CASE REPORT

Sphingomonas paucimobilis septicemia in a neonate: A rare case report

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ABSTRACT

Sphingomonas paucimobilis, a yellow-pigmented, aerobic, glucose nonfermenting, Gram-negative bacilli is a rare cause of human infection. It was first discovered as an infective agent in humans in 1977 and named *Pseudomonas paucimobilis*. It was renamed as *S. paucimobilis* in 1990 in accordance with phylogenetic data. *S. paucimobilis* is an aerobic bacterium found in soil and water; it is a rare cause of healthcare associated infections. *S. paucimobilis* can cause infections in healthy as well as immunocompromised individuals. At first, its colony looks like Gram-positive bacilli colony, so by mistake it is discarded as contaminants. *S. paucimobilis* is an emerging pathogen and it should not be discarded as contaminants. Here, we report a case of *S. paucimobilis* bacteremia in a neonate who presented with respiratory distress.

KEY WORDS: Interleukin-6, neonatal septicemia, *Sphingomonas paucimobilis*

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DOI: xxxxxxxxx (when available)
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INTRODUCTION

Sphingomonas paucimobilis is an aerobic bacterium found in environment. It was first discovered as an infective agent in humans in 1977 and named *Pseudomonas paucimobilis*. It was renamed as *S. paucimobilis* in 1990 in accordance with phylogenetic data.[1,2] *S. paucimobilis* is a rare cause of healthcare associated infections.[3,4] The route of infection can be endogenous from previous colonization of the patient or exogenous via the implantation of various indwelling devices or via contaminated fluids in the hospital. The present case report describes the clinical characteristics and manifestations of *S. paucimobilis* bacteremia in a neonate. In our knowledge, this is the first case of neonatal sepsis due to *S. paucimobilis* reported from North India.

CASE REPORT

A 1-day-old male baby having weight 2.9 kg with respiratory distress was brought to pediatric outpatient clinic in our hospital in September 2013. The baby was gasping after birth. He was full term baby born by vaginal delivery. Baby did not cry immediately after birth.

The mother complained of leaking per vaginum for 4 h before delivery. The liquor was meconium stained and there was history of mouth to mouth breathing given to the baby. The patient was admitted and intubated, intravenous fluids were given and injection cefotaxime and amikacin was started. The investigations showed C-reactive protein (CRP) negative on 1st day. However, CRP was positive (41.70 g/l) by nephalometry on 3rd day of admission. The interleukin-6 value on the day of admission was 250 pg/ml. Two sets of blood culture were taken and both yielded yellow-pigmented, wrinkled, nonlactose fermenting colony [Figures 1 and 2]. Gram stain showed Gram-negative bacilli. The microorganism was positive for motility test, oxidase test, citrate utilization, esculin hydrolysis and negative for urease test, nitrate reduction test and glucose fermentation. The isolate was identified as *S. paucimobilis* by Vitek 2 system (bioMerieux, USA). Antibiotic susceptibility was done by Kirby–Bauer disc diffusion method and the isolate was resistant to aztreonam, cefoperazone- sulbactam, piperacillin and sensitive to cefepime, meropenem, ciprofloxacin, piperacillin-tazobactam, gentamycin, imipenem, and levofloxacin. His hemoglobin was 20.6 g/l, total leukocyte count was 30,000/mm^3, neutrophils were 70%, lymphocytes were 23%, monocytes were 06%, and eosinophils were 01%. Platelet count was 179 × 10^9/l. Serum electrolytes were sodium 135 meq/l,

How to cite this article: ?????

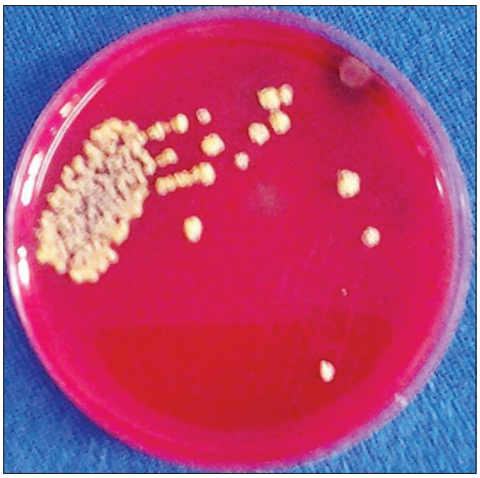

Figure 1: Growth of *Sphingomonas paucimobilis* on blood agar

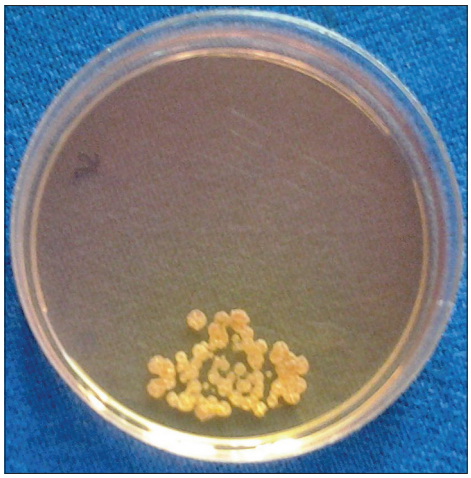

Figure 2: Growth of *Sphingomonas paucimobilis* on MacConkey agar

potassium 6.4 meq/l, and calcium 9.4 meq/l. Value of prothrombin time was 29.2 with INR 2.2 and activated partial thromboplastin time was 25.2.

On the 2nd day of examination, blood stained gastric aspirate (5–6 ml) was seen. The chest was seen to be hyper inflated. Baby was not maintaining oxygen saturation despite ventilator support. Furthermore, there was increased secretion through endotrocheal tube. Baby was given fresh frozen plasma, then bleeding stopped.

As the patient's condition was not improving the antibiotic was changed to piperacillin-tazobactam 150 mg/kg/day intravenously and amikacin 20 mg/kg intravenously. Patient responded well and was discharged after 15 days of treatment.

DISCUSSION

S. paucimobilis is a yellow-pigmented, aerobic, glucose nonfermenting, Gram-negative bacilli that is widely distributed in the natural environment.[5] The origin of *S. paucimobilis* nosocomial infections may be endogenous (i.e., they may stem from previous colonization of the patient) or environmental (via the implantation of various indwelling devices) or may be associated with contamination of sterile fluids in hospitals.

S. paucimobilis, a nonfermenting Gram-negative bacillus, is regarded as of minor clinical significance. Not many instances of infections with this organism can be found in the literature. Infections include bacteremia/septicemia caused by contaminated solutions, e.g. distilled water, hemodialysis fluid, and sterile drug solutions.

The organism lacks the lipopolysaccharide components in the outer membrane of the cell wall usually found in the Gram-negative organisms and which are associated with endotoxic activity.[6] The absence of these components may therefore explain the favorable prognosis seen in previously reported cases. *S. paucimobilis* has been reported to be usually susceptible to tetracyclines, chloramphenicol, trimethoprim/sulfamethoxazole, carbapenems, and aminoglycosides. Its susceptibility to other antimicrobial agents including third-generation cephalosporins and fluoroquinolones is variable. In addition, the organism is usually resistant to penicillins and to first-generation cephalosporins.[3,5,7] The published results of susceptibility tests suggest that imipenem alone or an aminoglycoside plus a third-generation cephalosporin should be the agents of choice in the treatment of these infections.[3]

CONCLUSION

S. paucimobilis can cause infections in healthy as well as immunocompromised individuals. At first, its colony looks like Gram-positive bacilli colony, so by mistake it is discarded as contaminants. *S. paucimobilis* is an emerging pathogen and it should not be discarded as contaminants.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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