Open Journal of
Clinical & Medical
Case Reports

Volume 12 (2026)
Issue 5

Short Report ISSN: 2379-1039

Case report of a healthy newborn who scared the whole ward

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Abstract

Sepsis is a systemic inflammatory response. Neonatal sepsis is a specific form with high mortality and nonspecific symptoms. Therefore, inflammatory markers such as CRP, IL-6, PCT, WBC and others, measured in peripheral blood, are used for its diagnosis. Recent analyses highlight the effectiveness of interleukin-6 in the early detection of neonatal sepsis. Proposed cutoff values for IL-6 vary depending on the neonate's day of life: 80 pg/ml on the first day of life, 40 pg/ml on days 2-7, and 30 pg/ml after the seventh day of life. However, this clinical case report describes a newborn whose IL-6 level was measured at 4779.0 pg/ml on the second day of life and all additional tests performed were within the normal range. This leads to the conclusion that currently available inflammatory markers can only be a suggestion in the diagnosis

Keywords: Interleukin-6; Inflammatory markers; Neonatal sepsis.

Abbreviations: CRP: C-reactive protein; IL-6: Interleukin-6; PCT: Procalcitonin; WBC: White Blood Cell; CSF: Cerebrospinal Fluid; ECG: Electrocardiogram.

Introduction

Neonatal sepsis is a significant cause of neonatal morbidity and mortality worldwide, and its symptoms are often nonspecific. Therefore, inflammatory markers such as CRP, IL-6, PCT, WBC and others, measured in peripheral blood, are used for its diagnosis. Recent analyses emphasize the role of interleukin-6 in the immune response and acute-phase reactions. Serum IL-6 has been shown to be the most accurate and the first laboratory parameter to increase in cases of sepsis after the first week of life. Proposed cut-off values for IL-6 vary depending on the neonate's day of life: 80 pg/ml on the first day of life, 40 pg/ml on days 2-7, and 30 pg/ml after the seventh day of life [1-5].

Case Presentation

A female newborn was admitted to the Neonatology Clinic after a vaginal delivery at 39 weeks of gestation, in good general condition, with an Apgar score of 10 in the first and subsequent minutes. The patient was evaluated for congenital infection due to a positive perinatal history (maternal urinary tract infection). Laboratory tests revealed significantly elevated CRP and IL-6 levels (4779.0 pg/ml). Due to the suspicion of an ongoing inflammatory condition, the patient was administered empirical antibiotic therapy and further diagnostic workup was undertaken. Blood, urine, cerebrospinal fluid, and rectal swab cultures were negative, as were CSF tests for viral and bacterial antigens and stool tests for viruses. Abdominal, transparietal and lung ultrasound examinations also did not differ from the norm. An ECG was normal, and echocardiography revealed a patent foramen ovale. Despite this, inflammatory parameters remained significantly above the reference range, although with a tendency to decrease. Due to the child's continued good clinical condition and normal weight gain, the patient was discharged home on the 12th day of hospitalization with recommendations for follow-up at the Neonatal Pathology Clinic in 11 days and at the Pediatric Immunology Clinic in two months. Follow-up visits included CRP and IL-6 tests, which continued to trend downward, reaching an interleukin-6 level of 35.0 pg/ml after three months. Therefore, genetic testing was abandoned. Currently, the four-month-old patient has doubled her body weight and remains in good overall condition.

Conclusion

Available inflammatory markers are a useful diagnostic tool for inflammation, but they do not provide definitive confirmation. They should be interpreted as a guide, and diagnosis and treatment should be based primarily on symptoms and clinical presentation. Furthermore, individual differences should be considered, and a personalized diagnostic and therapeutic approach should be adopted for each patient [1-8].

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Manuscript Information: Received: May 08, 2026; Accepted: June 08, 2026; Published: June 30, 2026

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Citation: Rupniak I, Guss W, Sadowska-Krawczenko I. Case report of a healthy newborn who scared the whole Ward. Open J Clin Med Case Rep. 2026; 2421.