



Severe pleural effusion due to feline infectious peritonitis in a cat[†]

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ABSTRACT: Feline infectious peritonitis (FIP) is a progressive coronavirus-associated disease that may present in effusive, non-effusive, or mixed forms. This case report describes the clinical management of severe pleural effusion associated with effusive FIP in a 4-year-old male Himalayan cat presenting with anorexia, lethargy, weight loss, and dyspnea. Physical examination, thoracic radiography, hematology, serum biochemistry, and an FIPV antibody test supported the diagnosis. Radiographs showed massive pleural effusion that obscured the cardiac silhouette and compressed the lung fields. Therapeutic thoracocentesis removed approximately 500 mL of pleural fluid and immediately improved respiration. The cat received ampicillin-sulbactam, furosemide, hematodin, and oral molnupiravir. After 40 days, respiratory function and hematobiochemical parameters returned to normal. This case emphasizes prompt drainage of life-threatening pleural effusion and illustrates the potential clinical value of molnupiravir-based antiviral treatment for effusive FIP.

Keywords:

cat, feline coronavirus, molnupiravir, pleural effusion, thoracocentesis

INTRODUCTION

Feline infectious peritonitis (FIP) is caused by coronavirus variants that are tropic to monocytes and macrophages. Diagnosis is challenging because no antemortem test is pathognomonic and suspicion must integrate history, findings, imaging, abnormalities, and effusion characteristics (Riemer *et al.* 2016, Tasker *et al.* 2023). The effusive form involves fluid in the abdominal, thoracic, and pericardial cavities. Pleural involvement makes stabilization inseparable from diagnosis (Beatty & Barrs 2010). In FIP, effusion reflects immune-mediated vasculitis and permeability, and FIPV-infected monocytes produce vascular endothelial growth factor, contributing to leakage and accumulation (Takano *et al.* 2011). Antivirals have changed FIP prognosis, with GS-441524, remdesivir, and molnupiravir being used (Tasker *et al.* 2026). Reports describing pleural effusion management and post-treatment recovery remain useful to clinicians. This report presents diagnosis, emergency thoracocentesis, molnupiravir-based therapy, and 40-day outcome.

CASE

Signalment and anamnesis: A 4-year-old male Himalayan cat weighing 4.6 kg presented to the clinic with anorexia, lethargy, and progressive respiratory difficulty. The owner reported weight loss prior to the presentation. No previous definitive diagnosis had been established.

Present status and clinical examination: The cat was lethargic and dyspneic. The rectal temperature was 38.6 °C,

the respiratory rate was 45 breaths/min, and the heart rate was 181 beats/min. Pleural space disease causing respiratory compromise was suspected. The initial stabilization prioritizes minimizing stress and preparing for imaging and drainage.

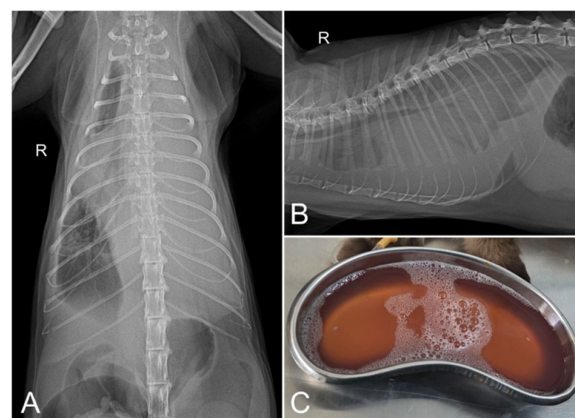


Figure 1. Thoracic radiographs of a Himalayan cat with effusive feline infectious peritonitis. (A) Ventrodorsal projection showing marked thoracic soft-tissue opacity that obscures the cardiac silhouette and pulmonary vessels. (B) Lateral projection showing massive pleural effusion with suspected compressive atelectasis. (C) Fluid extracted from patients undergoing thoracocentesis.

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Supporting examinations: Radiographs of the lateral and ventrodorsal projections showed severe pleural effusion, soft-tissue opacity, loss of the cardiac silhouette, pulmonary vessel visualization, and compressive atelectasis of the lung lobes (Figure 1). Hematology showed decreased hemoglobin, hematocrit, mean corpuscular volume, and mean corpuscular hemoglobin levels, consistent with microcytic normochromic anemia (Table S1). Biochemical analysis revealed hyperglobulinemia, a low albumin-to-globulin ratio of 0.39, increased aspartate aminotransferase levels, hyperglycemia, and hypocalcemia (Table S2). Pleural fluid (500 mL) was removed, and the FIPV antibody test result was positive (Figure S3).

Differential diagnosis, diagnosis, and prognosis: Differential diagnoses for pleural effusion include congestive heart failure, thoracic neoplasia, pyothorax, chylothorax, effusive FIP, and pleural space disease (Beatty & Barrs 2010). The final diagnosis was severe pleural effusion with effusive FIP. The prognosis improved after thoracocentesis and antiviral treatment.

Therapy and clinical progression: Emergency thoracocentesis reduces respiratory compromise. Ampicillin-sulbactam at 0.9 mL every 12 h intravenously for 7 days, furosemide at 0.45 mL every 12 h intravenously for 5 days, hematodin at 0.45 mL every 24 h intramuscularly, and molnupiravir at 10 mg/kg every 12 h orally. Respiration improved after evacuation. At the 40-day follow-up, respiration and hematobiochemical parameters were normal.

■ RESULTS AND DISCUSSION

Life-threatening respiratory distress and infectious causes could not be confirmed by antemortem testing. Radiography confirmed pleural disease and guided thoracocentesis. Obscured silhouettes and pulmonary vasculature reflect fluid volume and not FIP markers. Nevertheless, with positive FIPV antibody results, hyperglobulinemia, low albumin-to-globulin ratio, anemia, and response, imaging supported effusive FIP. Thoracocentesis is an emergency procedure because pleural effusion can impair ventilation, requiring stabilization for dyspnea (Beatty & Barrs 2010). Removing approximately 500 mL relieved compression and atelectasis. Missing fluid cytology, Rivalta testing, bacterial culture, and cardiac evaluation limited exclusion of pyothorax, chylothorax, neoplasia, and cardiogenic effusion.

Cats with FIP show anemia, hyperproteinemia or high-normal protein levels, hyperglobulinemia, hypoalbuminemia, and an albumin-to-globulin ratio (Riemer *et al.* 2016). A ratio below 0.4 supports FIP with effusion (Tasker *et al.* 2023); here, 0.39, hyperglobulinemia, and pleural effusion fit. Effusion pathogenesis involves immune-mediated phlebitis and vasculitis, and granulomatous lesions, infected monocyte/macrophage activation, and vascular endothelial growth factor increase permeability (Kipar *et al.* 2005, Takano *et al.* 2011). Molnupiravir, ribonucleoside analog prodrug, was selected. ABCD recognizes FIP as

treatable in cats and monitors molnupiravir (Tasker *et al.* 2026). Normalized respiration and parameters after 40 days suggest a response, but follow-up is needed to confirm remission and detect relapse.

■ CONCLUSION

Severe pleural effusion in cats with effusive FIP should be managed because thoracocentesis relieves respiratory compromise. Thoracocentesis, supportive therapy, and molnupiravir administration were associated with recovery within 40 days.

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■ ETHICS AND DECLARATIONS

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Data availability: All data are included within the article.

■ ASSOCIATED CONTENT

Supporting Information

†The hematology, blood chemistry, thoracocentesis, and FIPV antibody test results were submitted in PDF form as supporting information.

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