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## Successful management of pyometra induced acute renal failure in a cat

**P Pothiappan, M Bharathidasan, C Jayanthi, S Divyadharshini and J Uma Maheshwari**

### Abstract

Eight year old nulliparous DSH Queen cat was presented to Madras Veterinary College Teaching Hospital with a history of inappetence, weight loss, and distended abdomen for one month. The animal was also treated by locally for ascites but there was no clinical improvement. On clinical examination, the animal had a distended abdomen with emaciation and a temperature of about 103.8°F. Haemato-biochemical examination revealed leucocytosis with increased in BUN and Creatinine levels. Radiography examination revealed a uterine enlargement and Ultrasound revealed an anechoic tubular structure of uterine horns. Based on the above findings the case was diagnosed as closed-cervix pyometra with acute renal failure. Hence emergency surgical intervention was done under standard operating procedure using Inj. Diazepam @ 0.2mg/kg B.wt., Inj. Propofol @ 3mg/kg B.wt intravenously and maintenance with Isoflurane 2% with 100% oxygen supplementation in the non-rebreathing circuit. By mid-ventral approach ovariohysterectomy was done and on gross examination, severely distended uterine horns were noticed. Post-operatively the animal was treated with Inj. Ringer's lactate @ 10ml/kg B.wt, Inj. Amoxicillin+cloxacillin @ 10mg/kg B.wt. and Inj. Pantaprazole @ 1mg/kg B.wt intravenously for 7 days along with supportive therapy. After a surgical procedure and intensive therapeutic management, the cat showed clinical improvement and recovered after two weeks.

**Keywords:** Feline, closed-cervix pyometra, renal failure, ovariohysterectomy

### Introduction

Pyometra is not a common disease in cats its refer to "Pus- filled uterus" and common illness in adult intact female dogs. (Egenvall, 2001 and Hagman *et al.*, 2014) [2, 5]. Pyometra may be acute or chronic inflammation and classified in to two types, closed and open cervix pyometra. In 'Open cervix pyometra' blood stained, purulent vaginal discharge are commonly present. In 'closed cervix pyometra' there is no vaginal discharge but animal may show general signs of illness. Progesterone plays vital role in pathogenesis of infection and bacteria like E.coli are responsible for the disease. (Hagman and Greko, 2005) [4]. Pyometra is commonly seen in adult animals older than 7 years (Hagman *et al.*, 2014) [5]. Physical examination findings include abdominal distension, dehydration, pyrexia and Vomiting (Verstegen, 2006) [11]. Abdominal ultrasound is considered the best tool for the diagnosis of pyometra in animals (Hollinshead and Kreskeler, 2016) [7]. It can be managed by medically or surgically depending on the severity of the condition. The most common treatment is surgical method by Ovariohysterectomy (Kenny *et al.*, 1987) [8]. The present case study will give an idea about pyometra induced acute renal failure and its emergency management in a cat.

### History and Clinical Examination

An Eight-year old nulliparous DSH Queen cat was presented to Madras Veterinary College Teaching Hospital with a history of inappetence, weight loss, and distended abdomen for one month. The animal was also treated by locally for ascites but there was no clinical improvement. On clinical examination, the animal had a distended abdomen with emaciation and a temperature of about 103.8°F.

## Results and treatment

Haemato-biochemical examination revealed leucocytosis with increased in BUN and Creatinine levels. Radiography examination revealed a uterine enlargement and Ultrasound revealed an anechoic tubular structure of uterine horns. Based on the above findings the case was diagnosed as closed-cervix pyometra induced acute renal failure. Hence emergency surgical intervention was done under standard operating procedure using Inj. Diazepam @ 0.2mg/kg B.wt., Inj. Propofol @ 3mg/kg B.wt intravenously and maintenance with Isoflurane 2% with 100% oxygen supplementation in the non-rebreathing circuit. By mid-ventral approach ovariohysterectomy was done and on gross examination, severely distended uterine horns were noticed. Uterine horns

