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ARTICLE

# CASE REPORT
# Haemorrhagic Vaginal Discharge Following Ovariectomy in a Three Year Old Domestic Short-haired Cat

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## INTRODUCTION

Gonadectomy is one of the most frequently performed surgical techniques in dogs and cats because it is the most reliable means of pet population control (Spain *et al.*, 2004, Kustritz, 2007). Ovariectomy is routinely performed and has replaced ovariohysterectomy as the standard approach for gonadectomy in most European countries. The uterus is only removed when uterine pathology is present (Goethem *et al.,* 2006, Whitehead, 2006). Despite long-term studies that compared risks and complications associated with these techniques, ovariohysterectomy is still the preferred technique for elective spaying in the United States because of the presumption that future uterine pathology is prevented by removing the uterus (Okkens *et al.,* 1997, Veenis, 2004).

Vaginal bleeding has been reported 4-16 days following ovariectomy in dogs and has been associated with erosion of the uterine vessels secondary to transfixation ligation of the uterine body using multifilament sutures around the uterine body (Peeters & Kirpensteijn, 2011). Infection can also cause vaginal bleeding post ovariectomy. Only one case of vaginal bleeding following ovariectomy has been reported in dogs and was associated with transection of the uterine horn (Goethem *et al.,* 2006). There have been no reports on the incidence of vaginal bleeding following ovariectomy in cats. This report presents a case of vaginal bleeding in a cat following an elective ovariectomy associated with uterine distension.

**KEY WORDS:** Haemorrhage, Vagina Ovariectomy, Cat

## Case History

A three year old female domestic short haired cat was presented to the Veterinary Teaching Hospital of the University of Agriculture, Abeokuta following signs of inappetence copious bloody vagina discharge and fever. The signs were first noticed nine days after an ovariectomy was performed and persisted for four days. Physical examination revealed that the cat was lethargic with high fever (40.8°C). Mucous membranes were moderately congested and the cat appeared mildly dehydrated. There was copious frank bloody discharge from the vulva, though the vulva did not appear oedematous. Abdominal palpation revealed a mass in the middle third of the abdomen. In addition, there was a healed incision on the ventral midline of the abdomen. A transcutaneous abdominal ultrasound was performed, with the cat in lateral recumbency using 5.0 MHz curvilinear and 7.5 MHz linear transducers and a portable ultrasound machine (Kaixin KX 2000®,

Xuzhou, China). In addition blood was obtained from the cephalic vein for the determination of complete blood counts.

## RESULTS AND DISCUSSION

The per-cutaneous ultrasound revealed a moderately distended bladder with no evidence of wall layering or intraluminal hyperechoic bodies (Fig.1). The uterine horns were distended and measured about 34mm in diameter; it is somewhat anaechoic with some reflectors present (Fig. 2). The complete blood counts showed a moderate neutrophilic leukocytosis (WBC= 26,500 x $10^3$/L; Neutrophils= 19, 500 x $10^3$/L)), while other values were essentially normal for cats.

Following ultrasonography and a tentative diagnosis of fluid filled uterine distention, an exploratory laparotomy was performed using a paramedian incision. The cat was premedicated with intramuscular injections of 3mg/kg tramadol (Plazadol®, Plethico-Pharm, India) and 0.04mg/kg atropine (Amopin®, Yanzhou Pharmaceuticals, China), while anaesthesia was achieved using intramuscular injections of 15mg/kg Ketamine (Ketamin hydrochloride USP®, Rotex Medica, Germany) and 0.5 mg/kg of diazepam (Calmpose®, Ranbaxy, India). Following laparotomy, the previous ligature at the junction between the ovary and the end of the uterine horn were observed intact, while there was no evidence of intraperitoneal bleeding. The uterine horns were observed to be distended (Fig. 3). The right horn was bigger than the left, while the uterine vessels were very prominent and congested. The blood filled uterine horns were then resected after the uterine artery had been ligated. The abdominal incision was closed routinely and tramadol injection was administered postoperatively. In addition 10 mg/kg oral clauvulanated amoxicillin (Augmentin®, Pfizer, India) was administered twice daily for five days. Incision of the uterine horn revealed frank blood accumulation in the lumen with slightly thickened uterine wall. The uterine endometrium was smooth with no evidence of any cystic projection. Recovery was prolonged as the cat was not fully ambulatory until about 36 hours after surgery. Rectal temperature returned to normal about two hours after surgery, while minimal vaginal bleeding was observed till about six hours after surgery and then resolved completely thereafter. Normal activity resumed in the cat about two days after surgery.

