



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2019; 7(4): 940-942

© 2019 JEZS

Received: 23-05-2019

Accepted: 25-06-2019

K Basava Reddy

Assistant Professor,
Sri Venkateswara Veterinary
University, Tirupati,
Andhra Pradesh, India

M Bhargavi

Ph.D. Student, Department of
Veterinary Medicine, NTR
C.V.Sc, Gannavaram,
Andhra Pradesh, India

V Rayala Reddy

Veterinary Assistant Surgeon,
Veterinary Dispensary, K.
Kothapeta, Andhra Pradesh,
India

G Kamalakar

Assistant Professor,
Department of Veterinary
Surgery and Radiology, College
of Veterinary Science, Tirupati,
Andhra Pradesh, India

Correspondence

G Kamalakar

Assistant Professor,
Department of Veterinary
Surgery and Radiology, College
of Veterinary Science, Tirupati,
Andhra Pradesh, India

Hemangiosarcoma of the liver and spleen in Dogs: A report of 3 cases

K Basava Reddy, M Bhargavi, V Rayala Reddy and G Kamalakar

Abstract

In the present study, hemangiosarcoma of the liver and spleen was reported in three dogs. Most common clinical signs noticed were lethargy, anorexia, weight loss and pale mucous membrane. Haematology revealed anaemia, Neutrophilia and thrombocytopenia. Tentatively, the anomaly was diagnosed based on ultrasonographic examination of the liver and spleen. The prognosis was grave in all the three dogs. Histopathology of the liver and spleen collected during the necropsy revealed the presence of malignant spindle cells, haemorrhages, necrosis and degenerating hepatocytes.

Keywords: Dogs, ultrasonography, hemangiosarcoma, histopathology

1. Introduction

Hemangiosarcoma is a malignant tumour originated from either the vascular endothelium or endothelial precursor cells ^[1] and is highly aggressive in nature ^[2]. Hemangiosarcoma may be a primary or secondary (metastatic) tumour ^[3]. Primary hemangiosarcoma has predilection to any vascularised site in the body. However, the most common site of origin is the spleen besides other sites like liver, right atrium, muscle, pericardium, muscle, lung, skin, subcutis, bone, kidney, central nervous system, peritoneum, oral cavity, nasal cavity, eye, and many others ^[3]. Hemangiosarcoma is most commonly encountered in older dogs and the breeds predisposed included German Shepherds, Golden Retrievers and Labrador Retrievers ^[3, 4]. Patients with hemangiosarcoma are mostly presented with clinical signs such as lethargy, weakness, pale mucous membrane, weight loss, abdominal pain and enlargement, dyspnoea etc. ^[5]. Clinical, haematological, ultrasonography and histological examination aids in the diagnosis of hemangiosarcoma. Majority of the affected dogs have grave prognosis. Although surgery and chemotherapy are the treatment options for this at an early stage, they have limited success in prolonging the life in the advanced stages ^[6]. In the present study, clinicohematological, ultrasonographic and histopathological findings of hemangiosarcoma in three dogs were described.

2. Materials and Methods

A total of two German Shepherd bitches (9 and 8 years old) and one Labrador Retriever (9 years old) dog were presented to Veterinary Hospital, Visakhapatnam, Andhra Pradesh with symptoms of lethargy, anorexia, chronic weight loss, pale mucous membranes in 3 dogs and limping of hindlimb in one dog. Detailed clinical examination was done. Whole blood was collected from three patients in EDTA vials for the estimation of haemoglobin (Hb), packed cell volume (PCV), total erythrocyte count (TEC), total leukocyte count (TLC), differential leukocyte count (DLC) and platelet count. Serum was analysed for blood urea nitrogen, serum creatinine levels, alkaline phosphatase (ALP) and alanine transaminase (ALT) levels in all the three dogs. Palpation revealed tensed abdomen and some hard structures in cranial abdomen. Abdominal ultrasonography was performed to rule out any Organomegaly and space occupying lesions. Owners opted for euthanasia since the prognosis was grave for all the three dogs. During necropsy, specimens were collected and subjected to histopathological (Hematoxylin and eosin staining) examination.

3. Results and Discussion

In the present study, the breeds affected included German shepherd and Labrador retriever. The prominent clinical findings noticed were lethargy, anorexia, weight loss, pale mucous

membranes in 3 dogs and limping of hindlimb in one dog. Detailed clinical examination was done. Whole blood was collected from three patients in EDTA vials for the estimation of haemoglobin (Hb), packed cell volume (PCV), total erythrocyte count (TEC), total leukocyte count (TLC), differential leukocyte count (DLC) and platelet count. Serum was analysed for blood urea nitrogen, serum creatinine levels, alkaline phosphatase (ALP) and alanine transaminase (ALT) levels in all the three dogs. Palpation revealed tensed abdomen and some hard structures in cranial abdomen. Abdominal ultrasonography was performed to rule out any organomegaly and space occupying lesions. Owners opted for euthanasia since the prognosis was grave for all the three dogs. During necropsy, specimens were collected and subjected to histopathological (hematoxylin and eosin staining) examination.

