



## CASE REPORT

### Excision of a Vaginal Benign Peripheral Nerve Sheath Tumor (Schwannoma, Neurofibroma) From Abdominal Cavity in an Intact Bitch

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#### ABSTRACT

A 9 year old, intact Setter bitch weighing 26 kg with a mass which was occasionally seen by the owner from the vulvar lips is described in this case report. At the examination the mass was palpated under the skin through perineum but it could not observe from the vulva as it was located at the caudal vagina. The bitch underwent ovariohysterectomy firstly and then the mass was retracted from the vaginal wall to the abdominal cavity and was extirpated from the median line. After the operation, the excised mass was observed to be round, solid, red in colour with dimensions of 6 x 6 x 4 cm and sent to the pathology for histopathological examination. According to the histopathological evaluation, the tumor was diagnosed as benign peripheral nerve sheath tumor (schwannoma, neurofibroma). In conclusion, vaginal masses can be asymptomatic unless protruded from the vulva and they can only be discovered by chance during vaginal examination. So it is better to take into account the importance of detailed vaginal examination as the masses can be located caudally like in this case. The aim of this case report is to describe the surgical excision of a vaginal neurofibroma from abdominal cavity from a bitch which is different than other published data.

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#### INTRODUCTION

Vulvar and vaginal tumours account for 2-3% of neoplasms (Thatcher and Bradley 1983; Jubb *et al.*, 1993; Thatcher and Bradley 1983; Withrow and Susaneck 1986) and are relatively uncommon in dogs (Thatcher and Bradley 1983). Benign smooth muscle tumours such as; leiomyoma, fibroleiomyoma, fibroma and polyps generate 83% of reported vaginal tumours in dogs (Thatcher and Bradley 1983; Withrow and Susaneck 1986; Herron 1983), previous reports have shown 73-94% vaginal tumours as benign and pedunculated often with a narrow stalk (Salomon *et al.*, 2004). Peripheral nerve sheath tumors (PNSTs) arise from schwann cells, perineural fibroblasts, or both. These tumors including schwannomas and neurofibromas were classified as PNSTs by the World Health Organization (WHO) in 1999. Based on the morphologic and biologic behavior, PNSTs are divided into benign PNST (BPNST) and malign PNST (MPNST) forms with several morphological features (Chijiwa *et al.*, 2004). Benign tumors of peripheral nerve sheath origin

resembling schwannomas in humans are extremely rare in dogs and cats. They are usually solitary. They tend to occur in older dogs with a mean age of 8.3 years (Koestner and Higgins 2002). They occur more commonly on the limbs, the head, and the tail in dogs (Scott *et al.*, 2000). These tumors are well circumscribed and composed of bundles and sheets of fusiform cells that may have typical Antoni type A areas with nuclear palisading and Verocay bodies (Koestner *et al.*, 1998; Scott *et al.*, 2000; Koestner and Higgins 2002). The most common signs of vulvar/vaginal tumours are an abnormal vulval discharge or appearance of the mass outside (Thatcher and Bradley 1983). Other clinical signs may include dysuria, hematuria, tenesmus, constipation, excessive vulvar licking and dystocia (Thatcher and Bradley 1983; Withrow and Susaneck 1986; Herron 1983). In current case report vaginal neurofibroma was diagnosed but no discharge was detected. Surgical excision and ovariohysterectomy (OHE) are nearly always curative for prognosis of benign tumors (Withrow *et al.*, 2013). Although there are lots of reports (Rollon *et al.*,

2008; Sontaş *et al.*, 2010; Yuefei *et al.*, 2012; Withrow *et al.*, 2013) in dogs, this case report is aimed to describe a different surgical management in a dog with vaginal neurofibroma unlike other reports with episiotomy. According to the author's knowledge, it is the first report that describes a vaginal neurofibroma extirpation; a benign tumour, from abdominal cavity in a dog

