

## Short Communication

# Therapeutic Intervention of Chronic Kidney Disease Associated with Multiple Complications in a Labrador

Rofique Ahmed<sup>1\*</sup>, Mrinal Kumar Nath<sup>1</sup>, Utpal Barman<sup>2</sup>, Deepa Lahkar<sup>1</sup>, Syed A. Arif<sup>2</sup>, Abhilasha Sharma<sup>1</sup>, Pubaleem Deka<sup>1</sup>, Ritam Hazarika<sup>3</sup> and Arjyarittik Kalita<sup>4</sup>

<sup>1</sup>Dept. of Veterinary Epidemiology and Preventive Medicine, College of Veterinary Science, Assam Agricultural University, Assam, India

<sup>2</sup>Dept. of Clinical Medicine, Ethics and Jurisprudence, College of Veterinary Science, Assam Agricultural University, Assam, India

<sup>3</sup>Dept. of Animal Biotechnology, Assam Agricultural University, Assam, India

<sup>4</sup>Dept. of Animal Reproduction, Gynaecology & Obstetrics, College of Veterinary Science, Assam Agricultural University, Assam, India

\*Corresponding author: rofique55@gmail.com (ORCID ID: 0000-0002-7039-8427)

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## ABSTRACT

A 9-year-old male Labrador retriever was presented with a history of weakness, lethargy, inappetence, yellowish urine, and blackish stool. The body temperature was found to be within the normal range (101.1°F) with pale mucous membrane and swelling of the forelimb showing gangrene formation. A blood biochemical test was done in which SGPT, SGOT, BUN, creatine, albumin, glucose, and total protein were significantly higher than the normal range. Abdominal ultrasonography revealed degenerative changes in both the kidneys with significant loss of cortico-medullary junction differentiation, cystitis, hepatomegaly, hepatitis, and ascites were noticed. The overall findings indicated chronic kidney disease with multiple complications. Treatment was initiated with Mannitol (20%), Lasix, Glutamax Forte, Erythropoietin Injection, Renodol capsule, and other supportive drugs. Blood biochemical tests were done every week for monitoring which showed considerable improvement in the condition of the animal with the ongoing treatment.

## HIGHLIGHTS

- Chronic Kidney Disease (CKD) is one of the most common kidney disorders of adult dogs, especially in male Labradors.
- Proper diagnosis and therapeutic intervention are a must for prolonging the life expectancy of the dogs.
- Prophylactic measures including nutritional management and care are needed to decrease the incidences of CKD in dogs.
- In the present investigation, treatment was given as per standard protocol with few changes based on multiple complications.

**Keywords:** Kidney degeneration, Dog, Ultrasonography, BUN, Creatinine

Chronic kidney disease (CKD) is a common kidney disorder in adults and aged dogs and cats; managing associated complications and comorbidities generally requires lifelong medical treatment to ensure a good quality of life for affected patients (Santis *et al.* 2022). It is generally defined as structural and/or functional abnormalities of the kidney existing for 3 months or more and classified

as irreversible and progressive (Polzin, 2017). Although chronic kidney disease is a progressive disease, multiple secondary medical derangements

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can be identified and treated with the hope of increasing quality of life and longevity (Quimby, 2016). For early diagnosis of CKD, studies must be done to find related risk factors, using information from the patient's clinical history along with concurrent disease diagnosis as the characteristic clinical signs are not common in early CKD stages (Syme, 2019). This diagnostic approach has been created by the International Renal Interest Society (IRIS) (Syme, 2016) and proposes that once patients exposed to risk factors are identified, a series of tests should be made, like blood urea nitrogen, serum creatinine, etc. to acknowledge the presence of kidney disease (Syme, 2019).

Successful treatment and prevention of kidney disease in dogs require a multi-dimensional approach to identify and eliminate causes or exacerbating factors, provide a professional evaluation regularly and implement a comprehensive treatment programme when necessary (Roudebush *et al.* 2010). The conservative medical management of CKD consists of a supportive and symptomatic therapy designed to ameliorate clinical signs of uraemia, correct fluid and electrolyte imbalance, provide adequate nutritional requirements and slow the progression of renal failure (Roudebush *et al.* 2010). Chronic kidney disease compromises dog welfare. Increased awareness of CKD risk factors and the association of blood biochemistry results with survival time should facilitate diagnosis and optimize case management to improve animal survival and welfare (O'Neill *et al.* 2013). In the present study, a case of chronic kidney disease has been recorded based on the diagnosis made with conservative treatment to prolong the life of the animal and its healthy living.

