

CASE REPORT

Sphingomonous Paucimobilis Bacteremia Presenting as BRUE in a Two-Month-Old Male Infant

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Abstract

Sphingomonas paucimobilis is a gram negative, non-fermenting, aerobic bacterium distinguished by its yellow pigment and motility due to polar flagella. While it is commonly found in soil and water, it can also be isolated from contaminated hospital water system and medical devices, making it a rare but significant cause of health care associated infections. Although *S. paucimobilis* typically affects immunocompromised individuals, it can also cause infections in healthy patients including infants.

Here, we report a case of *S. paucimobilis* bacteremia in 2-month-old immunocompetent male infant who experienced three episodes of Brief Resolved Unexplained Events (BRUE).

Keywords: Sepsis; Infant; Sphingomonous Paucimobilis; BRUE

Introduction

S. paucimobillis is an obligate aerobic, glucose non-fermenting bacillus characterized by its catalase and oxidase activities [1, 3, and 5]. It was first identified as *Pseudomonas paucimobillis* in human infections but was re-classified as *S. paucimobillis* in 1990; in accordance with the phylogenetic data [4, 6]. This bacterium is widely distributed in various environments, including seawater, river water, soil and wastewater and is also found in a hospital setting, such as in water systems, respiratory assist devices and laboratory instruments, contributing to hospital acquired infections. These infections could be serious in immunocompromised patients with multiple comorbidities [3, 4]. In this study, we present an unusual case of *S. paucimobillis* infection in a 2-month-old male infant who experienced three episodes of brief resolved unexplained events (BRUE).

This case highlights the importance of considering rare pathogens like *S. paucimobillis* in the differential diagnosis of BRUE, especially in infants with recurrent episodes.

Case Presentation

A 2-month-old male infant had his first episode of emesis, perioral cyanosis and dyspnea, post-vaccination. This episode self-resolved. He was brought to the emergency department (ED) on the same day with a complaint of large-volume emesis, pallor and unresponsiveness to painful stimuli. This marked his second episode of BRUE. While in the ED, infant experienced a third episode of BRUE, during which he exhibited gagging, pallor and decreased responsiveness. Parents reported that they had recently visited a beach and the infant had a splash of water mixed with soil on his face.

Upon physical examination in the ED, the infant was noted to be pale, slightly mottled with decreased tone and activity. Dextrose 10% was initiated at a rate of 120ml/kg/day.

On admission, the infant had a temperature of 37.1 degree Celsius, a heart rate of 125 beats per minute, a respiratory rate of 52 breaths per minute, and a blood pressure of 97/50 mmHg. Physical examination was unremarkable except for a soft, grade 1 systolic murmur heard on the left side of the chest. Laboratory tests revealed a slightly elevated white blood cell count of $20.3 \times 10^9/L$ and a C-reactive protein level of 1.9 mg/L.

The infant was started on vancomycin and ceftriaxone, but after receiving 95% of the loading dose of vancomycin, he developed a red rash with swelling of the ears and face, raising concerns for an allergic reaction. Hence, leading to the discontinuation of vancomycin. Blood and urine cultures were pending at that time. By the next day, the infant's activity level had improved. A repeat CBC showed WBC reduced to $11 \times 10^9/L$, and CRP increased to 8.5 mg/L. Blood culture on admission was positive for *S. paucimobillis* [4, 7]. However, CSF analysis was unremarkable. Urine, CSF and a repeat blood culture were all negative.

Echocardiography did not reveal any evidence of intracardiac infection or anomaly. The infant continued to improve clinically and by the 70th day of life, after completing the 7-day course of ceftriaxone, he remained stable, had resolution of all symptoms and was discharged home on oral feeds.

Discussion

This case presents a rare instance of *S. paucimobillis* bacteremia in a 2-month-old infant, manifesting as recurrent episodes of BRUE. History was suggestive of acquiring this infection at the beach. Infant had a splash of sea water mixed with the soil during his recent visit. The infant's clinical course was marked by three BRUE episodes, raising concerns for an underlying infec-

tion. The identification of *S. paucimobilis* in blood cultures highlights the importance of considering atypical pathogens in cases of unexplained recurrent events [5, 6]. The Patient's positive response to antibiotic therapy, after initial challenges with vancomycin, underscores the need for careful management and monitoring.

This case contributes to the limited pediatric literature on *S. paucimobilis* infections and emphasizes the need for awareness of this rare but potentially serious pathogen [7].

Conclusion

This case illustrates the unusual presentation of *S. paucimobilis* bacteremia in a young infant with recurrent BRUE episodes. The case emphasizes the necessity of including rare pathogens in the differential diagnosis of unexplained events in pediatrics. Effective identification and timely treatment were crucial for the patient's recovery, highlighting the importance of early intervention in managing such infections [1].

References

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