

# SARS-CoV-2 infection in one cat and three dogs living in COVID-19-positive households in Madrid, Spain

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## Abstract

In this study, we describe SARS-CoV-2 infection dynamics in one cat (case 1-Chester) and three dogs (case 2-Trasto, case 3-Bella and case 4-Bull) from households with confirmed human cases of COVID-19 living in the Madrid Community (Spain) at the time of expansion (December 2020 through June 2021) of the alpha variant of SARS-CoV-2 (lineage B.1.1.7). A thorough physical exam and nasopharyngeal, oropharyngeal, and rectal swabs were collected for real-time reverse-transcription PCR (RT-qPCR) SARS-CoV-2 testing on day 0 and in successive samplings on days 7, 14, 21 and 47 during monitoring. Blood was also drawn to determine complete blood counts, biochemical profiles, and serology of the detect the IgG response against SARS-CoV-2. On day 0, the cat case 1 presented with dyspnoea and fever associated with a mild bronchoalveolar pattern. The dog cases 2, 3 and 4 were healthy, but case 2 presented with coughing, dyspnoea and weakness, and case 4 exhibited coughing and bilateral nasal discharge three and six days before the clinical exam. Case 3 (from the same household as case 2) remained asymptomatic. SARS-CoV-2 infection was detected in all cat and dog cases. The cat and the dog case 2 exhibited the lowest cycle threshold (Ct) (Ct < 30) when they presented or had recently presented clinical signs. Viral detection failed in successive samplings. Specific IgG antibodies were detected in the cat case 1 and dog cases 3 and 4, whereas dog case 2 seroconverted 21 days after SARS-CoV-2 detection. SARS-CoV-2 genome sequencing was carried out, and genomes were compared to the SARS-CoV-2 Genome Reference Sequence. All strains were unambiguously classified as belonging to the B.1.1.7 lineage.

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