

SYNOPSIS

03/04/2020

Review of “A well infant with coronavirus disease 2019 (COVID-19) with high viral load”

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One-Minute Summary

- A report of the first pediatric case detected in Singapore: a 6-month old male infected with COVID-19 virus in a household cluster (N=4), who remained well despite evidence of viremia.
- The infant was assessed in hospital after exposure to the mother, who was believed to be the index case. Despite being asymptomatic (afebrile, no tachypnea), a **nasopharyngeal swab (NPS) specimen tested positive for COVID-19** with a low cycle threshold (Ct) of 13.7-15.6, suggesting a **high viral load**.
- Daily NPS specimens tested positive with decreasing viral load up to day 16 of admission.
- **Blood tested on day two of admission was positive** for COVID-19 at low levels (Ct 32.9-33.9), but was **negative on day eight** of admission.
- Urine specimens tested on day two and day eight of admission were negative.
- Stool tested on day two of admission was negative, but tested positive on day eight at relatively low levels (Ct 29.0-34.8). No gastrointestinal symptoms were reported.
- The infant **remained asymptomatic and afebrile**, with the exception of a **single temperature recorded at 38.5°C** on day three of admission, which normalized within one hour. Other laboratory findings were normal, except for mild neutropenia on day eight of admission.
- The authors note that the current case definitions may not accurately identify infant cases due to mild or absent signs and symptoms of infection.

Additional Information

- The infant tested negative for other respiratory pathogens, including influenza A, influenza B, and the seasonal human coronaviruses (OC43, 229E, NL63, HKU1).
- No chest X-ray was performed on the infant, as there was no clinical indication for this.
- The mother had no travel history, but her occupation involved close contact with tourists from China. She developed fever and sore throat on January 29 and chest X-ray showed evidence of pneumonia. Her first NPS on February 3 (day five post symptom onset) tested positive for COVID-19 and she was admitted to hospital. Daily NPS specimens starting on February 8 did not consistently test positive. Her NPS tested negative on February 9 and again on February 13 (day 15 post symptom onset). **Breast milk samples tested on February 8 (day 10 post symptom onset) were negative.**

- The two other members of this cluster were the father and a live-in helper. The father developed fever and sore throat on February 1 and was admitted to hospital on February 4, where he tested positive for COVID-19. The live-in helper was admitted to hospital on February 3 with pneumonia and tested positive for COVID-19.
- The real-time PCR assay used in this report targets the N gene and Orf1ab gene of COVID-19. It is unknown if this assay has been validated and/or is in use beyond this report.

PHO Reviewer's Comments

- The case report describes a single infant COVID-19 case with evidence of viremia and a high viral load; however, it may not be typical of other pediatric cases.

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Review of "A well infant with coronavirus disease 2019 (COVID-19) with high viral load". Toronto, ON: Queen's Printer for Ontario; 2020.

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