4. Results and Discussion

In the present study, the breeds affected included German shepherd and Labrador retriever. The prominent clinical findings noticed were lethargy, anorexia, weight loss, pale

mucous membrane as were also reported by Ng and Mills [5] and Yamamoto *et al.* [2] and hindlimb weakness with limping in one dog as reported by Fabbi *et al.* [7]. Haematology revealed anaemia, neutrophilia, leucocytosis and thrombocytopenia in all the three dogs (Table 1) which were in accordance with the findings of Ng and Mills [5] and Fabbi *et al.* [7]. Serum biochemistry revealed increased ALP and ALT which might be due to the ongoing malignant changes of the internal organs [4]. In one patient, the abdominal ultrasonography revealed splenomegaly with the presence of hypoechoic to anechoic masses (Fig. 1) as reported earlier by Wrigley *et al.* [8]. In the second patient, hepatomegaly and the presence of hypoechoic to anechoic mass in the liver (Fig. 2) were viewed on ultrasonography. While in the third patient, abdominal ultrasonography revealed the involvement of both the liver and spleen. Histopathology of the spleen depicted haemorrhages, necrosis (Fig. 3) as reported earlier by Ahlyum *et al.* [9] and malignant spindle cells (Fig. 4) while the liver showed degenerating hepatocytes with malignant changes (Fig. 5).

Table 1: Haemato-Biochemical parameters of three dogs with hemangiosarcoma

Parameter	Case No.5974 (German shepherd)	Case No.7992 (German shepherd)	Case No.8204 (Labrador retriever)
Hb (gm %)	3.5	4.7	3.4
PCV (%)	8.3	11.4	8.4
TEC ($10^6/\mu\text{l}$)	1.34	1.58	1.76
TLC ($10^3/\mu\text{l}$)	23.6	19.3	25.1
Neutrophils (%)	90	88	91
Eosinophils (%)	1	1	-
Basophils (%)	1	-	-
Lymphocytes (%)	8	10	8
Monocytes (%)	-	1	1
Platelets ($10^3/\mu\text{l}$)	38	29	11.6
BUN (mg/dl)	15.49	24.3	26.8
Creatinine (mg/dl)	0.7	1.06	1.2
ALP (IU/L)	665	590	564
ALT (IU/L)	154	186	162



Fig 1: Abdominal sonogram showing hypoechoic mass in spleen.

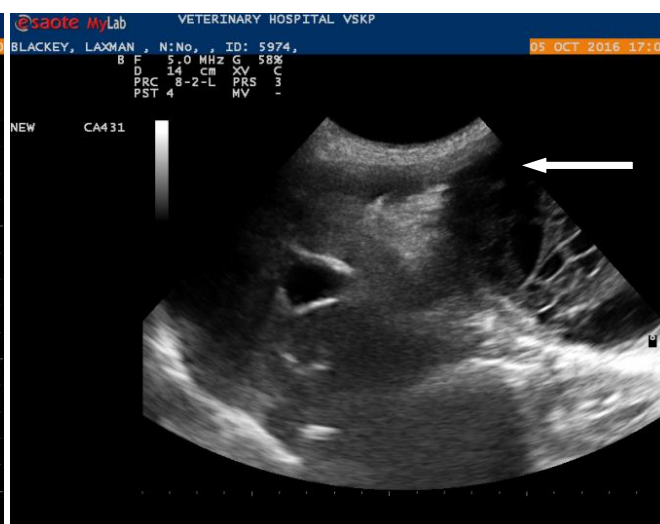


Fig 2: Abdominal sonogram showing hypoechoic mass in liver

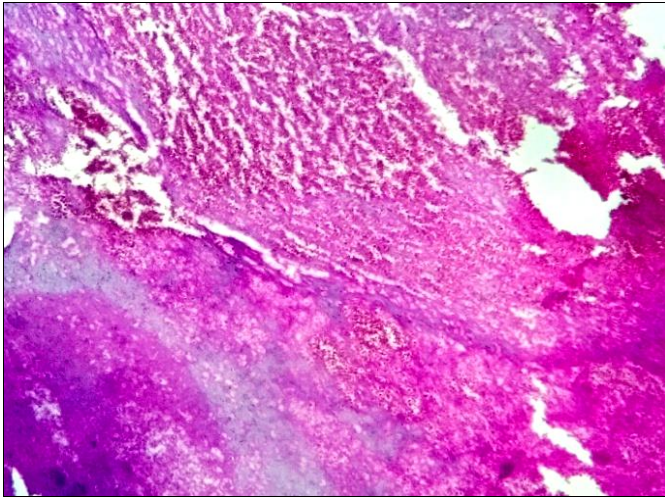


Fig 3: Photomicrograph of the tumour in spleen showing haemorrhages and necrosis of parenchyma. H & E (40 X).

