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Case Report

Sphingomonas paucimobilis - an emerging pathogen

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ABSTRACT

Sphingomonas paucimobilis is a gram negative bacterium usually an opportunistic pathogen. It is known to cause infections among immunocompromised individuals. Rarely it causes infections among immunocompetent individuals. We report a case of *sphingomonas paucimobilis* sepsis in a ten year old male child.

Keywords: Sphingomonas paucimobilis, Gram negative, Pathogen

INTRODUCTION

Sphingomonas Paucimobilis is an aerobic, oxidase positive, catalase positive, motile gram negative bacterium, opportunistic pathogen.[1] It is widely found in nature, especially in water and soil and has been isolated frequently from hospital water systems, mechanical ventilators etc. The bacteria are known to cause infections in immunocompromised and hospitalized patients. It rarely affects immunocompetent patients. . In various studies, *Sphingomonas Paucimobilis* has been shown to be a causative agent in immunocompromised patients and in hospital acquired postoperative endophtalmitis, osteomyelitis and septic arthritis.[2-4] There have been case reports of outbreak of sphingomonas sepsis in NICU.[5] Various infections caused by *Sphingomonas paucimobilis* include bacteria, septic arthritis, endophthalmitis, peritonitis, catheter related infections, pyoderma and ventilator associated pneumonia.[2-6] Infections in immunocompetent individuals is rare. We report a case of *Sphingomonas paucimobilis* sepsis in a ten year old male child.

CASE REPORT

A ten year old male child was brought to our paediatric OPD with complaints of fever of five days duration. The patient had been prescribed cefixime and paracetamol in a private clinic before coming to our OPD. On admission patient was febrile axillary temp 103.4 F, sick looking, dehydrated, the systemic examination was normal. Patient was admitted to the ward and treatment was started.

Blood investigations revealed Hb of 9.2 gm/dl, WBC count of 30,400, differential of Poly 93%, Lympho 02%, ESR was 95mm, LFT, RFT were normal, the peripheral smear was suggestive of neutrophilia with shift towards left, Blood culture was sent at time of admission. The patient was started on IV fluids and ceftrixaone, paracetamol. 48 hrs later the patient became afebrile and oral intake also improved considerably. After 24 hrs of incubation blood culture reported gram negative bacilli, subcultures on blood culture medium yielded pure growth of yellow, non-fermentative, gram negative rod shaped bacterium. The microorganism was positive for oxidase and esculin hydrolysis, while negative for urea, nitrate reduction, citrate utilization and motility. The isolate was identified as *Sphingomonas paucimobilis* using VITEKR2 an automated instrument for ID/AST testing.

The bacterium was sensitive to a host of antibiotics including ceftriaxone. The patient was given IV ceftriaxone for a total of ten days and had an uneventful recovery.

DISCUSSION

Sphingomonas paucimobilis was initially known as CDC group IIK biotype 1, subsequently receiving its own taxonomic status in 1971, when it was named Pseudomonas paucimobilis.[7] In 1990 the bacterium was placed into its own genus Sphinogomonas.[8] The first infection reported to be caused by the bacterium was in a sailor in 1979, who had developed a leg ulcer and the organism was isolated from the pus.[9] In 1981 Crane et al reported the first case of paediatric colonization by this bacteria.[10] In 1988 Tiffany et al reported a case of brain abscess after penetrating head trauma due to sphingomonas paucimobilis.[11]

Benevides et al have reported a case of oto mastoditis due to sphingomonas paucimobilis.[12] Mutlu et al have reported sphinogomas paucimobilis as cause of neonatal septicaemia in 13 neonates.[5]

Sphingomonas paucimobilis has been recovered from various hospital environments. It has known to cause infections among immunocompromised patients. Case reports highlighting sphingomonas infection in immunocompetent patients have been few.

The most common site of infection of *sphingomonas paucimobilis* has been primary bacteraemia, followed by catheter blood stream infection, UTI etc. S. paucimobilis has been isolated from blood, sputum, urine, wound, ascitic fluid, cerebro spinal fluid etc. Though gram negative infections result in severe mortality and morbidity, S Paucimobiis infections have resulted in low rate of complications and have had a favourable prognosis.

Mutu et al have reported a case of sphingomonas sepsis in a premature baby which resulted in mortality.[5] The low virulence of the organism could be attributed to the presence of an atypical lipopolysaccharide in the outer membrane, a deficiency of bacterial endotoxins and a different enzyme profile.

In our case the bacterium was sensitive to amino glycosides, fluroquinolones, cephalosporins, carbapenems and penicillin group of antibiotics. Antibiotic susceptibility of sphingomonas has varied according to various studies. There has been documented resistance to cephalosporins, aminoglycosides and carbaopenams. It would be unwise to prescribe a general group of antibiotics for Sphingomonas infection. Antibiotic therapy should be guided according to the antibiotic susceptibility results in each case.

To conclude, *Sphingomonas paucimobilis* is an emerging pathogen in paediatric patients. What was previously thought of being just a contaminant in hospital environment has now emerged as an emerging pathogen in paediatric population. Though majority of cases of *Sphingomonas paucimobilis* bacteraemia have been reported in immunocompromised individuals, immunocompetent children might also get affected.

The case has been presented to sensitize paediatricians and other health care professionals to this emerging pathogen.

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