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Case Report

Early onset sepsis with pneumonia in a full term neonate due to Stenotrophomonas maltophilia

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ABSTRACT

Stenotrophomonas maltophilia, a multi-drug resistant non fermenting gram negative bacillus is an increasingly common nosocomial pathogen, especially in intensive care units. Comparatively few cases of S. maltophilia infection have been reported in neonatal population. We report a case of early onset sepsis with pneumonia in a full term neonate due to S. maltophilia treated successfully.

Keywords: Neonate, Pneumonia, Sepsis, Stenotrophomonas maltophilia

INTRODUCTION

Stenotrophomonas maltophilia (formerly Pseudomonas maltophilia/Xanthomonas maltophilia), a non-fermentative multi drug resistant Gram negative aerobic bacillus is emerging as a nosocomial pathogen associated with significant case fatality.[1] S. maltophilia is ubiquitous in the environment causing infections in debilitated and immuno-compromised patients with few cases being reported in neonates. We report a case of early onset neonatal sepsis with severe pneumonia due to S. maltophilia. To the best of our knowledge, this may be the first report of early onset neonatal sepsis with pneumonia due to S. maltophilia successfully treated from India.

CASE REPORT

A single, term (38 weeks) female baby weighing 2640 grams was born by normal vaginal delivery to a 24 year old $G_2P_1L_1$ mother. There was no history of maternal fever or prolonged rupture of membranes. Liquor was clear. APGAR scores were 8 & 9 at 1 and 5 minutes of age. Baby developed respiratory distress soon after birth and was shifted to NICU in referral hospital. Respiratory distress rapidly worsened over next few hours and baby was referred to our hospital for further care.

At admission, baby was febrile (101.2°F), dull with cold extremities and poor perfusion. Vital signs were: HR 158, RR 78, CRT 4-5 sec, and SaO_2 88% with 1 lt/min oxygen through nasal prongs.

Laboratory investigations showed Hb of 15.6 gm/dl, leukocytosis (WBC: 21700/cu.mm), thrombocytopenia (Platelets: 1.28 Lakhs/cu.mm) and positive septic screen (CRP: 34.5 mg/L).

IV fluids were started and blood for culture was drawn. Chest X ray showed patchy opacities and consolidation of both lung fields suggestive of pneumonia. ABG showed respiratory acidosis (pH: 7.21, PCO_2 68 mmHg, PaO_2 54 mmHg) and baby was intubated and commenced on conventional ventilation. IV antibiotics (Piperacillin and amikacin) and inotrope were started.

On day 3 of life, baby developed seizures. Blood glucose, electrolytes and calcium were normal. Head ultrasound was normal. CSF examination was normal. Levofloxacin was added on day 3 of life.

Blood culture taken at admission grew Stenotrophomonas maltophilia which was sensitive only to Levofloxacin, co-trimoxazole and ceftazidime. Baby responded well to antibiotics (Levofloxacin, ceftazidime) which were given for 2 weeks. Repeat blood culture was negative.

Baby had 3 episodes of seizures during hospital stay. Seizures were controlled with phenobarbitone. CSF culture was negative.

Blood culture done on Bactec 9050 (BD Diagnostic Systems, USA) turned positive at 48 hours. Gram stain showed presence of Gram negative bacilli. Subculture on Mac-Conkey agar and 5% Sheep blood agar showed growth of non-lactose fermenting colonies that were catalase positive and oxidase negative. Automated bacterial identification and antimicrobial susceptibility testing were done using Microscan Autoscan 4 (Siemens, Germany). Isolate was identified as Stenotrophomonas maltophilia, which was sensitive to levofloxacin (MIC ≤2 mcg/mL), co-trimoxazole (MIC ≤2/38 mcg/mL) and ceftazidime (MIC 8 mcg/mL); and resistant to aminoglycosides, extended spectrum penicillins, cephalosporins (except ceftazidime) and carbapenems.

Baby was extubated after 4 days of ventilation and discharged at 2 weeks of life.

DISCUSSION

S. maltophilia infection in neonates was first reported from India in 1984 in a case each of neonatal meningitis and conjunctivitis.[2] Subsequently, it has been reported to cause nosocomial pneumonia, sepsis, endocarditis, meningitis, urinary tract infections, conjunctivitis, skin and soft tissue infections.[1] Two outbreaks of S. maltophilia sepsis in NICUs have been reported.[3,4] The source of infection was traced to tap water, sinks, humidifiers, ventilators and disinfectants in some cases.[3,4] Though still uncommon in NICUs, it is worrisome because of high degree of intrinsic resistance to commonly used antibiotics including aminoglycosides, cephalosporins and carbapenems. It is usually susceptible to co-trimoxazole and fluoroquinolones but emerging resistance to these drugs is reported. Two cases of early onset neonatal sepsis due to S. maltophilia reported from Kolkata, India succumbed to infection.[5] Two cases of late onset sepsis with meningitis were treated successfully with ciprofloxacin alone or in combination with co-trimoxazole.[6,7]

Mother had no history of fever, UTI or prolonged rupture of membranes. Maternal swab, blood culture, and sampling of environmental sources were not done. In view of early onset sepsis presenting within few hours of birth, it was presumed that baby developed infection either in utero or perinatally.

S. maltophilia infection is usually associated with prolonged hospital stay, long duration of broad spectrum antibiotic therapy or ventilation and presence of central venous catheter.[8] None of these risk factors were present in our case. Our case was early in onset and presented with features of sepsis with pneumonia on the first day of life. To the best of our knowledge, this may be the first report of neonatal sepsis with pneumonia due to S. maltophilia successfully treated from India.

This case report highlights that S. maltophilia, a nosocomial pathogen is being isolated more frequently in cases of neonatal sepsis. S. maltophilia is known to adhere to plastic surfaces and form biofilms which could be one of the reasons for persistence in the hospital environment.[9] Fluoroquinolones are not usually used in early onset sepsis and co-trimoxazole is rarely used in neonates. In early onset sepsis due to S. maltophilia, babies might deteriorate rapidly and succumb to infection even before diagnosis is established. Our case was sensitive to ceftazidime which is unusual.

S. maltophilia infections could be under reported as they are often misidentified as Alkaligenes faecalis, Bordetella bronchiseptica and Pseudomonas aeruginosa.[10] There is a need for epidemiological investigation to find source of this infection which has a high case fatality rate and is difficult to eradicate.

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