

Cytomegalovirus Pneumonitis with Hepatitis and SIADH in a Pediatric Patient

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Abstract

Background: A common herpesvirus infection, cytomegalovirus (CMV) infection, is typically asymptomatic in immunocompetent people. If not diagnosed right away, it can cause serious morbidity in infants by presenting with substantial systemic involvement. The male infant in this case study, who was 5 months old, presented with respiratory distress, fever, and poor feeding. Inappropriate antidiuretic hormone secretion syndrome (SIADH), hepatitis, and CMV pneumonitis were found during clinical evaluation and investigations. Serological and radiological results, along with elevated liver enzymes and hyponatremia, confirmed the diagnosis. The patient's condition gradually improved, and laboratory parameters returned to normal with supportive care and targeted antiviral treatment with ganciclovir. This case shows how crucial it is to consider CMV infection, even in the absence of obvious immunodeficiency, when infants exhibit multi-organ involvement. **Material and Methods:** The case report is based on a 5-month-old infant evaluated with clinical examination, lab tests, and imaging. All treatment decisions were made according to the baby's symptoms and monitoring during hospital stay. **Results:** Tests confirmed CMV infection with breathing problems, liver issues, and low sodium. After supportive care and antiviral treatment, the baby gradually improved and stabilized. **Conclusion:** CMV infection should be considered in infants with unexplained respiratory and liver problems. Early diagnosis and treatment can prevent complications and improve outcomes.

Keywords: Cytomegalovirus infection, pneumonitis, hepatitis, SIADH, infants, antiviral therapy.

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INTRODUCTION

The double-stranded DNA virus known as cytomegalovirus (CMV) is a member of the Herpesviridae family. Primary infections in immunocompetent hosts are frequently subclinical. Still, in neonates, infants, and immunocompromised patients, they can result in life-threatening systemic disease affecting multiple organs, including the liver, lungs, and central nervous system (1). Rare but known signs of disseminated CMV infection include SIADH, hepatitis, and CMV pneumonitis (2). Hepatic involvement, which manifests as neonatal cholestasis and hepatitis, is well documented in congenital CMV (3). An infant with CMV pneumonitis, hepatitis, and SIADH is presented in this report, emphasising the significance of early diagnosis and treatment to lower morbidity.

CASE DESCRIPTION

A male infant, age five months, arrived at the emergency room after experiencing respiratory distress for one day. No history of vomiting, coughing, or fever was present. The child had been hospitalised twice in the last two months for similar complaints and had previously experienced similar episodes. The patient weighed 3.5 kg at birth and was delivered at term via a typical vaginal delivery. He needed to

stay in the neonatal intensive care unit for a month because he had delayed crying at birth. Only the initial dose of the vaccine was given, resulting in an incomplete immunisation.

Examination Findings

Upon examination, the infant had intercostal retractions, a grunt, tachypnea and agitation. Pectus carinatum and abdominal distension were observed. The liver was palpable 4–5 cm below the right costal margin.

Vital signs:

Parameter	Observed Value
Heart Rate	110 bpm
Respiratory Rate	44/min
Blood Pressure	90/40 mmHg
SpO ₂	88% on nasal prongs
Random Blood Sugar	65 mg/dL

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Anthropometric parameters:

Parameter	Observed Value
Height	66 cm
Weight	4 kg (< -3 SD)
Head Circumference	31 cm (< -3 SD)

Diagnostic Workup

- Liver Function Tests: SGOT 2139 U/L, SGPT 1313 U/L
- Serum Sodium: 122 mmol/L
- Urine Osmolality: 201.7 mOsm/kg
- Fractional Excretion of Sodium (FeNa): 0.5%
- C-Reactive Protein: 49 mg/L
- Chest X-ray: Heterogeneous pneumonic patches in bilateral upper and lower lobes
- High-Resolution CT (HRCT) Thorax: Areas of consolidation with air bronchograms in both lungs
- NCCT Brain: Normal
- CMV Serology: Reactive for both IgM and IgG
- Ophthalmic and Hearing Evaluation: Normal findings

Management and Outcome: In the Pediatric Intensive Care Unit (PICU), the condition of the infant was managed with supportive care, fluid restriction for SIADH, and extra oxygen. Valganciclovir antiviral treatment was initiated and continued for 6 months. Serum sodium levels and liver function steadily improved during the patient's hospital stay. After ten days, the child was released in stable condition and is still being monitored regularly, with normal biochemical, hearing, and vision parameters.



