# Multiorgan Failure Secondary to *Capnocytophaga canimorsus* Infection Requiring Veno-Venous Extracorporeal Membrane Oxygenation (VV-ECMO) Support

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## Introduction

*Capnocytophaga canimorsus* is a zoonotic Gram-negative bacillus that colonizes the oral flora of dogs and cats. Although human infection is uncommon, it may cause rapidly progressive sepsis, particularly in patients with asplenia or other immunocompromising conditions. Acute respiratory distress syndrome (ARDS) requiring extracorporeal membrane oxygenation (ECMO) has rarely been reported.

**Case Presentation**

A 60-year-old woman with hypothyroidism and a remote history of splenectomy presented to a regional hospital in Liberia, Costa Rica, with fever, malaise, and gastrointestinal symptoms one week after a dog bite. Initial laboratory evaluation demonstrated leukocytosis, thrombocytopenia, severe hypoalbuminemia, elevated inflammatory markers, and progressive organ dysfunction. Blood cultures obtained at admission ultimately identified *Capnocytophaga canimorsus*. Despite broad-spectrum antimicrobial therapy, the patient developed septic shock, multiorgan failure, and severe ARDS with a $PaO_2/FiO_2$ ratio of 93. Chest computed tomography revealed diffuse bilateral infiltrates consistent with severe ARDS. Lung-protective ventilation, neuromuscular blockade, prone positioning, recruitment strategies guided by esophageal pressure monitoring, corticosteroids, and antimicrobial escalation failed to reverse refractory hypoxemia. On hospital day 16, venovenous ECMO was initiated using femoro-jugular cannulation. Ultra-protective mechanical ventilation was maintained during extracorporeal support. Progressive improvement in gas exchange, pulmonary compliance, and dead space ventilation allowed successful decannulation after 11 days of VV-ECMO. The patient was subsequently liberated from mechanical ventilation and achieved full clinical recovery.

**Discussion**

This case illustrates an uncommon but life-threatening manifestation of *C. canimorsus* infection. Diagnostic delays may occur because of the organism's slow growth and the limited availability of advanced microbiological testing. In selected patients with refractory hypoxemia secondary to severe ARDS, VV-ECMO may provide effective rescue support while antimicrobial therapy and organ recovery take effect.

CON EL RESPALDO

**Learning Points**

1. *Capnocytophaga canimorsus* should be suspected in septic patients with recent dog exposure, particularly those with asplenia.
2. Severe ARDS and multiorgan failure are rare but potentially fatal complications.
3. Early recognition and timely escalation to VV-ECMO can be lifesaving in refractory hypoxemia.

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Los autores del trabajo titulado "Multiorgan Failure Secondary to *Capnocytophaga canimorsus* Infection Requiring Veno-Venous Extracorporeal Membrane Oxygenation (VVECMO) Support" declaran y certifican que:

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