RENAL FAILURE IN A LABRADOR RETRIEVER DOG – A CASE STUDY

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The present study describes different diagnostic modalities along with treatment options for renal failure in a dog. A 7 year old male Labrador Retriever dog was presented with the complaints of anorexia since last one month with debility, progressive weight loss and occasional haematuria. Ultrasonographic scan revealed cystitis, shrunken left kidney with prostate enlargement. Haemato-biochemical reports revealed high BUN and creatinine along with decreased haemoglobin and lymphocytopenia. Urine analysis revealed proteinuria. Based on the clinical findings, the patient was diagnosed with chronic renal failure and therapeutic interventions started accordingly. But, in spite of commencement of treatment patient died within 2 days.

Key word: Haematology; Renal failure; Ultrasonography

A male Labrador retriever dog aged 7 years was referred to the University Clinics, Belgachia, Kolkata with the history of anorexia since last one month, debility, progressive weight loss and occasional haematuria. The dog also exhibited ulceration and uremic odour in mouth.

The physical examination revealed normal heart rate (132 bpm), respiration rate (31/min) and rectal temperature (101.3°F).

The complete blood count reports revealed haemoglobin 7.5 gm %, total leukocyte count (TLC) 10,600/cumm and platelet count 260 X

10³/cumm. The differential leukocyte count (DLC) exhibited neutrophil 89%, eosinophil 01%, monocyte 01% and lymphocyte 9%.

The liver function tests appeared normal. However, kidney function tests showed increased BUN (202 mg/dL) and creatinine (35mg/dL).

The urine was collected through catheterization and proteinuria along with isosthenuria (specific gravity of urine: 1.013) appeared in urine analysis report along with unorganised granular casts in urine sediments.

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Abdominal radiograph appeared with distended urinary bladder and highly enlarged prostate gland (Fig. 1).

Cystitis (urinary bladder wall thickness 0.83 cm) along with the presence of sludge (Fig. 2) was appreciated upon ultrasonography. Enlarged prostate (4.5 x 5.1 cm) was also noticed (Fig. 3) which supported radiographic findings. The right kidney was shrunken (3.1

X 3.7 cm) with irregular boundary (Fig.4). The cortico-medullary demarcation in this kidney was also lost. The left kidney showed normal size (4.03 X 7.08 cm) without clear cortico-medullary demarcations (Fig. 5).

In this case the patient was treated with lactated Ringer's solution and ACE inhibitors enalapril @ 0.5 mg/kg BID PO. Epakitin® powder (@Vetoquinol) @ 1 scoop/ 5kg/body weight/ day

Fig. 1. Abdominal radiograph showing enlarged prostate and urinary bladder

Fig. 2. Sonograph of urinary bladder showing cystitis

Fig. 3. Sonograph showing prostate

Fig. 4. Sonograph showing right kidney

was advised as it reduces serum phosphate levels and improves kidney health. Injection darbepoetin @ 0.5 µg/kg SC once weekly was also advised as it stimulates erythropoiesis (Fiocchi *et al.*, 2017).

But, in spite of commencement of treatment patient died within 2 days as prognosis of the patient depends upon severity of the disease, response of the patient to the treatment as well as proper staging of CKD as per International Renal Interest Society (IRIS) guidelines.

Chronic kidney disease (CKD) is common in dogs and cats occurring due to permanent damage to the functional nephrons (Chan *et al.*, 2013). Ultrasonographic appearances of kidneys in chronic kidney diseases are decreased size, thinning of parenchyma and loss of cortico-medullary demarcation (O'Neill, 2000). Here in this case, the right kidney seemed shrunken, together with the loss of cortico-medullary demarcation and irregular boundaries which are considered to be the cardinal signs of kidney

Fig. 5. Sonograph showing left kidney

damage. However, the left kidney showed normal size and shape without cortico-medullary demarcations. In CKD, patients can maintain the renal functions with one functional kidney over a period due to compensatory mechanisms (Grauer, 2009). The complete blood count in this investigation showed lymphocytopenia which was in accordance with the earlier reports of Kralova *et al.* (2010). The prostate enlargement might have aggravated the situation as benign prostatic hyperplasia was correlated with chronic renal failure in human (Rule *et al.*, 2005).

The kidney has important role in maintaining phosphorus homeostasis by controlling the excretion through urine. In chronic kidney disease there is impairment of renal excretion of phosphorus, as a consequence phosphate retention occurs in body that in turn causes further hyperphosphatemia. Hence, controlling of phosphorus in CKD is very much important to prevent further deterioration of the condition of

the patient (Geddes *et al.*, 2013; Polzin, 2013). Proteinuria is considered as main reason that provokes the patient towards renal failure now days (Burton and Harris, 1996; Remuzzi, 1999; Walls, 2001). In this case ACE inhibitor was used, as previous study by several authors showed that enalapril decreases the level of proteinuria and slows down the kidney damage as a result increase the lifespan of the patient (Jacob *et al.*, 2005).

The treatment modalities of CKD are aimed

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