

EVALUATION OF THE EFFICACY OF LIV.52[®] PET LIQUID ON LIVER ENZYMES IN DOGS: A CASES SERIES STUDY

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ABSTRACT

This case series study reports two cases of dogs that presented at a pet clinic with a history of irregular appetite. Detailed investigation of serum biochemical parameters revealed that the levels of gamma-glutamyl transferase (GGT) and serum glutamic-oxaloacetic transaminase (SGOT) were higher than the normal reference range, indicating early signs of hepatic injury. Furthermore, the activity level of the dogs was found to be subnormal. Treatment consisting of supplementation with Liv.52[®] Pet Liquid 10 mL twice daily ameliorated the initial symptoms of hepatic injuries over a span of 15 to 21 days, as evident from the decreased serum GGT and SGOT levels within the reference range in the respective cases. Furthermore, Liv.52[®] Pet Liquid played a crucial role in appetite enhancement and improvement in the dogs' activity levels. Hence, pet practitioners could choose Liv.52[®] Pet Liquid as a hepatoprotective agent and appetite enhancer in canines.

Keywords: *Liv.52[®] Pet Liquid, GGT, SGOT, Activity Level, Hepatoprotective, Appetite*

INTRODUCTION

The liver of a dog is an important organ that helps with digestion, metabolism, detoxification, vitamin and trace mineral storage, and immunogenic protection, among other things. Liver health affects dogs of all ages, accounting for 3% of all ailments (Hardy, 1983). Furthermore, the liver's dual circulatory system and high blood flow make it doubly vulnerable to damages than other organs (Cooper, 2006). Liver health is usually caused by toxins, infections, metabolic, immune-mediated, and neoplastic origins (Cornelius and Bjorling, 1992). In this instance, dogs exhibit signs of loss of appetite, dullness, and lack of activity, while serum biochemistry tests demonstrate increased liver enzymes. Conventional and modern herbal therapies can often be used to treat and manage liver problems. The hepatoprotection provided by conventional and synthetic medications used to treat liver illnesses is insufficient, and these drugs can occasionally have major side effects (Rao *et al.*, 2006). Ayurveda provides a range of useful and safe medicinal remedies for the treatment of liver problems in animals in the absence of dependable hepatoprotective medications in modern medicine (Chatterjee, 2000).

Himalaya Wellness Company (Bengaluru, Karnataka, India) developed Liv.52[®] Pet Liquid, a proprietary polyherbal liver tonic is claimed to offer hepatoprotective properties, healthy growth, and development in pets of all ages

We present a case study of two adult dogs that were diagnosed with liver problems (elevated liver enzyme levels) and were successfully treated (to normalize liver enzyme levels) with Liv.52[®] Pet Liquid.

CASES

Case I

Case history and clinical observations: A 5-year-old female dog was presented at Ganesh Pet Clinic, Bengaluru, Karnataka, with a history of irregular appetite ailments. Thorough investigation indicated that the level of serum gamma-glutamyl transferase (GGT) was found to be higher than the reference range

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(Table 1). Physical examination revealed that the dog was moderately active (i.e., dull and depressed; Figure 1).



Figure 1: Adult female dog with appetite ailment

Table 1: Serum biochemical profile of the dog in case study I

Case Study I: Pet name: Lekha, Female, 5 Years				
Parameter	Reference Range	Before Treatment	15 Days after Treatment	21 Days after Treatment
SGPT (U/L)	10–125	33.35	24.21	33.68
SGOT (U/L)	0–50	35.18	32.24	34.10
Creatinine (mg/dL)	0.50–1.80	1.17	0.70	0.90
BUN (mg/dL)	07–27	22.60	16.40	23.80
Total protein (g/dL)	4.80–8.20	5.87	4.86	5.10
Albumin (g/dL)	2.10–4.00	2.89	2.75	2.90
Globulin (g/dL)	2.70–4.40	3.00	2.10	2.20
A/G ratio	1.00–2.10	1.00	1.30	1.20
Total bilirubin (mg/dL)	0–0.90	0.13	0.17	0.12
Direct bilirubin (mg/dL)	0–0.30	0.06	0.02	0.05
Indirect bilirubin (mg/dL)	0–0.40	0.07	0.15	0.07
ALP (IU/L)	23–212	159.96	25.30	156
GGT (IU/L)	0–11	12.18	0.80	2.50
WBC (thousands/ μ L)	5050–16,760	5100	7100	7500
RBC (million/ μ L)	5.65–8.87	9.59	11.38	9.07

Abbreviations: A/G, albumin/globulin; ALP, alkaline phosphatase; BUN, blood urea nitrogen; GGT, gamma-glutamyl transferase; RBC, red blood cell; SGOT, serum glutamic-oxaloacetic transaminase; SGPT, serum glutamic-pyruvic transaminase; WBC, white blood cell.

