement of the inflammatory processes occurring within the uterine horn affected by unilateral pyometra.

Fig. 2: Ultrasonographic image showing distended uterine horn

Analysis of complete blood count (CBC)

Haemoglobin (Hb) levels at 8.8 g/dl and a Packed Cell Volume (PCV) of 30% collectively indicate anaemia, likely resulting from chronic inflammatory processes, blood loss, or systemic manifestations related to pyometra. This anaemic condition requires targeted interventions to improve oxygen-carrying capacity and address associated complications. Moreover, an increased neutrophil count of 68% suggests a robust systemic inflammatory response, bacterial sepsis, or localized purulent accumulations within the uterine horn, necessitating immediate therapeutic measures such as antibiotics or potential surgical intervention. Additionally, lymphocytes at 24% may indicate decreased lymphocyte levels due to immunomodulatory responses or secondary immunosuppression associated with bacterial toxins or systemic inflammatory cascades linked to pyometra. Finally, eosinophil levels within the reference range at 8% address concerns about parasitic or allergic factors, redirecting diagnostic focus towards bacterial causes, inflammatory processes, and the broader systemic implications of pyometra. Blood Urea Nitrogen (BUN) and creatinine levels were 24.4 mg/dl and 1.08 mg/dl respectively.

TREATMENT AND DISCUSSION

Initially, a therapeutic protocol involving mifepristone administered orally at a dosage of 2.5 mg/kg body weight, coupled with misoprostol at 2.5 mcg/kg body weight via intravaginal administration over a span of four days, did not yield the anticipated clinical improvement. The decision was made to proceed with an ovariohysterectomy as a definitive measure to preserve the well-being of the animal.

An ovariohysterectomy was performed on a cat following routine standard surgical protocol. The cat underwent a 12-hour fasting period and received pre-anesthetic medication, a subcutaneous injection of tramadol at a dose rate of 4 mg/kg to provide analgesic effect. Anesthesia was induced with a combination of xylazine and ketamine in 1: 4 ratio. Aseptic preparation of the operative site was done with a povidone-iodine solution. A mid-ventral incision was made, and layers including skin, subcutaneous tissue, rectus abdominis musculature, and peritoneal lining were incised. The pyometra-affected uterine horn was carefully exteriorized, ligation and transection of vascular structures and connective tissues were performed bilaterally. The uterus along with ovaries was removed from the

abdominal cavity and laparotomy incision was closed surgically. Post-operative care included oral antibiotic administration (Tab. Clindamycin hydrochloride @ 15 mg/kg body) for 10 days. The cat had an uneventful recovery after 10 days of post-operative care.

Unilateral pyometra shares fundamental pathophysiological mechanisms with bilateral pyometra, primarily involving hormonal imbalances, notably elevated progesterone levels (Shah *et al.,* 2016). The development of cystic endometrial hyperplasia creates a favourable environment for bacterial colonization, leading to localized purulent accumulation (Gangwar *et al.,* 2023; Gupta *et al.,*2013) within a single uterine horn (Fig. 3). Additionally, factors such as cervical obstruction, segmental uterine inflammation, or anatomical anomalies may predispose to unilateral involvement. In the present case, medical treatment with progesterone receptor antagonists or antiprogestin was not found to be effective. This may be due to the old age of the cat. This result concurs with the findings of Nak *et al.* (2009), who reported non-responsiveness of antiprogestin in the treatment of pyometra in a Queen cat.

Histopathological examination revealed irregular thickening of the myometrium and proliferation of endometrium giving a polypoid appearance (Fig. 4). The endometrium showed hyperplasia (Fig. 5) and focal desquamation of cells. In addition, there was discrete hyperplasia of endometrial glands with cystic dilatation and occasionally contained amorphous eosinophilic material (Fig. 6). Infiltration of mononuclear cells, multi-focal areas of haemorrhages and presence of hemosiderin were the other features observed.

