

Management of type 2 diabetes mellitus and feline infectious peritonitis in a Persian Peaknose cat[†]

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ABSTRACT: Feline diabetes mellitus (DM) and infectious peritonitis (FIP) are challenging metabolic and infectious diseases in cats that require long-term management and therapeutic strategies. This case report describes the clinical management of a 7-year-old male Persian peaknose cat diagnosed with type 2 DM and non-effusive FIP at the West Java Animal Hospital. The cat presented with polyuria, polydipsia, and severe weight loss over seven days. Hematological findings showed hyperchromic microcytic anemia and elevated MID%, while biochemical analysis indicated hyperglycemia (524 mg/dL), increased ALT, and a low albumin-to-globulin (A/G) ratio (0.6), consistent with type 2 DM and FIP. Treatment included Molnupiravir, Glimepiride as an antihyperglycemic agent; Ornipural for hepatodigestive support; vitamin supplementation (B complex, A, D, and E); and a low-sugar diet. Blood glucose levels monitored daily for seven days showed a progressive decrease but remained above the normal threshold. This case demonstrates the importance of comprehensive management combining causative, symptomatic, and supportive therapies in feline patients with concurrent disorders. This highlights the need for glucose monitoring, nutritional adjustment, and client education regarding insulin therapy to achieve glycemic control in complex feline comorbidities.

Keywords:

feline diabetes mellitus, persian peaknose, feline infectious peritonitis, hyperglycemia, metabolic

■ INTRODUCTION

Diabetes Mellitus (DM) is a common endocrine disorder in cats, with type 2 DM being predominant. This type is characterized by insulin resistance and pancreatic β -cell dysfunction (Gottlieb & Rand, 2018). The prevalence of feline DM ranges from 0.5% to 2.24%, with higher incidences in Burmese, Maine Coon, Russian Blue, Norwegian Forest, and Siamese breeds (Pérez-López *et al.*, 2019). Risk factors implicated in its pathogenesis include obesity, genetic predisposition, dietary composition, chronic inflammation, and oxidative stress (Behrend *et al.*, 2018; Kleinert *et al.*, 2018; Koral & Sevinc, 2022). Affected cats present with polyuria, polydipsia, and progressive weight loss, requiring comprehensive management centered on insulin therapy (Morozenko *et al.*, 2022).

Feline Infectious Peritonitis (FIP), caused by Feline Coronavirus (FCoV), is a fatal systemic disease in cats. The condition manifests in two forms: effusive (wet) and non-effusive (dry). Both feature fever, anorexia, and severe weight loss; the effusive form shows peritoneal or pleural effusion, causing abdominal and respiratory distress (Barker & Tasker, 2020). FIP diagnosis involves anamnesis, physical examination, serum biochemistry, and tests such as the Rivalta test and polymerase chain reaction (PCR) for viral

detection. Management requires supportive care and antiviral therapy when available.

This case report describes the clinical management of a Persian Peaknose cat with type 2 Diabetes Mellitus coexisting with non-effusive Feline Infectious Peritonitis, presented at the West Java Animal Hospital, Indonesia.



Figure 1. The Persian Peaknose cat “Dede Arsy” diagnosed with Type 2 Diabetes Mellitus and Feline Infectious Peritonitis. (A) The cat showing excessive drinking behavior (polydipsia); (B) facial appearance characteristic of the Persian Peaknose breed.

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CASE

Anamnesis and signalment: A seven-year-old Persian Peaknose cat named Dede Arsy, weighing 2.6 kg with red fur (Figure 1), was presented to the West Java Animal Hospital showing persistent dehydration despite increased water intake and urination. The cat lost over 50% of its body weight within 30 days, dropping from 6 kg. **Physical examination:** Rectal temperature was 38.7°C. The Body Condition Score was 2/5, showing poor nutrition and muscle wasting. The cat was markedly dehydrated, with dry membranes and decreased skin turgor. **Diagnostic test:** Hematological and serum biochemical analyses were subsequently performed. **Diagnosis:** Concurrent type 2 Diabetes Mellitus (DM) and non-effusive Feline Infectious Peritonitis (FIP). **Differential diagnoses:** Hepatic lipidosis, hyperthyroidism, renal disease, and pancreatitis may present with polyuria and weight loss. Hyperglycemia and a decreased A/G ratio supported the diagnosis of type 2 DM with non-effusive FIP. **Treatment:** The protocol included Molnupiravir for FIP, Glimepiride for hyperglycemia, and ornipural for hepatic functions. Supportive therapy included Ringer's lactate, vitamins, and a low-sugar diet.

RESULTS AND DISCUSSION

Hematological analysis revealed increased MID cells, hyperchromic microcytic anemia with decreased hematocrit (HCT) and mean corpuscular volume (MCV), and elevated mean corpuscular hemoglobin concentration (MCHC) (Table S1). Serum biochemistry revealed hyperglycemia (524 mg/dL) and elevated alanine aminotransferase (ALT) levels, indicating diabetes mellitus and potential hepatic involvement. The albumin-to-globulin (A/G) ratio was 0.6, supporting Feline Infectious Peritonitis (FIP) (Table S1). According to Riemer *et al.* (2016), 85% of cats with FIP have an A/G ratio <0.8, and 67.8% have an A/G ratio <0.6.

Clinical evaluation showed no ascitic fluid accumulation, indicating non-effusive FIP. The cat displayed signs of diabetes mellitus, including polyuria, polydipsia, and severe cachexia. Non-Insulin-Dependent Diabetes Mellitus (NIDDM), or type 2 diabetes, is most common in cats. Histopathological studies show mild lymphocytic infiltration in pancreatic islets, suggesting type 2 DM pathophysiology (Koral & Sevinc, 2022). The cat was diagnosed with type 2 diabetes concurrent with non-effusive FIP.

Treatment included molnupiravir for FIP, glimepiride for hyperglycemia, ornipural for hepatic support, Ringer's lactate, and vitamins B, A, D, and E. A low-carbohydrate diet (Hill's K/D) was chosen for its amino acids, l-carnitine, and omega-3 fatty acids (Gilor *et al.*, 2016). Blood glucose was monitored daily using a glucometer (Sinoheart Safe-Accu Glucose Check) from ear pinna samples before and after feeding (Tamizharasan *et al.*, 2022). Over 7 days, mean blood glucose was 337.6 mg/dL, ranging from 214 to 524 mg/dL (Figure S2). Posttreatment, glucose levels decreased but remained elevated. Combined therapy stabilized the

glycemic levels and reduced the effects of FIP. The cat improved and was discharged after 7 days.

CONCLUSION

Management of diabetes and feline infectious peritonitis included causative, symptomatic, and supportive treatment with molnupiravir, ornipurals, glimepiride, vitamin B complex, A, D, E, and a low-sugar diet. The cat's blood glucose was monitored for 7 days, with levels dropping below 500 mg/dl but remaining above 200 mg/dl during hospitalization.

ASSOCIATED CONTENT

Supporting Information

[†]The hematology, blood biochemistry, and monitoring blood glucose levels were submitted in PDF form as supporting information.

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