### Case History and Clinical Observations

A 9-year-old male Labrador retriever was presented to Veterinary Clinical Complex (VCC), College of Veterinary Science, A.A.U., Khanapara with a history of weakness, lethargy, inappetence, yellowish urine, and blackish stool. The owner reported that vaccination and deworming were regular. On examination, the body temperature was found to be within the normal range (101.10F) with pale mucous membrane, swelling of the forelimb showing gangrene formation (Fig. 1), and distended abdomen with suspected fluid on

abdominal ballotment (Fig. 2). Blood biochemical and haematological test was done in which SGPT, SGOT, BUN, creatine, albumin, glucose, and total protein were significantly higher than the normal range (Table 1 and 2). Abdominal ultrasonography was done which revealed degenerative changes in both the kidneys with significant loss of cortico-medullary junction differentiation. In the peritoneal cavity, a significant amount of fluid was seen, urinary bladder maximally distended with clear fluid and increased wall thickness (6.4 mm), spleen slight hyper-echoic with homogenous parenchyma, liver with hyper-echoic homogenous parenchyma and increased in size (117.1 mm) which indicates cystitis, hepatomegaly, hepatitis, and ascites (Fig. 3 & 4). The overall findings indicated chronic kidney disease with multiple complications.



**Fig. 1:** Swelling of the forelimb showing gangrene formation



**Fig. 2:** Distension of the abdomen

**Table 1:** Biochemical findings of the affected case

Parameters	Findings			Range (normal value)
	Pre-treatment	One week of treatment	Two weeks of treatment	
SGPT (IU/L)	80.9	—	23.0	8-57
SGOT (IU/L)	66.1	—	29.0	9-49
BUN (mg/dl)	<b>81.6</b>	<b>67.0</b>	<b>59.6</b>	18.8-55.4
Creatinine (mg/dl)	<b>3.1</b>	<b>2.54</b>	<b>2.43</b>	0.5-1.6
Albumin (g/dl)	3.8	—	1.26	2.6-3.3

**Table 2:** Haematological findings of the affected case

Parameters	Findings	Normal Range
WBC	52.71 m/mm <sup>3</sup>	6.0-17.0
Lymphocyte	3.6 %	10.0-30.0
Monocyte	0.6 %	2.0-10.0
Granulocyte	95.8 %	50.0-80.0
RBC	3.37 M/mm <sup>3</sup>	5.5-8.5
MCV	58.5 fl	58.0-73.0
Hct	19.7 %	35.0-55.0
Haemoglobin	7.3 g/dl	10.0-18.0
Thrombocyte	63 m/mm <sup>3</sup>	120-600

**Fig. 3:** C shaped spleen with slight hyper-echoic**Fig. 4:** Ascites (fluid-filled)

## Treatment and Discussion

Based on the diagnosis, treatment was initiated with Mannitol® (20%) @ 1.5-2.0 g/kg body weight I/V, Lasix®@2-4mg/kg body weight I/V, Glutamax Forte® @1 tab b.i.d orally, Erythropoietin Injection (Eposis®) @ 40,000IU/ml S/C, Renodyl capsule®1 cap b.i.d orally, and other supportive drugs like Diarest cool syrup® and Pan-IV®. After the initiation of therapy, the animal started showing improvement in its health condition and activity. Blood biochemical tests were done every week, which showed an improving trend in the dog's clinical condition and haemato-biochemical parameters (Table 1).

Similar findings and diagnoses were also made by Polzin, 2011; O'Neill *et al.* 2013; Bartges, 2012 and Miyakawa *et al.* 2021. Treatment was given as per standard protocol with few changes based on multiple complications with similar therapeutical studies by Roudebush *et al.* 2010; Quimby, 2016; Perini-Perera *et al.* 2021 and Santis *et al.* 2022. Though considerable improvement in the condition of the animal was observed, the treatment should be continued for a long period for the healthy survival of the dog. As per earlier studies (Reddy *et al.* 2021), the prevalence of CKD in male Labrador is highest and with similar treatment, it is possible to prolong the life expectancy and promote healthy living.

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