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Detection of leptospirosis among COVID-19 suspected febrile patients in a tertiary care hospital in Sri Lanka

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Introduction and Objectives: Leptospirosis is an endemic zoonotic disease in Sri Lanka with clinical symptoms ranging from mild fever to multiple organ failure that can lead to fatal outcomes. It is difficult to distinguish the early phase of leptospirosis from other common febrile infections solely based on physical examination. Unfortunately, during the COVID-19 pandemic, tropical endemic diseases including leptospirosis received less attention and this resulted in an unprecedented surge in patient numbers. The objective of this study was to identify leptospiral infections among COVID-19-suspected febrile patients who visited a tertiary care hospital in Sri Lanka.

Methods: Samples were collected from COVID-19 suspected patients (n=100) with fever (fever days 3-5) and respiratory symptoms who visited the outpatient department of the Polonnaruwa District General Hospital between 1st February to 15th March 2022. Two ml of blood and demographic data were collected. A plasma aliquot of 500 µl was used to extract DNA followed by a PCR targeting the *flab* gene to identify the pathogenic *Leptospira* spp. All PCR-positive samples were sequenced and a phylogenetic tree was constructed including 25 reference strains.

Results: Of the 100 COVID-19 suspected participants, three had pathogenic *Leptospira* DNA (PCR positive) in their blood suggesting acute infections. DNA sequencing and downstream analysis identified *Leptospira interrogans*, *L. borgpetersenii* species of the P1subclade and *L. licerasiae* species of the P2 subclade in these 3 patients.

Conclusions: Although the COVID-19 pandemic was present at the time of sampling, this preliminary data confirms the underdiagnosed acute leptospiral infection in the study area. Mere emphasis on clinical and demographic data without confirmatory laboratory diagnosis could have resulted in misdiagnosis of leptospirosis and other endemic diseases.

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