The control of overpopulation in dogs and cats is a problem well recognized all over the world. Although there are no regulations over animals adoption in Nigeria, most foreigners often present adopted cats and dogs for gonadectomy to ensure that they do not reproduce at home. Although the cat in this report was spayed in advanced stage of life, this might be connected to the fact that the cat was not adopted by the owner before this age. The authors are not aware if spaying in advanced stage of life could increase the risk of development of complications in cats, and whether the late spaying contributed to the vaginal bleeding in the cat. On the other hand, early neutering has been associated with increased risk of the development of certain complications in both dogs and cats (Spain *et al.,* 2004).

Vaginal bleeding following ovariectomy has been reported in one dog associated with the surgeon transecting the uterine horn (Goethem *et al.,* 2006). To the best of the author's knowledge and search, we have not found any previous report of vaginal bleeding post ovariectomy in cats. The exact aetiopathogenesis of the vaginal bleeding in this cat is not fully understood

but is thought to be due to accumulation of blood in the uterine horn possibly due to infection prior to or during the ovariectomy procedure. The role of infection in the aetiopathogenesis of the vaginal bleeding is further supported by the high fever, as well as the moderate neutrophilic leukocytosis in the cat. Examination of the ligated end did not show any evidence of transfection of the uterus. It is also possible that the uterine infection had existed before the ovariectomy and was not discovered due to the small ventral incision made at the time of ovariectomy which did not allow for proper uterine examination to detect any existing pathology.

Although the controversy still exist concerning the best method for gonadectomy in female cats, the absence of randomized studies comparing complications after ovariectomy and ovariohysterectomy makes it difficult to rationally conclude. Ovariectomy will appear as a better option because it is faster and technically less difficult than ovariohysterectomy (Whitehead, 2006). However the presence of vaginal bleeding post ovariectomy in this cat raised the question whether it is prudent not to remove the uterus while spaying a cat and further illustrated the need for detailed sonographic uterine examination prior to ovariectomy. In conclusion, the authors recommend further studies to investigate the effect of spaying on the risk of complications associated with both techniques of gonadectomy in young and mature dogs and cats. Also there is a need for sonographic evaluation of the uterus prior to deciding the method of gonadectomy to employ in dogs and cats.

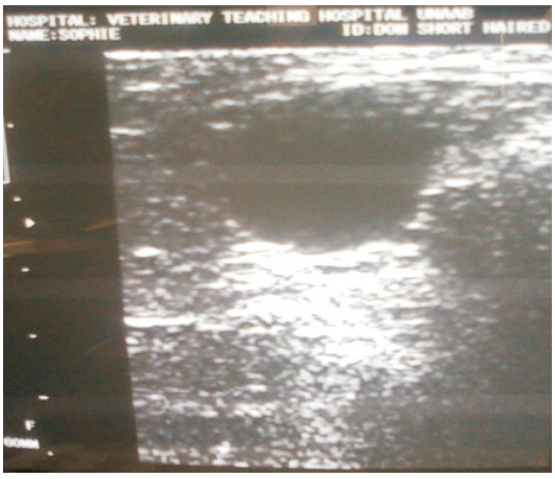


Fig. 1


Fig. 2

Fig. 3

**Figure legends:**

Fig. 1: Transcutaneous abdominal ultrasound of a three year old domestic short haired cat with post ovariectomy vaginal bleeding showing a moderately distended bladder with no evidence of abnormalties.

Fig. 2: Transcutaneous abdominal ultrasound of a three year old domestic

short haired cat with post ovariectomy vaginal bleeding showing multiple cross-sections of uterine horn (arrows) distended with anaechoic fluid

Fig. 3: Three year old female domestic short haired cat following paramedian laparotomy showing a distended uterine horn (arrow)

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