Original Investigation / *Özgün Araştırma*

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Clinical and Microbiological Features of Bloodstream Infection due to *Sphingomonas paucimobilis* in Children

Çocuklarda *Sphingomonas paucimobilis*'e Bağlı Kan Akımı Enfeksiyonunun Klinik ve Mikrobiyolojik Özellikleri

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Abstract

Objective: *Sphingomonas paucimobilis* is an opportunistic microorganism. Despite its low virulence leading to low mortality and morbidity, it causes serious infections, particularly in immunocompromised patients, In this study, it was aimed to evaluate the clinical characteristics, risk factors, laboratory findings, antibiotic susceptibilities of the causative agent, and patient outcomes of 20 pediatric patients followed due to bloodstream infections caused by *S. paucimobilis*.

Material and Methods: In this retrospective study conducted in a single-center tertiary hospital, pediatric patients who were followed up as inpatients, between 09.05.2016 and 22.05.2023, who grew *S. paucimobilis* in at least one blood culture and had symptoms and signs of bacteremia were evaluated. Demographic characteristics, underlying diseases, predisposing factors, antibiotic susceptibility test results, treatments and outcomes were reviewed.

Results: Mean age was 74.7 (± 67.913) months, with 55% of patients being male. Healthcare-associated infections accounted for 70% of the cases. Carbapenems, amikacin, ceftriaxone, quinolones, and beta-lactam/beta-lactamase inhibitors showed the least resistance among the antibiotics tested. No mortality attributable to *S. paucimobilis* was observed.

Conclusion: *S. paucimobilis* infections, both community-acquired and healthcare-associated, are increasingly recognized with relatively low mortality but potential to cause life-threatening infections. Healthcare providers should remain vigilant about its pathogenic potential,

Öz

Giriş: *Sphingomonas paucimobilis*, virülansı düşük olması nedeniyle mortalite ve morbiditesinin az olduğu bilinmekle birlikte özellikle bağışıklığı baskılanmış hastalarda ciddi enfeksiyonlara yol açabilen fırsatçı bir mikroorganizmadır. Bu çalışmamızda *S. paucimobilis*'in neden olduğu kan dolaşımı enfeksiyonu nedeniyle takip ettiğimiz 20 pediyatrik hastanın klinik özellikleri, risk faktörleri, laboratuvar bulguları, etkenin antibiyotik duyarlılıkları ve hasta prognozlarını değerlendirmeyi amaçladık.

Gereç ve Yöntemler: Tek merkezli üçüncü basamak bir hastanede yürütülen retrospektif bu çalışmada; 09.05.2016-22.05.2023 tarihleri arasında yatarak izlenen, en az bir kan kültüründe *S. paucimobilis* üreyen ve bakteriyemi semptom ve bulguları olan pediyatrik hastalar değerlendirildi. Hastaların demografik özellikleri, altta yatan hastalık, predispozan faktörleri, antibiyotik duyarlılık test sonuçları, uygulanan tedaviler ve prognozları incelendi.

Bulgular: Ortalama yaş 74.7 (± 67.913) ay idi ve hastaların %55'i erkek idi. Sağlık bakımı ilişkili enfeksiyon %70 idi. Karbapenemler, amikasin, seftriakson, kinolonlar ve beta laktam/beta laktamaz inhibitörleri en az direnç olan antibiyotiklerdi. *S. paucimobilis*'e bağlı mortalite görülmedi.

Sonuç: *S. paucimobilis*'e bağlı toplum kaynaklı ya da sağlık bakımı ilişkili enfeksiyonlar son yıllarda artan oranlarda görülmektedir. Mortalitesi düşük olsa da hayatı tehdit eden enfeksiyonlara neden olabileceği akılda tutulmalıdır. Bu çalışmada *S. paucimobilis*'e bağlı kan dolaşımı

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especially in immunocompromised patients. In this study, it was observed that bloodstream infections due to *S. paucimobilis* can lead to community-acquired or healthcare-associated infections and can be severe in people with immunosuppression and chronic diseases.

Keywords: *Sphingomonas paucimobilis*, child, opurtunistic, bloodstream infection

enfeksiyonlarının toplum kaynaklı veya sağlık bakımı ilişkili enfeksiyonlara yol açabildiği ve immünsupresif ve kronik hastalığı olan kişilerde ağır seyredebildiği görüldü.

