STUDENT CASE REPORT

Another Face of Late-Onset Group B Strep Sepsis

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ABSTRACT

Group B Streptococcus (GBS) infection in neonates is one of the most common causes of neonatal sepsis in the United States.[1] While many infants present within the first six days of life with sepsis, late-onset GBS sepsis can also occur. This case explores an 11-day-old male with very subtle behavior changes who did not have key history factors such as GBS colonization in his mother. Additionally, the presented case illustrates the importance of paying attention to parents' concerns, evaluating a newborn for sepsis, and initiating empiric antibiotic therapy.

PRIMARY OBJECTIVE

To explain a case of a subtle presentation of late-onset GBS sepsis, explore the importance of paying attention to parents' concerns, and initiating empiric antibiotic therapy for infants.

BACKGROUND

Group B Streptococcus (GBS) infection in neonates is one of the most common causes of neonatal sepsis in the United States.[1] It affects around 0.5 per 1000 live births. The incidence of early-onset GBS has declined since the 1990s.[2, 3] Early-onset sepsis presents from birth to day 6 of life; late-onset GBS sepsis occurs in babies from 7 days up until several months old. [4] These infants can still face a GBS infection even if mothers screen negative for GBS during pregnancy. Although early-onset GBS infection is usually acquired perinatally during the passage through the birth canal, it can be spread through skin-to-skin contact or exposure in the hospital.[4] Late-onset cases of GBS can have a variety of presentations[5]. Neonates can present with bacteremia[6] while 25-30% of cases present with meningitis.[7] Infants usually present with fever and a recent history of upper respiratory infection.[6]

There is currently no effective approach for the prevention of late-onset disease. Still, a current research direction is to develop a GBS vaccine to prevent all GBS neonatal sepsis.[8] GBS sepsis can have many serious sequelae, such as cerebral palsy, intellectual disability, seizures, hearing loss, and visual impairment.[9] With such serious consequences as these, a high index of suspicion and early recognition of sepsis symptoms, often non-specific and subtle, is critical. Empiric antibiotic treatment in neonates is imperative to prevent the sequelae of GBS sepsis.

CASE

An 11-day-old male born at 39 weeks plus five days gestation via spontaneous vaginal delivery was seen in the emergency department with a one-day history of crying, fussiness, eating less, and non-bilious non-bloody emesis on three occasions. He was afebrile at home and did not receive any medications or home treatments.

There was no maternal history of GBS colonization, all routine antenatal serologies were non-reactive, and the mother was rubella-immune. The pregnancy, labor, and delivery were uncomplicated. Examination of the infant showed a rectal temperature of 37.9° C, blood pressure of 76/47 mm of Hg, pulse rate of 187/minute, respiratory rate of 32/min, and SpO2 on pulse oximetry of 99% on room air. He was consolable and had mild jaundice. The rest of the physical examination was unremarkable. He underwent a sepsis evaluation, including blood and urine cultures. A lumbar puncture was performed for cerebrospinal fluid (CSF) evaluation and cultures.

Laboratory testing revealed a CBC with a WBC count of 35.10/dL with 73% neutrophils, 17% lymphocytes, 3% monocytes, and 7% bands. He had an ESR of 26 mm/hr, a CRP of 8.5 mg/dL, and a procalcitonin of 25.83 ng/mL. His blood glucose was 61 mg/dL. His CSF showed 7 WBCs with 81% lymphocytes, 19% monocytes, and 2 RBCs, with a glucose of 57 mg/dL and protein of 51 mg/dL. No organisms were seen on the CSF Gram stain. Herpes simplex virus and enterovirus polymerase chain reactions were negative. A respiratory rapid viral panel was negative. An abdominal radiograph was unremarkable.

The patient was started empirically on IV ampicillin and gentamicin and admitted to the hospital. His blood culture was initially reported to show Gram-negative cocci in chains and pairs, later corrected to Gram-positive cocci in chains and pairs. It was subsequently identified as group B streptococcus at 72 hours of blood culture incubation. His urine and CSF cultures were sterile. Gentamicin was discontinued. He showed clinical improvement and was discharged after ten days of intravenous antibiotic treatment.

DISCUSSION

GBS sepsis is a potentially severe disease in neonates, and one must have a high level of clinical suspicion even if presenting after the first week of life. In this case, the presentation was missing several classical risk factors, such as a GBS-positive mother and a history of fever. It is essential to reiterate to parents of young children who are usually very attentive to small changes in behavior from their children, and these small changes, such as fussiness, not eating well, not sleeping, or sleeping too much, may be the only presentation of neonatal sepsis.

It is a well-accepted and time-tested practice to evaluate neonates if sepsis is a consideration and use empiric antibiotics while awaiting the results of cultures. Most neonates evaluated for sepsis are not confirmed to have a bacterial infection. However, the use of empiric antibiotics remains the holy grail of management of "rule out sepsis" in neonates. This is standard teaching for trainees to initiate antibiotic management in neonates who are being evaluated for neonatal sepsis before significant morbidity occurs. There is evidence that earlier antibiotic treatment results in lower morbidity and mortality.[10]

This case illustrates the importance of paying attention to parents' concerns, evaluating a newborn for sepsis, and initiating empiric antibiotic therapy.

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