

DIAGNOSIS AND MANAGEMENT OF BENIGN SPLENIC TUMOR IN A GERIATRIC MALE LABRADOR RETRIEVER DOG

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SUMMARY

A nine-year-old male Labrador retriever dog was presented with the anamnesis of inappetence, frequent vomiting, labored respiration and sudden weight loss. On clinical examination, it revealed fluctuating hard masses in the abdominal region. For further diagnosis radiography, ultrasonography, electrocardiogram, complete blood count and biochemical analysis were performed. Due to possible risks of internal bleeding, fine needle biopsy was avoided. The animal underwent investigations for metastasis and other systemic involvement and found absent. After medical stabilization, dog underwent splenectomy.

Keywords: Benign splenic tumor, Canines, Labrador retrievers, Splenectomy

In current scenario, benign as well as malignant neoplasms are commonly encountered cases in canine practice. Splenic neoplasms are commonly reported from middle-aged and older dogs, with clinical signs ranging from simple inappetence to even life-threatening hemo-abdomen (Cleveland *et al.*, 2016). Golden retriever, Labrador retriever and German shepherd are the most susceptible canine breeds (Hammond and Pesillo-Crosby, 2008). Usually a splenic tumor arises from the vascular endothelium and often develops into a large space occupying mass within the spleen (Ballegeer *et al.*, 2007).

A nine-year-old male Labrador retriever dog was presented to the Teaching Veterinary Clinical Complex, Sardar Krushinagar Dantiwada Agricultural University, Gujarat, India with the history of inappetence, frequent vomiting, exercise intolerance and sudden body weight loss (4 kg in one month). Animal showed mildly elevated temperature (102.8 °F) along with labored respiration (75/min). Mucous membrane of the affected dog was pale pink and capillary refill time was less than 2 seconds. On palpation prescapular, prefemoral and popliteal lymph nodes were found to be normal in size. On auscultation of thorax, significant cardiac arrhythmia was noticed. On abdomen palpation, hard mass was noticed on left-side towards cranial region of abdomen. On careful palpation, the mass was found to be fluctuating and pain was also elucidated.

Electrocardiogram exhibited variable R-R interval (Average 580 ms) and low QRS complex (Average 1.13 mV) (Fig. 1). The dog was further subjected for lateral abdominal and thoracic radiography. Lateral radiograph of abdomen revealed a round mass in left cranial region of

abdomen and absence of hemo-abdomen (Fig. 2). On thoracic radiograph, no obvious metastatic lesion was found and thoracic organs were in normal structure and shape. For characterization and identification of abdominal mass, ultrasonography was performed. On very first examination, spleen revealed a mass of hypoechogenicity to surrounding tissue with multiple central nodular appearance (Fig. 3). Borders of mass were also ill defined. Other splenic parenchyma revealed moderately heterogenicity. For better identification of mass, again ultrasonography was performed after one week and spleen revealed a central hyperechoic area (fibrotic mass) surrounded by a clear fluid (anechoic area of cystic degeneration) (Fig. 4). Ultrasound-guided biopsies were not considered safe for hemangioma or benign splenic tumor because of the risk of hemorrhage and cavitated nature of the masses (Day *et al.*, 1995). Due to possible risks for bleeding diathesis, fine needle biopsy was not performed. A tentative diagnosis of hemangioma or benign splenic tumor was done based on ultrasonographic characteristic of scanned abdominal mass. The owner was advised to go for splenectomy for saving the animal.

Before going into elective splenectomy, presence of cardiac arrhythmia were needed to be stabilized. For that Tab. Cardio support®-Vetina (L-carnitine, taurine, hawthorn extract, eleuthero extract, potassium, magnesium, arjuna extract, coenzyme Q10, vitamin E) @ 1 tablet per 10 kg b.wt. S.I.D), Tab. Ranitidine @ 0.5 mg per kg b.wt. B.I.D, Tab. Carprofen @ 2.0 mg per kg b.wt. B.I.D and Multivitamins syrup @2 tsf. p.o. B.I.D) were prescribed for next two weeks. After two weeks of medicinal therapy, again electrocardiography was performed and frequency of the invariable R-R interval (Average 512.4 ms) was reduced as compared to previous results (Fig 5). Clinically also

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Table 1

Hematobiochemical parameters of affected canine

Hematobiochemical parameters	Estimated Values	Normal Range
Hb (g/dl)	11.0	14-16
HCT (%)	33	41-58
WBC (per μ L)	9000	5700-8500
PLT (per μ L)	2,80,000	195000-625000
Cholesterol (mg/dl)	238.0	135-270
Creatinine (mg/dl)	0.85	0.5-1.5
ALT (U/L)	78	21-102
ALP (U/L)	287.2	20-156