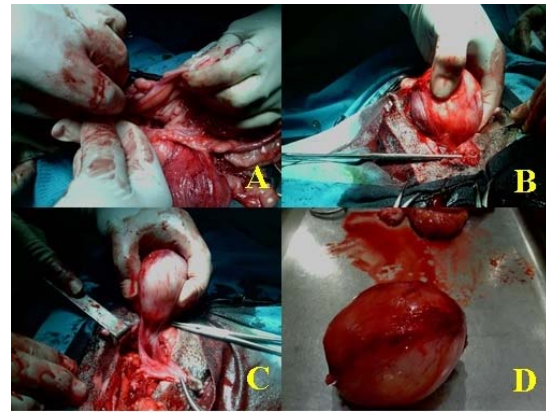
### CASE REPORT

A 9 years old Setter weighing 26 kg with the complaint of a mass occasionally seen by the owner from the vulvar lips was presented to the Department of Obstetrics and Gynaecology, Faculty of Veterinary Medicine, Istanbul University, Turkey. When the dog was referred to our clinic again, the complete blood count and biochemistry revealed normal reference ranges, only mild leukopenia was detected. The mass was felt under the skin at palpation as bulging of the perineum but it was not obviously seen outside. Only small part of the mass was felt by vaginal palpation at the vaginal wall. After the mass detection, it was decided to operate on the bitch. For induction of the anesthesia propofol (Pofol ampul®, Dongkook Pharm, Korea) at 6mg/kg dose intravenous (iv) and isoflurane (Foran liquid®, Abbott Laboratories, England) and oxygen combination was used to maintain the general anesthesia. The bitch was underwent ovariectomy firstly (Fig. 1A) and then the mass was retracted to the abdominal cavity and was extirpated from the median line due to the difficulty to access it from its location vaginally (Fig. 1B, C). The excised mass was observed to be round, solid, red in colour with the dimensions of 6 x 6 x 4 cm after the operation (Fig. 1D). For postoperative period ceftriaxone sodium (Novocéf flc.®) intramuscular (im) at a 20mg/kg dose for a week, and vitamin B and C complex (Hepargrizeovin amp.®), 1 mg/kg im Ranitidin (Ulcuran amp.®), 2.2 mg/kg Carprofen (Rimadyl tablet®) were administered to the dog. After the operation the mass was sent to Pathology Department for histopathology. One week later the dog was presented to our clinic again for control and blood sample was collected and evaluated. All the haematologic parameters were all within the reference range.

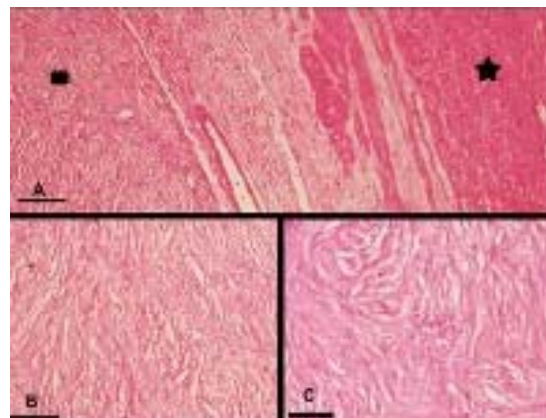
In the macroscopical examination, the tumour was found to be encapsulated, firm with solid and white appearance in cut surface. For histopathological evaluation, the tissue samples were fixed in 10% buffered formalin, embedded in paraffin wax and sectioned at 2-3µm, stained with hematoxylin and eosin (HE) for histopathology. The histological examination revealed densely packed uniform cells with elongate fusiform shapes embedded in a dense collagen matrix (Fig. 2A). The tumor was composed of dense cellular sheets arranged in interwoven bundles and in some areas they formed concentric whorls (Fig. 2B). These features are compatible with the Antoni type A pattern that is designated in schwannomas in human (Fig. 2C). Thus, the tumor was diagnosed as benign peripheral nerve sheath tumor.

