



Management of chronic kidney disease in a domestic short hair cat

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ABSTRACT: Chronic kidney disease (CKD) is a progressive disorder in cats that is characterized by irreversible loss of renal function and metabolic disturbances. This report describes a 5-year-old spayed female Domestic Short Hair cat who presented with inappetence, lethargy, polyuria, polydipsia, and weight loss. Physical examination revealed dehydration, poor condition, and renomegaly. Biochemical analysis demonstrated azotemia and electrolyte abnormalities consistent with CKD. Based on the serum creatinine concentration, it was classified as International Renal Interest Society (IRIS) stage 4 CKD. The patient received therapy with subcutaneous fluids, antiemetic and gastroprotective treatment, renal supplementation, and vitamin B complex. Monthly monitoring over five months demonstrated improvement and stabilization of renal parameters, particularly urea, creatinine, and phosphate concentrations, resulting in fausta prognosis. This case highlights early recognition, long-term supportive therapy, and regular biochemical monitoring in improving outcomes and quality of life in feline CKD patients.

Keywords:

chronic kidney disease, feline, fluid therapy, IRIS, renal profile

■ INTRODUCTION

Chronic kidney disease (CKD) is a disorder in feline medicine in middle-aged and geriatric cats. It involves progressive, irreversible nephron loss and reduces renal function and the glomerular filtration rate (GFR) (Brown *et al.* 2016). Progressive renal impairment causes uremic toxin accumulation and fluid, electrolyte, and acid-base disturbances, resulting in morbidity and quality-of-life reduction (Brown *et al.* 2016). Diagnosis uses findings, laboratory abnormalities, imaging, and IRIS staging (Reynolds & Lefebvre 2013).

The manifestation of feline CKD is progressive and nonspecific, delaying diagnosis until later stages. Signs include polyuria, polydipsia, anorexia, weight loss, vomiting, lethargy, and renal abnormalities (Brown *et al.* 2016). Severity correlates with IRIS staging: early CKD causes mild weight loss and increased water consumption, whereas latter-stage CKD is marked by azotemia, electrolyte disturbances, and severe uremic signs (Grecu *et al.* 2025). Early diagnosis and management are needed to slow disease progression and improve the quality of life. This report highlights CKD presentation and management in a Domestic Short Hair cat, emphasizing early intervention and long-term monitoring.

■ CASE

Anamnesis and signalment: A 5-year-old spayed female Domestic Short Hair cat weighing 2.6 kg was examined for

progressive inappetence, lethargy, polyuria, polydipsia, and weight loss observed over the past several weeks. No history of toxin exposure or chronic medical conditions was reported. **Physical examination:** Dehydration, poor body condition score (2/5), and enlarged kidneys upon palpation.

Diagnostic examination: Serum biochemical analysis using an automated veterinary chemistry analyzer (Skyla VB1; Edan Instruments Inc., China) revealed increased urea, creatinin, and phosphate concentrations, consistent with chronic kidney disease. Follow-up evaluations performed on 1, 2, 4, and 5 months, showed persistent elevation of corrected calcium concentrations, while urea, creatinine, potassium, and phosphate levels progressively decreased to within the normal range (Table 1). **Differential diagnosis:** Acute kidney injury. **Prognosis:** Fausta. **Therapy:** The patient received supportive therapy consisting of subcutaneous 0.9% sodium chloride (175 mL, twice daily), ranitidine (3 mg/kg, SC), metoclopramide (0.3 mg/kg, SC), oral renal supplements (Renal N and Renal P; 0.2 g/kg), and vitamin B-complex supplementation (1 tablet/day, PO) for 14 days. Following initial treatment, long-term management consisted of subcutaneous fluid therapy alone for five months with serial monitoring of renal parameters.

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Table 1. Serial serum biochemical parameters in a Domestic Short Hair cat diagnosed with chronic kidney disease during the monitoring period.