Fig. 1. Lead I, II and III showing variable R-R interval with low QRS complex



Fig.2. Abdominal radiograph indicating of roundish mass in left cranial abdomen



Fig.3. On ultrasonography scan spleen showing multiple centric nodular appearance with ill defined margin

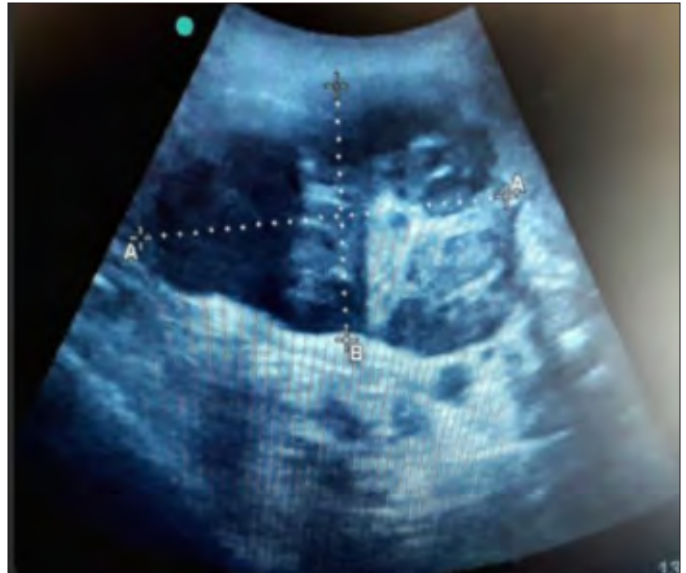


Fig. 4. Spleen showing centrally hyperechoic area (probably consist of fibrin mass) surrounded by anechoic fluid (blood filled cystic degeneration)

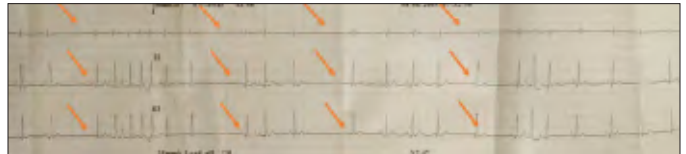


Fig. 5. Reduction in the frequency of variable R-R interval was noticed along with peaked T wave

respiration and heart rate were improved. So animal was subjected to splenectomy. At the end of splenectomy, large splenic mass was removed. After splenectomy, animal was recovered within 5 days and started feeding normally. Post-operative management was done with Inj. Ceftriaxone @ 25 mg per kg b.wt and Inj. Meloxicam @ 0.5 mg per kg b.wt. Further, no more episodes of vomiting were recorded.

Any benign splenic tumor should be differentiated from hemangiosarcoma, canine lymphoma, splenic congestion, extra medullary hematopoiesis (Dongaonkar *et al.*, 2019). On radiograph, usually spleen remain masked or superimposed with left liver lobe and make it difficult to distinguish from liver pathology (Muhlbauer and Kneller, 2013). Ultrasonography definitely helps clinicians to distinguish the origin of the lesion either it is the form hepatic origin or splenic origin (Nyland *et al.*, 2002). Based on gray scale ultrasonography, it is difficult to distinguish between benign vs malignant lesion (Ballegeer *et al.*, 2007). Even recent research reveals that neoplastic and non-neoplastic splenic lesions had the similar ultrasonographic appearance (Cuccovillo and Lamb, 2002; Eberhardt *et al.*, 2015). In our case also, we could able to detect the origin of mass from spleen only. However, mixed echogenic pattern did not specify the mass for its malignancy. For identification of splenic lesion, fine needle aspiration is

required (O'Keefe and Couto, 1987). One study suggests that splenic cytology correctly identified the underlying problem in 61% of cases only (Christensen *et al.*, 2009). Due to possible risks of hemorrhage, senility of animal and limitation of fine needle cytology to detect actual cause in every case render us to perform fine needle biopsy.

We stabilized the patient by administrating cardiac supplement, NSAID and H2 receptor antagonist. Anti-neoplastic medicine like doxorubicin, lomustine, cyclophosphamide was indicated for splenic tumor cases. However, all these drugs possess severe cardiotoxicity and its use is contraindicated in cardiac compromised patients (Csapo and Lazar, 2014). In our case also, the dog exhibited severe cardiac arrhythmia on electrocardiography and make it a poor subject for utilization of existing chemotherapy. Most of cases of splenic tumor reported under emergency condition with severe anemia and hemoperitoneum where the survival rate is very low. Usually most of canine practitioner went for partial or complete splenectomy in enlarged splenic mass (> 2 cm diameter) to prevent acute life-threatening emergency condition (Cleveland and Casale, 2016).

In our case, we went for complete splenectomy to prevent the animal go into an emergency and we could able to save the life of an animal before rupture of the underlining lesion.

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