### DISCUSSION

Genital tract tumours are usually seen in medium-aged non-spayed dogs and the recommended treatment



**Fig. 1:** Ovariectomy operation (A): Exteriorization of the mass from the abdominal cavity (B): The mass during the operation (C): The excised mass after the operation (D).



**Fig. 2:** Tumor site (marked with a round rectangle), muscle layer (marked with a star) (A). Densely packed, uniform, elongate, fusiform tumor cells (B). Typical Antoni type A pattern (C).

choice is the surgery (Klein, 2001) but there is a report (Rollon *et al.*, 2008) about a vaginal fibroma treated with a progesterone receptor antagonist; aglepristone, due to canine genital tract leiomyomas are reported as having high progesterone receptors (Millan *et al.*, 2007) and after the mass reduced in size by using aglepristone, it has been removed surgically in that report. In present case the bitch is also middle-aged and the mass has not been evaluated according to its receptor distribution. Surgical removal of extraluminal tumours can be dissected through a dorsal episiotomy (Thatcher and Bradley 1983; Thatcher and Bradley 1983; Hill *et al.*, 2000; Rollon *et al.*, 2008; Withrow *et al.*, 2013) as they are well encapsulated and poorly vascularized blunt dissection generally leads them remove completely (Withrow *et al.*, 2013). On rare occasions a perineal approach or a pelvic split may be required (Withrow *et al.*, 2013). In current case it was difficult to reach the tumour with episiotomy as it was located at the caudal vagina, it was decided to operate from median line. Kydd and Burnie (1986) reported out of 21 vulval and/or vaginal cases 20 of them as benign tumours. Thatcher and Bradley (1983) reported most of the benign tumours in dogs, apart from leiomyomas and fibromas; lipoma, histiocytoma, benign melanoma, myxoma, but neurofibroma was not included in their

survey. Hormonal influence on the growth of vulvar/vaginal tumours has been reported (MacLachlan and Kennedy 2002). In a previous reported case (Sontaş *et al.*, 2010) the tumour was accounted in a hysterectomized poodle dog which had an ovarian remnant, in current case the bitch was intact and hormonal background might have been acted on the formation of the mass detected in the vagina as reported by (Sontaş *et al.*, 2010). Vaginal neurofibroma (benign tumours of the peripheral nerve sheath) one of benign tumours (Thatcher and Bradley 1983; Thatcher and Bradley 1983; Kydd and Burnie 1986; Manothaiudom and Johnston 1991) was reported previously in veterinary literature in canine vagina or vulva (Thatcher and Bradley 1983; Thatcher and Bradley 1983; Kydd and Burnie 1986; MacLachlan and Kennedy 2002; Sontaş *et al.*, 2010). Surgical resection of the neoplastic tissue was recommended as a treatment choice in benign vaginal tumours (Sontaş *et al.*, 2010). As they have a good prognosis with a mean survival time of 18 months if the tumour is excised entirely (Thatcher and Bradley 1983). In benign tumours, recurrence rate was reported as 0% in dogs undergoing OHE at the time of tumour removal whereas when OHE did not perform in dogs, local recurrence was observed at a rate of 15% (Thatcher and Bradley 1983; Herron 1983; Withrow and Susaneck 1986). In current study OHE was performed firstly and then the mass was resected.

### Conclusions

In conclusion, vaginal masses are asymptomatic unless protruded from the vulva and they can only discover by chance during vaginal examination. In current case report the mass was located at caudal vagina only small part of it could be felt by vaginal palpation and it could be evaluated under the skin through perineum by external palpation. So it is better to take into account of the importance of detailed vaginal examination and another option for surgical management through midline with a vaginal mass as described in this case. According to the author's knowledge, it is the first report that describes a vaginal neurofibroma extirpation; a benign tumour, from abdominal cavity in a dog.

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