

VAGINAL LEIOMYOMA AS A CAUSE OF OBSTRUCTIVE DYSTOCIA IN A BITCH

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Vaginal leiomyomas are benign solid tumors of the vagina. Dystocia due to stenosis of birth canal by vaginal leiomyoma is very rare in bitches. Here, a pluriparous bitch presented with vaginal neoplastic mass diagnosed at the time of a protracted dystocia is described. Following an unsuccessful therapeutic management, the dog underwent 'En-bloc' ovario-hysterectomy. Extirpation of the masses in anterior vagina was done through the laparotomy wound while those in the posterior vagina were removed by an episiotomy. Exploration of the removed uterus revealed that the progression of fetuses through birth canal during labor was hindered by the vaginal masses. Histopathological evaluation confirmed the masses as leiomyoma.

Key words: Dystocia, Leiomyoma, Bitch.

Introduction

Dystocia has been categorized as fetal or maternal in origin. In dogs, maternal dystocia (75.3%) occur more frequently than fetal dystocia (24.7%) (Darvelid and Linde-Forsberg, 1994). Narrow birth canal accounts to 10 percent of the total causes of dystocia in dogs (Liu *et al.*, 1992). Narrowing or stenosis of the birth passage preventing the normal entrance of the fetus into the birth canal can be caused by affections of maternal pelvic bones or soft tissues, which may be congenital or acquired in nature (Roberts, 1986). However, vaginal neoplasms as a cause of obstructive dystocia are extremely rare in dogs. Majority of the canine vaginal or vulvar neoplasms are leiomyoma, leiomyosarcoma, fibroma, and transmissible venereal tumor (MacLachlan and Kennedy, 2002). Benign vaginal or vulvar neoplasia comprises 70 to 72 per cent of all vaginal tumors (Thacher and Bradley, 1983). The present clinical report documents a case of dystocia owing to obstruction of the vagina from leiomyoma in a dog.

Case history and observations

A four year old, pluriparous, full term Irish setter bitch, weighing about 30 kg was presented to the Department of Veterinary Obstetrics and Gynaecology, Veterinary

College, Bangalore. It had a complaint of day long straining, dark blood tinged vaginal discharge and no progression of labor. A mass was found protruding from the vulva following continuous straining (Fig.1). The owner indicated that the dog had two normal whelping earlier, with no obstetrical complications.

Genital exploration revealed relaxation of vulva, but with circumscribed masses of varying sizes obliterating the vaginal cavity and no fetal parts was palpable. The masses were encapsulated, found attached to the vaginal wall by prominent stalk and was tentatively diagnosed as vaginal leiomyoma. Trans-abdominal ultrasound revealed non viability of the fetuses' in-utero. On vaginoscopy, it was observed that the mass in the anterior vagina was obstructing the fetal progression through the birth canal. Based on these findings, the condition was diagnosed as obstructive dystocia due to blocking of birth canal from vaginal neoplasia. No response to feathering or treatment with 10 per cent dextrose and oxytocin was noticed. As the masses in the anterior vagina were deep seated; the animal was exhausted following prolonged straining; no response to feathering or medical management was noticed and the owner's willingness not breed the bitch further, it was

decided to perform an 'En-bloc' ovariectomy and remove the dead pups.

The dog was premedicated with Glycopyrrolate @ 0.02mg/kg, intravenous followed by induction of anaesthesia with Propofol @ 6 mg/kg, intravenous and maintenance of anaesthesia with a

combination of Propofol and Ketamine @ 1:1 ratio. Ceftriaxone was used as prophylactic and post-operative antibiotic therapy @ 20 mg/kg body weight. An 'En-bloc' ovariectomy was performed through a mid-ventral laparotomy incision.



Figure - 1: Mass protruding from vulva



Figure - 2: Gravid uterus with pups

Exploration of the removed gravid uterus revealed two dead pups (Fig. 3). One pup had progressed much through the cervix and was lodged in the anterior vagina obstructed by the vaginal mass (Fig. 2). Before closing the cervical stump, two neoplastic masses in the anterior vagina were retracted to the abdominal cavity and were extirpated due to the difficulty to access it from its location vaginally. The laparotomy incision was then closed anatomically under standard surgical procedures. Following this, an episiotomy was performed and other three varying sized masses were removed from posterior vagina through the vulvar opening. Of the five varying sized masses removed from the vagina, the biggest one had a diameter of 3.5 cm while the smallest was 1.2 cm in diameter and the total weight of all the

five masses was 70 g (Fig. 4). Ovaries were normal and no cystic structures were observed on its surface.

Post operative treatments incorporated antibiotics for seven days and fluid therapy for five days. No post-surgical complications were noticed and the dog had an uneventful recovery. Samples of vaginal mass were collected, fixed in buffered formalin (10%), routinely processed, sectioned for microscopic examination and stained with Hematoxylin and Eosin (HE). Histological examination revealed densely packed spindle-shaped cells surrounded by a moderate fibrous stroma and arranged in broadly woven bundles with a large, centrally placed, cigar-shaped nucleus. It was confirmed as leiomyoma based on the histological appearance of the tumor.



Figure - 3: Dead pups removed from uterus



Figure - 4: Vaginal leiomyoma masses

Discussion

Dystocia due to obstruction of genital tract is very rare in bitches (Liu *et al.*, 1992). Vaginal leiomyomas are benign solid tumours of the vagina. Their role in causing mechanical dystocia, leading to serious maternal and perinatal complications, though reported in human beings (Cem Dane *et al.*, 2012) is extremely rare in dogs. Vulvar and vaginal tumours account for two to three percent of neoplasms (Jubb *et al.*, 1993) and are relatively uncommon in dogs (Thatcher and Bradley, 1983). Benign smooth muscle tumours such as leiomyoma, fibroleiomyoma, fibroma and polyps generate 83 per cent of reported vaginal tumours in dogs (Thatcher and Bradley, 1983; Withrow and Susaneck, 1986). Salomon *et al.* (2004) reported that 73 to 94 per cent of vaginal tumours are benign and pedunculated often with a narrow stalk.

A relationship between leiomyomas and steroidal receptors has been extensively studied in dogs and it has been shown that smooth muscle tumors of the genital tract express steroid hormone receptors (Francisco and Bright, 2008). Sex steroid hormones have been shown to act during the three steps of the carcinogenesis cascade like initiation, promotion and progression. Millan *et al.*

(2007) reported estrogen receptors in 56.3 per cent and progesterone receptors in 84.4 per cent of canine leiomyomas. Majority of canine genital tract leiomyomas express progesterone receptors and also respond to neoadjuvant treatments with the progesterone antagonist aglepristone with a reduction in size (Rollon *et al.*, 1997).

In the present case, leiomyoma masses could have been smaller in size at the time of mating and hence posed no problem during natural mating. During the course of gestation, leiomyoma masses might have increased in size under the influence of progesterone, resulting in obstruction of birth canal during whelping, leading to dystocia.

Surgical resection of the neoplastic tissue is recommended as a treatment of choice in benign vaginal tumours (Sontas *et al.*, 2010). In benign tumours, recurrence rate was reported as zero per cent in dogs undergoing ovario-hysterectomy at the time of tumor removal, whereas when ovario-hysterectomy was not performed, local recurrence was observed at the rate of 15 per cent (Thatcher and Bradley, 1983; Withrow and Susaneck, 1986). In the current study, En-bloc ovario-hysterectomy was performed first and then the masses in anterior and posterior vagina were removed.

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