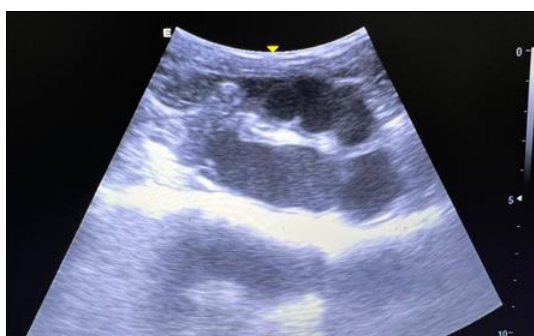
were removed out of incision site and ovarian ends were ligated, transfixed and resected out with catgut size 2-0, cervical end ligated and incised it was closed with catgut size 2-0 with continuous suture pattern. Muscles were closed with simple continuous pattern and intradermal suture was also done by using Relyon pga absorbable suture material size 2-0. Post-operatively the animal was treated with Inj. Ringer's lactate @ 10ml/kg B.wt, Inj. Amoxicillin+cloxacillin @ 10mg/kg B.wt. and Inj. Pantaprazole @ 1mg/kg B.wt intravenously for 10 days along with renal supportive therapy. After a surgical procedure and intensive therapeutic management, the cat showed clinical improvement and recovered after two weeks.

**Table 1:** Haematobiochemical parameters

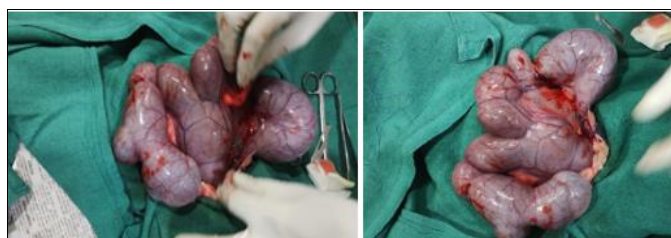
Haematology			Serum biochemistry		
Parameters	Value	Reference	Parameters	value	Reference
Hb	9.5 g/dl	12-18g/dl	BUN	32.24mg/dl	10-28mg/dl
PCV	35%	35-55%	Creatinine	2.86mg/dl	0.6-2.4mg/dl
RBC	3.7 m/cmm	4.95-7.87 m/cmm	Total bilirubin	1.05mg/dl	1.2-2.1mg/dl
WBC	36000/cmm	5000-14000/cm	Direct bilirubin	1.02mg/dl	0.04-0.16mg/dl
Platelets	3,80000/cmm	211000-621000/cmm	ALP	53U/L	12-65 U/L
Neutrophils	85%	60-70%	ALT	40U/L	8.3-53U/L
Lymphocyte	12%	20-30%	Total protein	6.8mg/dl	5-7.8mg/dl
Monocytes	3%	5%	Albumin	2.8mg/dl	2.4-3.8mg/dl
Blood Picture: <b>Neutrophilia, Leukocytosis</b>					



**Radiography - Uterine enlargement**



**Anechoic tubular structure of uterine horns**



**Distended Uterus**

## Discussion

The incidence of pyometra in queens is rare as they are induced ovulators. They don't show obvious clinical signs like bitch. Generally, occurs in queens between the age of 5-7 years but it can be observed any time after puberty (Ettinger and Feldman, 2010) [3]. There was leukocytosis with neutrophilia suggestive of bacterial infection associated with febrile condition. Anemia due to loss of red blood cells by diapedesis into uterine lumen and impaired erythropoiesis under toxic condition in severely affected cases (Pande *et al.*, 2006) [10].

The case fatality rate is higher in cat which is not known, but one theory could be that cats are less sensitive to endotoxin or not prone to show clinical signs unless they develop sepsis (Pande *et al.*, 2006) [10]. Pyometra can cause liver and kidney function changes (Nak *et al.* 2005) [9]. Elevated ALT level because of septicemia hepatocellular damage were happened resulting diminished hepatic circulation and cellular hypoxia in dehydrated cats. Renal dysfunction may develop secondary related to bacterial endotoxin due to pyometra. These findings were in accordance with our case which had elevated blood urea nitrogen and creatinine concentration due to dehydration and bacterial toxins (Kenney *et al.* 1987) [8]. High creatinine concentration was determined in 12 percent of a group of cats with pyometra. (Nak *et al.* 2005) [9]

Surgical treatment ovariohysterectomy is safest and most effective because the source of infection and bacterial toxins are removed and recurrence prevented (Hardy, 1974) [6]. In this study, ovariohysterectomy was performed under gas anesthesia as per standard method (Deniz *et al.* 2005). [1] The diagnostic tools implemented are radiography and ultrasonography to confirm the case as pyometra. Surgical management is the safest tool to be implemented to save the life of the animal.

## Conflict of Interest

Not available

### Financial Support

Not available

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