

Severe SARS-Cov-2 infection with extrapulmonary manifestation in a 3-month-old child

Arshak Ghazaryan^{1*}; Stepan Atoyan²; Arevhat Karapetyan¹; Naira Gyulazyan¹

¹Department of Infectious Diseases, Yerevan State Medical University, Yerevan, Armenia.

²National Center for Infectious Diseases, Yerevan, Armenia

Received Date : May 23, 2023
Accepted Date : July 04, 2023
Published Date : July 11, 2023
Archived : www.jcmimagescasereports.org
Copyright : © Arshak Ghazaryan 2023.

***Corresponding Author:** Arshak Ghazaryan, Department of Infectious Diseases, Yerevan State Medical University, 2 Koryun Str., Yerevan, 0025, Armenia. Tel: +37491468440.
Email: arshak1979@yahoo.com

Keywords : Infant; COVID-19; Extrapulmonary manifestation.

Background

The symptoms of COVID-19 are highly variable and have been reported to be mild in the pediatric population compared to adults [1-4]. However, there is a paucity of data on the disease severity and manifestations associated with different SARS-CoV-2 variants in children.

Case Presentation

Here we present a description of severe COVID-19 infection with extrapulmonary manifestation in infant at a time when the prevalent SARS-CoV-2 strain was the so-called Omicron variant. A male infant, born at 38 weeks' gestation, was admitted to the emergency department on January 31, 2022 due to congenital pneumonia. A chest X-ray showed interstitial pneumonia, however, RT-PCR of the patient's nasopharyngeal swab sample was negative for SARS-CoV-2, as well as for other respiratory viruses. The most common causes of congenital pneumonia, including TORCH-infections, chlamydia, and other pathogens that colonize the mother's birth canal, were ruled out. On admission, the infant had respiratory failure (SpO₂-88%) and required 7 days of high-flow oxygen. Empirical antimicrobial treatment (ceftriaxone 80 mg/kg every 24h, amikacin 7,5 mg/kg every 12h) was initiated intravenously. Over the following week, there was gradual improvement in respiratory function. The infant was discharged from the hospital.

Three month later, the infant presented to the infectious disease department following a 3-day history of fever, coughing, poor feeding and limitation of movement in the right hip and knee joints. RT-PCR analysis of the nasopharyngeal swab sample of the infant and his mother was positive for SARS-CoV-2. On initial assessment, the infant was in febril convulsions with

marble skin, acrocyanosis. Auscultation of the lungs revealed decreased breathing. His total leukocyte count was high 26,41x10⁹/L, absolute lymphocyte count was 8,17x10⁹/L, absolute neutrophil count was 15,09x10⁹/L, SpO₂-90%. The levels of blood inflammatory markers, including ferritin, C-reactive protein, and procalcitonin were 507ng/ml, 195mg/L and 2,10ng/ml respectively. A blood serological test for HIV was also performed, and it was negative. Bacterial cultures of blood, urine and respiratory secretions were negative. Chest radiography showed bilateral airspace opacification. Ultrasound examination revealed thickening of the synovial bursa and edema of the right hip and knee joints.

After antimicrobial (intravenous ceftazidime) and antiviral (remdesivir for 5 days) treatment, the patient's respiratory and joint functions gradually improved. Notably, over the following 3 weeks, the infant's nasopharyngeal swab sample was positive for SARS-CoV-2, suggesting that the infant was immunocompromised. After a negative result for SARS-CoV-2 on hospital day 30, the patient was transferred to another hospital to determine the cause of the possible immunodeficiency. Conclusion. Thus, past congenital pneumonia and the presence of a severe course of COVID-19 with the development of coxarthrits and gonitis suggests a primary immunodeficiency in the infant and requires further in-depth immunological analysis. Negative bacterial cultures of blood may suggest that coxarthrits and gonitis are extrapulmonary manifestations rather than septic complications of COVID-19.

Acknowledgements: We thank the Yerevan State Medical University for the support, National Center for Infectious Diseases for providing access to the database. The authors did not receive any financial support for the research, authorship, or publication of this article.

Citation: Arshak Ghazaryan. Severe SARS-Cov-2 infection with extrapulmonary manifestation in a 3-month-old child. *J Clin Med Img Case Rep.* 2023; 3(4): 1487.

References

1. Dong Y, Mo X, Hu Y, Qi X, Jiang F, et al. Epidemiology of COVID-19 Among Children in China. *Pediatrics.* 2020; 145: e202007.
2. Ludvigsson JF. Systematic review of COVID-19 in children shows milder cases and a better prognosis than adults. *Acta Paediatr.* 2020; 109: 1088-1095.
3. Riphagen S, Gomez X, Gonzalez-Martinez C, Wilkinson N, Theocharis P. Hyperinflammatory shock in children during COVID-19 pandemic. *Lancet.* 2020; 395: 1607-1608.
4. Kahn R, Berg S, Berntson L, Berthold E, Brodin P, et al. Population-based study of multisystem inflammatory syndrome associated with COVID-19 found that 36% of children had persistent symptoms. *Acta Paediatr.* 2022; 111: 354-362.