

SUCCESSFUL SURGICAL EXCISION OF VULVAR LIP MELANOMA IN A DOG

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SUMMARY

A spayed Vizsla female dog (8 years old, 30.7 kg) was presented in the clinic with a history of a tumor growing on her right vulvar lip, noticed by the owner couple for the first time nearly three weeks earlier, the pet constantly licking the affected area. The tumor grew larger, progressively. No pain perception was observed on digital palpation. On assured biosafety, evidenced by the normal blood panel, complete excision with histopathology of the excised tissue was advised to the well-informed clients. Curative surgery of the genital mass resulted in uneventful early recovery.

Keywords: Melanoma, Surgical excision, Vulvar lip growth

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Canine melanomas are frequently diagnosed tumors of the oral cavity, but vulvovaginal melanomas are reported occasionally. A retrospective study of vulvo-vaginal melanocytic neoplasms in dogs (Thacher and Bradley, 1983) revealed that most of the masses including fibroma and leiomyosarcoma were of smooth muscle, or fibrous tissue origin. Further, of the total 99 cases, 72 were classed benign, 17 malignant, and the remaining 10 transmissible venereal tumors (TVT). In the benign tumor cases, complete surgical excision in tandem with ovariohysterectomy was effective with no recurrence. Klein (2007) reported that vulvo-vaginal tumors account for 2.4-3% of all neoplasms in dogs, the second most common after mammary gland tumors. Originating from the smooth muscle (leiomyoma) in the intact nulliparous female dogs, ranging in age from 2 to 18 years (average 10.8 years), most of these masses are benign. Boxers are at increased risk.

Admittedly, the borderline between 'benign' and 'malignant' melanocytic tumors is rather thin and subject to much controversy among the veterinary oncologists (Smith *et al.*, 2002). It is, therefore, highly desirable to conform to the revised WHO tumors classification: the benign lesions designated as melanocytoma and the malignant growths, melanoma (Lacroux *et al.*, 2012). Further, in clinical practice, melanocytic tumor diagnosis often poses a formidable challenge to the consultant pathologist because a wide range of neoplastic lesions (carcinoma, sarcoma, lymphoma) look alike in the microscopic profile (Ramos-Vara *et al.*, 2000). The pathoclinical profile and therapeutic management of melanoma in dogs is reviewed in-depth by Resende *et al.* (2015). Accounting for upto 7% of all



Fig. 1. Bella Neils on the surgical table.

malignant tumors, the melanomas originate in diverse locations (Goldschmidt, 1985). Metastasis in the lymph nodes is frequently detected (Kim *et al.*, 2009).

The treatment of choice for the local cutaneous melanoma is surgical excision. The prognosis is favourable in the tumors exhibiting benign histoarchitectural profile, but is guarded for the malignant growths with high (30-70%) chance of metastasis (Aronsohn and Carpenter, 1990).

Bella Neils, 8 years in age (DOB: 1.11.2011) spayed female Vizsla dog (30.7 kg) was presented to the Milford Veterinary Clinic with a visible tumor mass in the right vulvar lip (Fig. 1) on 2.11.2019. Anamnesis revealed that the tumor mass, first noticed by the owner couple 3 weeks earlier, had markedly increased in size recently. Physical examination: rectal temperature 101.5 °F, heart rate 96 beats/minute, respiratory rate could not be determined because of panting, capillary refill time (CRT) < 2 seconds, the visible mucous membranes appeared pink.

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Table 1**Patient's haemogram* 10.12.2019 8.10 AM.**

Parameter (Unit)	Value	Range	Status
TEC ($1 \times 10^6 / \mu\text{l}$)	7.82	5.65-8.87	N
Hematocrit (%)	55.8	37.3-61.7	N
Hemoglobin (g/dl)	19.3	13.1-20.5	N
MCV (fl)	71.4	61.6-73.5	N
MCH (g/dl)	24.7	21.2-25.9	N
MCHC (g/dl)	34.6	32.0-37.9	N
RDW (%)	17.0	13.6-21.7	N
Reticulocyte ($1 \times 10^3 / \mu\text{l}$)	67.3	10-110	N
TLC ($1 \times 10^3 / \mu\text{l}$)	7.44	5.1-16.8	N
Neutrophil (%)	62.5		
Lymphocyte (%)	29.3		
Eosinophil	3.9		
Monocyte (%)	4.2		
Basophil (%)	0.1		
Neutrophil ($1 \times 10^3 / \mu\text{l}$)	4.65	2.95-11.6	N
Lymphocyte ($1 \times 10^3 / \mu\text{l}$)	2.18	1.05-5.10	N
Eosinophil ($1 \times 10^3 / \mu\text{l}$)	0.31	0.06-0.10	N
Monocyte ($1 \times 10^3 / \mu\text{l}$)	0.31	0.16-1.12	N
Basophil ($1 \times 10^3 / \mu\text{l}$)	0.01	0.00-1.10	N
Thrombocyte ($1 \times 10^3 / \mu\text{l}$)	272	148-484	N
MPV (fl)	12.5	8.7-13.2	N
PDW (fl)	12.8	0.1-19.4	N
PCT (%)	0.34	0.14-0.16	N

*Procyte Dx Auto-cell counter (IDEXX) N=Normal

The body condition score (BCS) was 3/5 with advanced dental tartar; the patient's dental cleaning under anesthesia was advised. Survey radiographs aimed to rule out metastases were declined, but pre-surgery blood work and post-surgery histopathology were accepted by the owners.

