
**AXILLARY FLANK FOLD FLAP TO COVER A DEFECT ON REMOVAL OF A
LARGE HAEMANGIOSARCOMA ON THE ELBOW OF A DOG.**

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ABSTRACT

A ten year old Labrador was presented to the Amrita Pet Care Clinic Delhi with a history of a non healing wound on the elbow. Biopsy revealed it to a Hemangiosarcoma. Removal of tumor was planned with wide margins to ensure that the mass was removed to the maximum extent to prevent relapse. The skin defect thus created would be closed by a cutaneous skin graft to quicken healing. In less than three weeks complete resolution of the created wound was achieved. There has been no relapse in the last six months post surgery

Keywords : Hemangiosarcoma, Cutaneous skin flaps, Tumour removal

INTRODUCTION

Hemangiosarcoma (HSA) is a highly malignant tumor that affects the blood vessels in dogs. It's most commonly found in the spleen or heart, but it can also occur in other organs like the liver, lungs,

and skin. Older dogs, especially large breeds, are more likely to be affected. German Shepherds, Golden Retrievers, and Labrador Retrievers are more likely to develop Hemangiosarcoma. (Ryan Veterinary Hospital and Comprehensive care Service). It is known to be presented in as much as 5% of all malignancies of dogs. Due to their origin in blood vessels, they can spread rapidly to different parts of the body. Success of its surgery lies in wide margin excision with the skin deficit being covered by an axillary transpositional fold flap.

HISTORY

Scooby a 10-year-old Labrador was presented with a non-healing wound on his elbow (Image 1). It was treated by the primary vet as an ulcer before being presented to the clinic for a second opinion. The patient showed signs of lameness on the elbow of the left forelimb with a non-healing wound. A punch biopsy was taken to diagnose the type of neoplasm, and it



Image 1

came out to be a non-visceral skin HSA (Image 2).

CLINICAL EXAMINATION:

The edges of the wound were rough, and the entire area felt hard. It was mobile and did not seem attached to the deeper layers. Pre-surgery blood profiles, ultrasound

abdomen (Refer to Image 3 and 4) and chest x-rays were conducted to ascertain the status of the patient. Radiographs (Refer to Image 2) of both the leg and chest were taken to rule out any metastasis. The chest was clear, and no bone involvement of the humerus, radius and ulna were seen. The mass was haemorrhagic and the dog evinced pain on palpation. The temperature was normal and the mucous membranes showed no pallor. The animal was active, bright and alert and appetite was normal. ECG findings and respiratory rates were within normal limits. VHS score was 10.7. It was decided to proceed with surgical removal of the mass.



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Report

Date of Sample	27/Sep/2024	Date of Report	07/Oct/2024	Barcode ID	GU18288
Owner's Name	YOGESH	Species	Canine	Sample UID	13022
Patient's Name	SCOOBY	Age	8 Y	Breed	LABRADOR
Referred By Dr.	Dr. GAUTAM UNNY	Sex	Male		



BIOPSY

STAINING METHOD : Haematoxylin and Eosin

SPECIMEN : Growth/mass taken from left elbow region

MICROSCOPY : -The given small section is rich in neoplastic cells of mesenchyme origin, which are having highly pleomorphic and anaplastic nuclei of round to oval to oblong shapes, coarse chromatin and prominent nucleoli. Most of the cancer cells form solid or irregular vascular channels. There are also a significant number of mitosis, bi-nucleate, tri-nucleate and multinucleate giant cells. Significant inflammation, necrosis and hemorrhage are additionally seen.

Impression: Soft tissue sarcoma, likely hemangiosarcoma of high grade?

Image 2

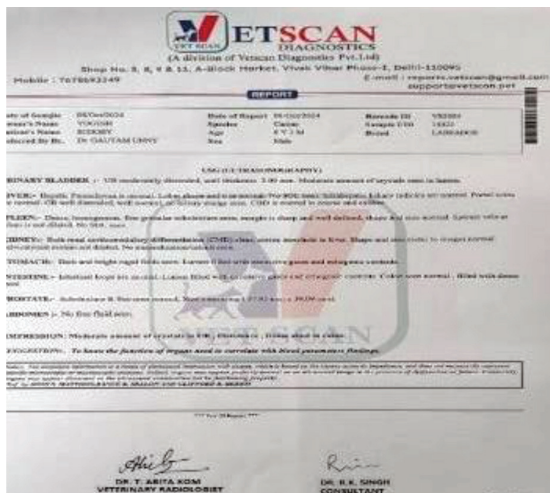


Image 3

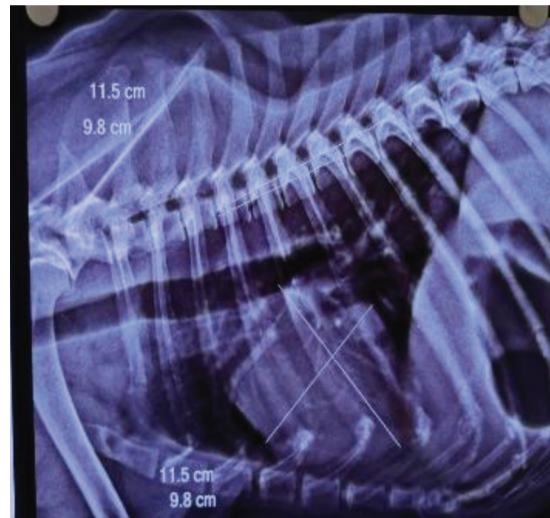


Image 4

SURGICAL DETAILS:

