



## STUDY ON THE CHANGES IN HEMATOLOGICAL AND BIOCHEMICAL PARAMETERS IN DOGS WITH LIVER DISEASES

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**Abstract:** In this paper, we investigated how liver diseases in dogs affect hematological and biochemical parameters. We observed leukocytosis with neutrophilia while eosinophils and basophils remained unchanged. Regarding the biochemical exam, we observed that ALP and ALT levels increased in all studied cases, AMY remained unchanged, TBIL increased and TP decreased (hypoproteinemia with hypoalbuminemia).

### • Introduction

Liver disease is relatively common in dogs and can affect all breeds and ages. There are numerous causes that lead to this condition, including genetic factors, prolonged consumption of fatty foods, ingestion of toxic substances, viral infections, bacterial infections, advanced age, and more.

Depending on the cause, liver diseases can occur at any point in a dog's life. In some cases, the condition is reversible once the cause is eliminated.

### • Material and method

The materials used for this study consisted of laboratory equipment and a group of 10 dogs showing clinical signs associated with liver diseases (Table 1).

The laboratory equipment used included: Abaxis biochemistry analyzer, Abaxis hematology analyzer, catheters, vacutainers, centrifuge, and automatic pipette.

### • Results and discussions

Regarding the WBC, we observed leukocytosis in 5 out of the 10 cases studied. This increase in leukocyte count indicates an immune response in hepatic pathology. Neutrophilia was present in 6 of the 10 cases, supporting the generally inflammatory nature of hepatic disorders. Eosinophils and basophils remained unchanged in all cases, suggesting that allergic or parasitic mechanisms were not involved in the hepatic diseases observed in these dogs.

ALP and ALT levels were elevated in all 10 cases, with variations depending on the underlying cause. These elevations reflect structural and functional damage to the hepatic parenchyma and bile ducts. TBIL levels increased in 4 of the 10 cases, supporting the observation that jaundice (hepatic in origin) frequently accompanies liver disease, particularly in acute forms.

### • Conclusions

At the level of WBC we observed leukocytosis with neutrophilia, lymphocyte and monocyte counts showed both increases and decreases depending on the case, while eosinophils and basophils levels remained unchanged. Variations were noted in RBC count, hemoglobin, and hematocrit values. At the level of biochemical parameters, ALP and ALT levels were elevated in all cases, confirming hepatic involvement. TBIL was increased in cases presenting with jaundice, Protein metabolism analysis revealed hypoproteinemia with hypoalbuminemia.

Table 1. Dogs included in our study

Case	Breed	Age	Liver diseases
1	Poodle	7 years	Acute hepatitis
2	Teckel	4 years	Chronic hepatitis
3	Yorkshire Terrier	5 months	PSS
4	Labrador	10 years	Cirrosis
5	Pomeranian	11 years	Chronic hepatitis
6	Boxer	9 years	Liver cancer
7	Cocher spaniel	6 years	Acute hepatitis
8	Golden Retriever	8 years	Chronic hepatitis
9	German Shepherd	4 years	Acute hepatitis
10	Bichon	4 months	PSS