The patient was sedated with acepromazine @ 0.025-0.2 mg/kg (0.2 ml) and butorphanol tartrate @ 0.2 mg/kg (Torbugesic®, Zoetis US, Inc.) (0.5 ml), injected subcutaneously. After 30 minutes anesthesia was induced with ketamine @ 2-10 mg/kg (1.5 ml) and midazolam @ 0.1-0.3 mg/kg (1.5 ml), injected intravenously. After intubation, the dog was transferred to isoflurane gas anesthesia hooked to the auto-monitoring systems for electrocardiogram (EKG), blood pressure, O₂ levels and pulse. The surgical site was shaved and prepared.

Surgery was done by the attending pet physician (first author). Sterilized No.10 surgical blade was used to

Table 2**Blood chemistry panel* 10.12.2019 8.20 AM.**

Result	Status	Range	
Glucose (mg/dl)	108	7-143	N
Creatinine (mg/dl)	1.0	0.5-1.8	N
BUN (mg/dl)	11.0	7-27	N
BUN/ Creatinine ratio	11.0		N
Total protein (g/dl)	7.0	5.2-8.2	N
Albumin (g/dl)	3.4	2.2-3.9	N
Globulin (g/dl)	3.6	2.5-4.5	N
A/G ratio	0.9		N
ALT (U/l)	46	10-125	N
ALKP (U/l)	10	23-212	L

*Catalyst Dx Autoanalyzer

*(IDEXX). N=Normal; L=Low

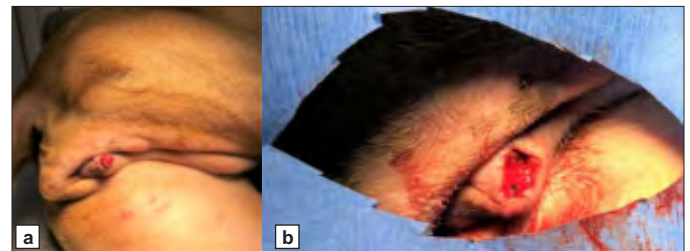


Fig. 2. (a) Close-up of the growth; (b) Surgery in progress, bleeders ligated

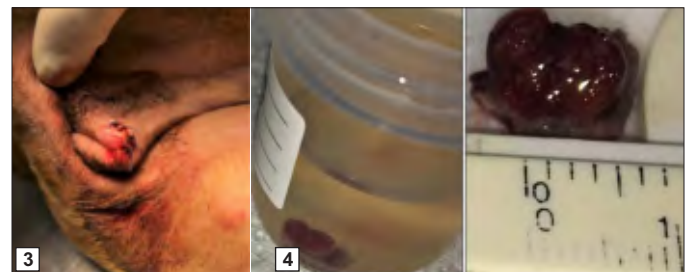


Fig. 3 & 4. (3) Normal contour after careful suturing; (4) The excised mass (R) fixed in 10% formalin (L)

incise the skin. The entire mass with safe margins (0.25-0.3 cm) all around was excised with a pair of Metzenbaum scissors. Bleeders were ligated with Monomend® (PRN Pharmacal) 3-0 absorbable sutures (Fig. 2).

Electrocautery was used with caution to block the residual capillary bleeding and destruction of any possible remaining melanoma cells, concurrently. The same 3-0 suture material was used to close the subcutaneous tissue in the simple continuous pattern.

Finally, Ethicon suture 3-0 was used to close the skin incision in simple interrupted pattern (Fig. 3), keeping the geometry of the external genitalia as normal as possible.

Non-steroid anti-inflammatory drug, Carprofen

(Rimadyl®, Zoetis US, Inc.) @ 4.4 mg/kg, and Penicillin-G @ 24,000 units/kg were injected sub-cutaneously. Take home antibiotic Cefpodoxime proxetil @ 5-10 mg/kg (Simplicef®, Zoetis US, Inc.) 200 mg tablets 1 OD for 10 days, and Rimadyl® 62.5 mg (½ of 100 mg tablet + ½ of 25 mg tablet) BID for 5 days PO with food were dispensed. The surgically excised tissue mass preserved in 10% formalin solution for 24 hr (Fig. 4) was referred to Marshfield Lab, Cleveland, OH, USA for histopathology.

Clinical history: The surgically excised mass (1.5 cm × 1.0 cm) on the vagina presented a brown cut surface with ill-defined margins.

Gross appearance: A 1.2 × 1.0 × 0.3 cm piece of haired skin with 0.8 × 0.8 × 0.5 cm ulcerated sessile mass; the cut surface brown and ill-defined.

Microscopic profile: Extensively ulcerated epidermis, penetrating cellular non-capsulated infiltrative neoplasm, spindloid cells in scanty collagenous stroma with some invading melanophages exhibiting eosinophilic cytosol with fine melanin granules. Mitotic figures 5/ten HPF (400x).

Pathologist's microscopic interpretation:

Malignant spindle cell melanoma.

Complete surgical excision of the right vaginal lip melanoma was conducted with safe margins all round after assured biosafety, evidenced by the normal haemato-biochemical profile (Tables 1 and 2). The decision for surgical ablation of the visible vaginal growth before the onset of possible metastases and lymph node involvement was highly effective. Clinical judgment on the individual case basis is of paramount importance in pet practice.

The pathologist's interpretation of the histopathological profile of the mass in the instant case was malignant spindle cell melanoma. Gross *et al.* (2005) stated that melanocytic neoplasm comprises epithelioid, spindle, mixed, dendritic and round cells. The spindle shaped melanoma predominantly exhibits spindle shaped melanocytes, densely packed or loosely arranged within an

extensive pale stroma. It is reiterated that the histopathological profile of the vaginal mass in the present case revealed locally infiltrative neoplasm: spindloid cells in scanty collagenous stroma with occasional eosinophilic cytosol with fine melanin granules. The mitotic index was 5 for the present tumor.

Definitive diagnosis of melanoma is often difficult because of the lack of specific biomarkers. Immunohistochemistry is expected to play a key role in future.

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