Pre-Anaesthesia was with xylazine @1 mg/kg and Atropine @ 0.04mg/ kg along with Meloxicam @0.15 mg/kg and Ceftriaxone @50 mg/kg. Since the patient was old, preoxygenation for 10 minutes was performed. General Anaesthesia was with Ketamine and Propofol @4 mg/kg each given slow intravenous till intubation was possible. Thereafter it was maintained with Isoflurane (250 mg/100 ml). Meticulous detailing and planning was done to minimize the possibility of leaving any HSA tissue behind. A surgical scale with marker was used after the mass was shaved and sterilized well (Refer to Image 5 and 6). Two cm margins were marked all-round the mass. The entire shoulder was clipped to be able to reflect a skin flap as it was expected that there would be a huge skin deficit.

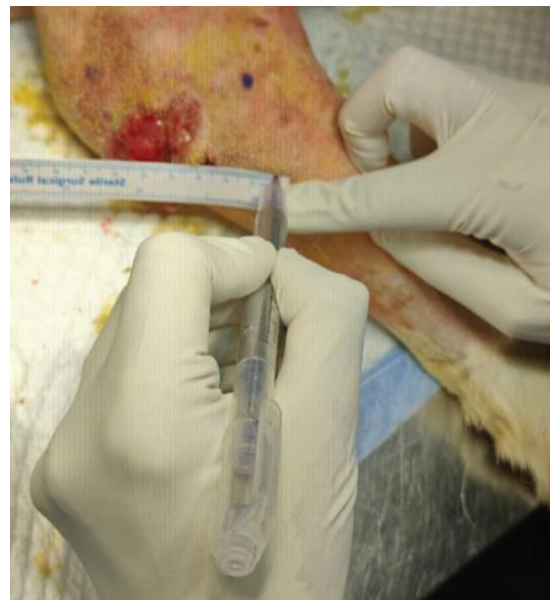


Image 5

A rotational flap was planned and area prepared accordingly. Incision was made along the pre-measured surgical margins using an electrocautery and deeper tissues were resected (Image 7). A huge skin deficit was present all around the elbow. The measured skin was cut from the shoulder in a U shape from the lateral



Image 6



Image 8



Image 7



Image 9

aspect of the upper thoracic limb (Image 8). This flap having good vascular supply was rotated distally to cover the wound.. 3-0 Nylon was used to appose the edges created by the tumor removal. Image 9). The skin on the shoulder was then apposed to close the space created by removing the flap (Refer to Image 10). A few pressure releasing cuts were made parallel to these

sutures to reduce the pressure on the suture line.

DISCUSSION:

HSA is a mesenchymal neoplasm that originates from in the endothelial cells of blood vessels. In accordance with their primary location on the body they can be classified as Visceral or Non Visceral. Non



Image 10

visceral HSAs affect the skin, subcutis and muscles. Visceral can affect the spleen, liver, lungs, kidneys, oral cavities, uterus, tongue, bones, bladder and retroperitoneum. As in this case these tumors of the skin mostly affect patients that are middle aged between 8 to 15 years without gender predisposition. (De Nardi AB *et al.*) Solar radiation is said to be a common cause for cutaneous form of this neoplasm.

Treatment options are mostly surgical with wide margins providing the best rates of success (Pimentel PAB)³ There are though many papers that suggest electrochemotherapy (ECT) as a good alternative. Bleomycin is the drug of choice in ECT treatments (De Nardi AB *et al.*)⁴ Doxorubicin is the first choice as a chemotherapeutic agent. Radiotherapy is not the first choice of follow up post-surgery. A few studies have been done on Cryosurgery as an alternative, but more research is needed. Vitamin B3,

and C, Cannabis derivatives and Omega fatty acids have been associated with photoprotective activity of the skin and hence they can be used as supplementary treatment protocols. Commercially available polysaccharopeptide extract from the *Coriolus versicolor* mushroom called I'm Yunity has shown benefit in treating patients with hemangiosarcoma (Comprehensive Cancer care Society). The average mean survival time with HSA ranges from 3 months to 1 year (Chaikin *et al.*). The survival time depends mostly on the degree of invasiveness of the tumor and the potential of metastasis due to the vascular nature of the neoplasm.



Image 11

SUMMARY

Wide margin excisions is indicated for all tumors especially those seen to be malignant in FNAC samples. Complete resection will avoid recurrence and even help in avoidance of future chemotherapy. Each type of tumor has a specific margin of skin to be removed. Regular follow up with ultrasounds and chest X rays are a must to check potential metastasis in the patient.

OUTCOME

The skin graft (Refer to Image 11) showed complete healing by day 21.

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