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Case II: A three-year-old female dog was presented at Ganesh Pet Clinic, Bengaluru, Karnataka with the history of irregular/poor appetite ailments. On through investigations, the serum glutamic-oxaloacetic transaminase (SGOT) was found to be higher than the reference range (Table 2). On physical examination dog activity level was found to be non-active *i.e.* sluggish and lethargy (Figure 2).



Figure 2: Adult female dog with appetite ailment

Table 2: Serum biochemical profile of the dog in case study II

Case Study II: Pet name: Savi, Female, 3 Years				
Parameter	Reference Range	Before Treatment	15 Days after Treatment	21 Days after Treatment
SGPT (U/L)	10–125	38.01	44.96	28.3
SGOT (U/L)	0–50	62.39	55.53	47.16
Creatinine (mg/dL)	0.5–1.8	0.77	0.8	0.85
BUN (mg/dL)	07–27	15.8	19	22.6
Total protein (g/dL)	4.8–8.2	5.93	6.01	4.9
Albumin (g/dL)	2.1–4	2.77	3.14	2.8
Globulin (g/dL)		3.2	2.9	2.1
A/G ratio	1–2.1	0.9	1.1	1.3
Total bilirubin (mg/dL)	0–0.9	0.11	0.2	0.1
Direct bilirubin (mg/dL)	0–0.3	0.06	0.07	0.05
Indirect bilirubin (mg/dL)	0–0.4	0.05	0.13	0.05
ALP (IU/L)	23–212	96.72	134.67	90.9
GGT (IU/L)	0–11	6.29	8.7	2.9
WBC (thousands/ μ L)	5050–16,760	6200	4400	8100
RBC (million/ μ L)	5.65–8.87	8.12	7.78	7.27
Hemoglobin (gm %)	13.1–20.	18.2	17	15.6

Abbreviations: A/G, albumin/globulin; ALP, alkaline phosphatase; BUN, blood urea nitrogen; GGT, gamma-glutamyl transferase; RBC, red blood cell; SGOT, serum glutamic-oxaloacetic transaminase; SGPT, serum glutamic-pyruvic transaminase; WBC, white blood cell.

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DISCUSSION

Both dogs were prescribed Liv.52[®] Pet Liquid 10 mL twice daily until complete recovery was noted over consecutive days. The owner was advised to feed the dogs Pedigree weekly, chicken bones once, and chicken and rice on a regular basis. The owner was instructed to present their dogs for weekly follow-up. In case I, the adult dog with a higher level of serum GGT (12.18 IU/L) than the normal reference range before treatment, the GGT level decreased within the normal range (0.8 IU/L) after 15 days of treatment with Liv.52[®] Pet Liquid. Similarly, in case II, the serum SGOT levels that were higher than the reference range were brought back to normal after 21 days of treatment (47.16 U/L) with Liv.52[®] Pet Liquid. Furthermore, both dogs had improvement in food intake and activity level after treatment with Liv.52[®] Pet Liquid.

In a dog with renal carcinoma, a significant increase in serum GGT was previously documented (Whitehead *et al.*, 2012). An increased GGT level was also indicated in three case reports of canine renal carcinoma at the time of diagnosis (Bennett 2004, Lee *et al.*, 2005, Kye *et al.*, 2011). Hence, the elevated level of serum GGT in our case could be due to initial symptoms of renal carcinoma. Higher SGPT and SGOT readings were found to be attributable to hepatic insufficiency, with hepatic damage resulting in enzyme leakage from hepatocytes into the bloodstream (Cornelius *et al.*, 1975). Therefore, the elevated levels of serum SGOT levels in our case II could be attributable to liver injuries due to unknown reasons.

CONCLUSION

This case series demonstrates treatment consisting of supplementation with Liv.52[®] Pet Liquid 10 mL twice daily ameliorated the initial symptoms of renal carcinoma and hepatic injury over a span of 15–21 days. Furthermore, Liv.52[®] Pet Liquid played a crucial role in appetite enhancement and improved the activity levels of the dogs. Hence, Liv.52[®] Pet Liquid could be recommended as a natural hepatoprotective agent and appetite enhancer in canines.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare.

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