Parameter	Before		After (Month)			
	0	1	2	4	5	
Urea (mmol/L)	>50 (↑)	9.1 (↑)	4.4	7.4	8.5	
Creatinine (umol/L)	>1,768 (↑)	165 (↑)	121	165(↑)	158	
Potassium (mmol/L)	NM	6.3 (↑)	4.4	4.5	4.5	
Phosphate (mg/dL)	4.42 (↑)	1.23	0.98	1.25	1.32	
Corrected Calcium (mmol/L)	1.78	3.24 (↑)	2.94 (↑)	3.19 (↑)	2.47	
Chloride (mmol/L)	NM	117	112	110	117	

Note: NM: not measure; Normal reference ranges: Urea: 5.4–10.7 mmol/L; Creatinine: 70–160 umol/L; Potassium: 3.8–4.6 mmol/L; Phosphate: 1.29–2.26; Corrected Calcium: 1.75–2.50 mmol/L; Chloride: 115–123 mmol/L; ↑= increase

■ RESULTS AND DISCUSSION

Chronic Kidney Disease (CKD) is most commonly diagnosed in middle-aged and geriatric cats; however, younger cats may also be affected secondary to congenital, hereditary, and acquired renal disorders (Brown *et al.* 2016). The present case demonstrated clinical and biochemical findings consistent with CKD, including azotemia, electrolyte imbalance, dehydration, and progressive weight loss.

Elevated creatinine and urea levels indicate renal dysfunction and reduced glomerular filtration rate (GFR). Based on the increased serum creatinine concentration (>440 umol/L), this case was consistent with IRIS Stage 4 CKD. However, IRIS substaging was not performed because proteinuria and blood pressure were not measured. The body condition score (2/5) may have affected creatinine interpretation, as reduced muscle mass can underestimate renal dysfunction (Polzin 2010). However, the muscle condition score (MCS) was not examined, limiting the assessment of muscle mass effects on creatinine.

Electrolyte abnormalities, hyperkalemia, and hypercalcemia (Table 1) supported the diagnosis of CKD. Hyperkalemia may occur secondary to reduced renal potassium excretion during renal dysfunction (DiBartola 2001). The corrected calcium concentration was evaluated to assess calcium status while minimizing the effects of albumin on serum calcium. Persistent hypercalcemia in CKD may result from altered calcium-phosphorus homeostasis, renal tubular calcium reabsorption, or dietary factors (Brown *et al.* 2016). Monthly monitoring over six months showed improvement and stabilization of creatinine, urea, and phosphate concentrations, indicating a therapeutic response.

Therapy focuses on correcting dehydration, stabilizing electrolyte imbalance, reducing uremic complications, and providing supportive renal care. Subcutaneous administration of 0.9% NaCl improved hydration and renal perfusion. Ranitidine and metoclopramide control gastrointestinal complications associated with uremia,

including nausea and vomiting (Gould *et al.* 2017). Although ranitidine use in small animal medicine has decreased, it was selected for short-term support during stabilization, while hydration and renal function improved. Supportive renal therapy includes oral prebiotic- and probiotic-based supplementation and a phosphate-binding supplement to reduce uremic toxin production, support antioxidant activity, assist phosphorus control, and maintain acid–base balance in CKD patients (Brown *et al.* 2016). The vitamin B-complex compensates for urinary vitamin loss associated with polyuria (Juszczak *et al.* 2023).

Overall, long-term supportive therapy combined with regular biochemical monitoring was associated with the stabilization of renal parameters and improvement in the patient's clinical condition, highlighting the importance of long-term supportive care and monitoring in feline CKD.

■ CONCLUSION

Chronic kidney disease (CKD) is a progressive, irreversible disorder that requires early diagnosis and management in cats. In this case, supportive therapy improved the patient's condition and stabilized the renal parameters. Regular monitoring is essential to assess response and progression, underscoring long-term supportive care.

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■ ETHICS AND DECLARATIONS

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