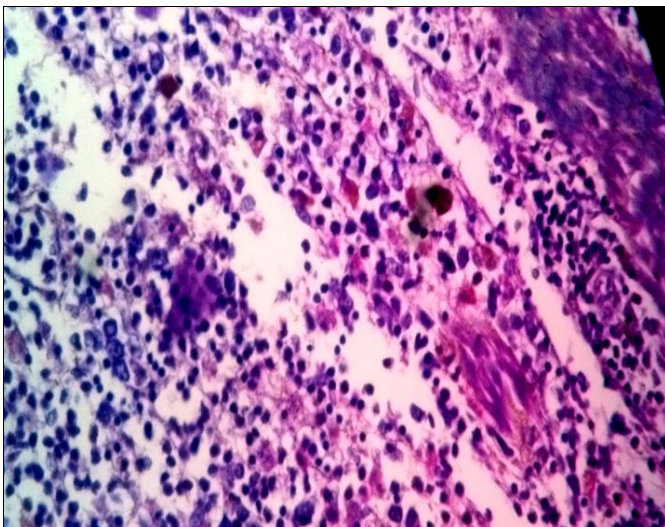


Fig 4: Photomicrograph of the spleen- inferior aspect showing lymphoid tissue representing spleen and superior areas showing malignant spindle cells. H & E (100 X).

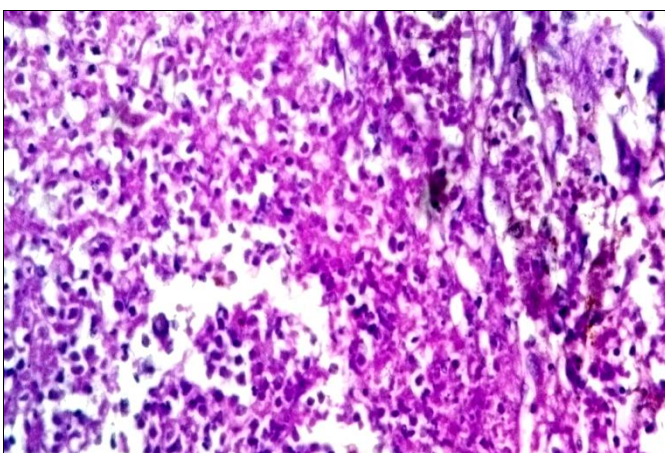


Fig 5: Photomicrograph of the liver – inferior aspect showing degenerating hepatocytes and superior areas showing malignant spindle cells. H & E (100 X).

5. Conclusion

From the above findings of the present study, it was concluded that abdominal ultrasonography aids in tentative diagnosis of hemangiosarcoma while histopathology of the spleen and liver depicted the various malignant changes.

6. References

1. Lamerato-Kozicki AR, Helm KM, Jubala CM, Cutter GC, Modiano JF. Canine hemangiosarcoma originates from hematopoietic precursors with potential for endothelial differentiation. *Experimental Haematology*. 2006; 34:870-878.
2. Yamamoto S, Hoshi K, Hirakawa A, Chimura S, Kobayashi M. and Machida N. Epidemiological, Clinical and Pathological Features of Primary Cardiac Hemangiosarcoma in Dogs: A Review of 51 Cases. *Journal of Veterinary Medical Science*. 2013; 75(11):1433-1441.
3. Bergman PJ, Hemangiosarcoma. In: *Text Book of Veterinary Internal Medicine: Diseases of Dog and Cat*. 7th Edn. W.B. Saunders Company, Philadelphia, 2010, 2175-2180.
4. Brown NO, Patnaik AK, MacEwen EG. Canine Hemangiosarcoma: Retrospective analysis of 104 cases. *Journal of American Veterinary Medical Association*. 1985; 186:56-58.
5. Ng CY, Mills JN. Clinical and haematological features of hemangiosarcoma in dogs. *Australian Veterinary Journal*. 1985; 62:1-4.
6. Thamm DH. *Small Animal Clinical Oncology*. Edn.5, Elsevier Saunders, Missouri, 2013, 679-683.
7. Fabbi M, Di Palma S, Manfredi S, Gnudi G, Miduri F, Daga E *et al*. Imaging Diagnosis-Ultrasonographic Appearance of Skeletal Muscle Metastases In A Dog With Hemangiosarcoma. *Veterinary Radiology and Ultrasound*. 2016; 12(2):01-4.
8. Wrigley RH, Park RD, Konde LJ, Lebel JL. Ultrasonographic features of splenic hemangiosarcoma in dogs. *Journal of American Veterinary Medical Association*. 1988; 192(8):1113-7.
9. Ahlyum, Mun, Eun-Mi, Lee, Ah-Young, Kim, Eun-Joo, Lee *et al*. Canine hemangiosarcoma in a female Jindo dog. *Laboratory Animal Research*. 2011; 27(4):361-363.