Fig. 3: Uterus with unilateral pyometra
ICL – Inter-cornuate ligament
X – Normal-sized left uterine horn
Y – Enlarged right uterine horn

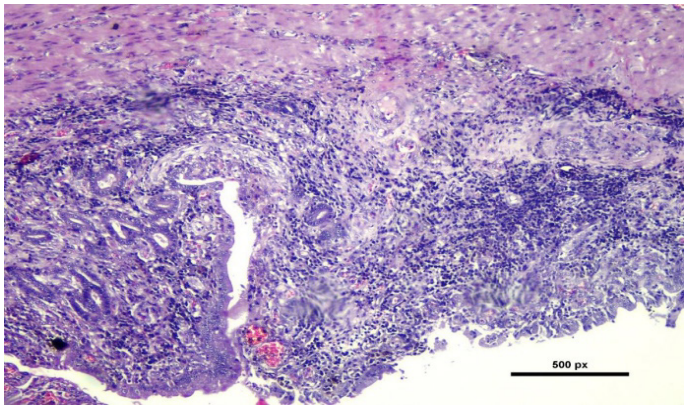

Fig. 4: Uterus showing thickened myometrium proliferation of the epithelium and infiltration of mononuclear cells. H & E (x 40)

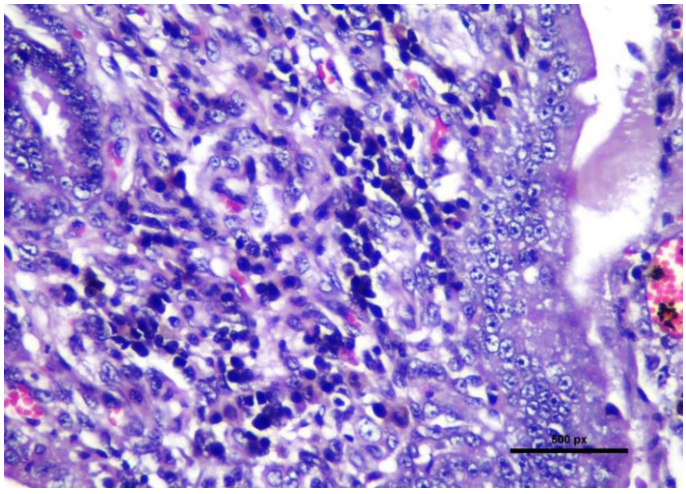

Fig. 5: Uterus showing endometrial hyperplasia. H & E (x 400)

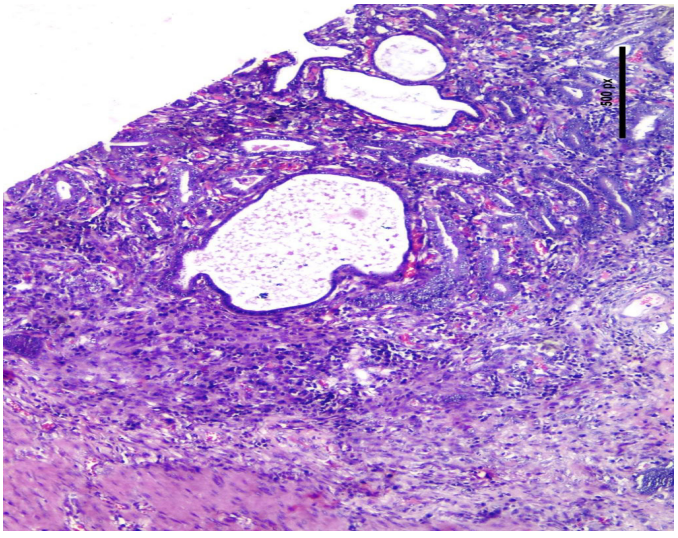

Fig. 6: Uterus showing glandular hyperplasia and cystic dilatation of the glands. H & E (x 100)

Upon timely diagnosis and precise therapeutic intervention, feline patients manifesting unilateral pyometra typically exhibit a favourable prognostic outcome. Conversely, postponement of therapeutic measures may lead to systemic consequences such as septicaemia and organ dysfunction, significantly influencing the overall prognosis. In the present case study, the cat successfully recovered from both the surgical incision and the systemic disturbances initiated by the bacterial endotoxins associated with pyometra. Notably, the implementation of ovariohysterectomy (OHE) effectively eliminated the infectious nidus, mitigating subsequent complications.

CONCLUSIONS

Unilateral pyometra in cats is less frequently observed than its bilateral form, it poses unique clinical, diagnostic, and therapeutic complexities. In this instance, thorough diagnostic assessments involving ultrasonography and blood tests directed the treatment strategy. Although the initial medical interventions were unsuccessful, the surgical procedure of ovariohysterectomy led to a positive recovery. Early detection and customized therapeutic approaches are essential, as delay can intensify systemic issues, highlighting the necessity for immediate veterinary attention in cases of unilateral pyometra in cats. Continued research is warranted to refine diagnostic techniques and therapeutic strategies for this condition.

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CONFLICT OF INTEREST

There is no conflict of interest among the authors.

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