DISCUSSION

CMV is one of the most prevalent congenital viral infections, which affects 0.5–2% of live births globally. Ten to fifteen per cent of infected infants exhibit symptoms at birth, and some asymptomatic infants go on to experience neurodevelopment sequelae.^[4] It has been reported that CMV pneumonitis is caused by viral replication in alveolar epithelial and endothelial cells, which further leads to interstitial inflammation, alveolar injury, and fibrosis.^[5] Furthermore, hepatocellular damage with elevated transaminases and, in more extreme situations, cholestasis or hepatic failure are characteristics of liver involvement.

In this case report, the co-occurrence of SIADH, hepatitis, and pneumonitis shows how widespread CMV infection is. Although it is rare, paediatric patients with systemic viral illness have been reported to experience hyponatremia due to SIADH in CMV infections.^[6]

By preventing viral replication and minimising end-organ damage, early diagnosis via serological testing and imaging, followed by antiviral therapy with ganciclovir or valganciclovir, greatly improves outcomes.^[7] Even in the absence of typical congenital infection symptoms, this case highlights the importance of CMV testing in infants with unexplained hepatitis and recurrent respiratory distress.

CONCLUSION

Although it is uncommon, infants who exhibit recurrent respiratory distress, hepatic dysfunction, and hyponatremia should be suspected of having cytomegalovirus pneumonitis with hepatitis and SIADH. To avoid complications and ensure long-term benefits, prompt detection, diagnostic confirmation, and appropriate antiviral therapy are essential.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Nelson Textbook of Pediatrics (22nd ed.). (2023). Elsevier.
2. Wong, Y. J., Choo, K. J. L., Soh, J. X. J., & Tan, C. K. (2018). Cytomegalovirus (CMV) hepatitis: an uncommon complication of CMV reactivation in drug reaction with eosinophilia and systemic symptoms. *Singapore medical journal*, 59(1), 112–113. <https://doi.org/10.11622/smedj.2018016>
3. Patil SM, Beck PP, Patel TP, Hunter MP, Johnson J, Acevedo BA, Roland W. Cytomegalovirus pneumonitis-induced secondary hemophagocytic lymphohistiocytosis and SIADH in an immunocompetent elderly male literature review. *IDCases*. 2020 Jan 1;22:e00972.
4. Kenneson, A., & Cannon, M. J. (2007). Review and meta-analysis of the epidemiology of congenital cytomegalovirus (CMV) infection. *Reviews in Medical Virology*, 17(4), 253–276. <https://doi.org/10.1002/rmv.535>
5. Fishman, J. A. (2013). Infection in organ transplantation. *American Journal of Transplantation*, 13(s4), 22–30. <https://doi.org/10.1111/ajt.12103>
6. Pérez-López, J., Hernández-Sampelayo, T., & Mejías, A. (2021). Hyponatremia due to SIADH associated with viral infections in children. *Frontiers in Pediatrics*, 9, 706665. <https://doi.org/10.3389/fped.2021.706665>
7. Rawlinson, W. D., Boppana, S. B., Fowler, K. B., Kimberlin, D. W., Lazzarotto, T., Alain, S., & Lanzieri, T. M. (2017). Congenital cytomegalovirus infection in pregnancy and the neonate: Consensus recommendations for prevention, diagnosis, and therapy. *The Lancet Infectious Diseases*, 17(6), e177–e188. [https://doi.org/10.1016/S1473-3099\(17\)30143-3](https://doi.org/10.1016/S1473-3099(17)30143-3).