Anahtar Kelimeler: *Sphingomonas paucimobilis*, çocuk, fırsatçı, kan akımı enfeksiyonu

Introduction

Sphingomonas spp. are bacteria commonly found in nature, soil, and water. These bacteria are commonly found in water sources such as bathtubs, pipes, seawater, ice, river water, and mineral water; they have also been isolated in hospital environments in hemodialysis fluid, dental irrigation systems, distilled water, nebulizers, and hospital water systems. There are more than 30 species, and only *paucimobilis* is pathogenic. It is a non-fermentative, gram-negative, opportunistic bacillus (1). Its virulence is low. It causes both community-acquired and healthcare-associated infections (2). Healthcare-associated infections associated with *S. paucimobilis* have increased in recent years due to the widespread use of invasive medical devices and the increasing number of immunocompromised patients (3). It is known to cause bacteremia, pneumonia, catheter-related infections, meningitis, peritonitis, osteomyelitis, septic arthritis, postoperative endophthalmitis, empyema, spleen abscess, urinary tract infection, and biliary tract infection (4). They are resistant to penicillins and first-generation cephalosporins due to the production of chromosomally encoded beta-lactamases (5). Pediatric publications related to *S. paucimobilis* bacteremia are limited. It is a very rare cause of bacteremia. In our study, we aimed to evaluate the risk factors, antimicrobial susceptibility, treatment regimens, and clinical outcomes of *S. paucimobilis* and contribute to the literature.

Materials and Methods

This is a retrospective study conducted at a single-center tertiary hospital. Patients who were hospitalized at Balcalı Hospital, Faculty of Medicine, Çukurova University, between May 9, 2016, and May 22, 2023, were under the age of 18, had at least one blood culture positive for *S. paucimobilis*, and had symptoms and findings of bacteremia were included in the study. Catheter-associated bacteremia and non-catheter-associated bacteremia were defined according to the Centers for Disease Control and Prevention criteria, and community-acquired and healthcare-associated infections were grouped separately (6). The patient list was obtained from microbiology records. Patient files were reviewed retrospectively, and demographic characteristics, underlying disease, predisposing factors, antibiotic susceptibility test results, treatments administered, and prognosis were recorded on forms. The SPSS (Statistical Package for the Social Sciences) 23.0 software package was used for statistical analysis of the data. Categorical measurements are given as numbers and percentages, continuous measurements as mean and standard deviation (median and minimum-maximum where necessary).

Blood cultures and identification of pathogens growing in culture were performed at the Medical Microbiology Unit of the Central Laboratory of the Balcalı Hospital, Faculty of Medicine, Çukurova University. Blood cultures were incubated for five days in the fully automated blood culture system BACTEC-FX (Becton Dickinson, USA). Samples that showed growth were examined under Biosafety Level-2 conditions using Gram staining and methylene blue staining. They were then passaged onto 5% sheep blood agar, MacConkey agar, and chocolate agar using the single colony plating method and incubated at 37 °C for 24-48 hours. Identification of the growing isolates and antimicrobial susceptibility testing were performed using conventional methods and the VITEK 2 Compact ID/AST automated system (bioMérieux, Marcy-l'Étoile, France) (7).

Ethics committee approval was obtained from the T.C. Çukurova University Faculty of Medicine Non-Interventional Clinical Research Ethics Committee for the study (Decision no: 2024/145).

Results

Retrospectively, 20 pediatric patients who had at least one blood culture positive for *S. paucimobilis* and symptoms and findings of bacteremia during a seven-year period were included in the study. Nine patients (45%) were female and 11 (55%) were male. Mean age was 74.7 ± 67.913 months (median: 55.5 months, min-max: 0-206 months). Looking at the age distribution of the patients, nine were between 0-48 months, five were between 49-96 months, two were between 97-144 months, and four were 145 months and older (Table 1). One of our patients had a positive blood culture taken on the first postnatal day and was diagnosed with early neonatal sepsis. Seventeen patients (85%) had an underlying disease. One patient had no risk factors. The distribution of risk factors and diseases is shown in Table 1 and Table 2. Fourteen patients (70%) were considered to have healthcare-associated infections, and six (30%) were considered to have community-acquired infections. Growth was observed in the culture on average at 11.5 ± 16.276 days (median: 3 days, min-max: 1-57 days) after admission. One patient had multiple blood culture

Table 1. Underlying disease and age distribution of patients with *S. paucimobilis* bacteremia

Disease	Number of Patients (%)	Patient Age	Number of Patients (%)
Hematologic malignancy	5 (25)	0-48 months	9 (45)
Solid organ tumor	4 (20)		
Metabolic Disease	3 (15)	49-96 months	5 (25)
Congenital heart disease	2 (10)		
Bardet-Biedl syndrome, chronic kidney failure	1 (5)	97-144 months	2 (10)
Autoimmune encephalitis	1 (5)		
Head trauma	1 (5)	145 months and older	4 (20)
Total number of patients with underlying disease	17 (85)		

Table 2. Distribution of underlying risk factors in patients with *S. paucimobilis* bacteremia

Risk Factor	Number of Patients (%)
Hospitalization history in the last six months	15 (75)
Antibiotic use history in the last month	13 (65)
Blood product use	13 (65)
Central venous catheter presence	12 (60)
Steroid use	10 (50)
Chemotherapy	9 (45)
Nasogastric tube	7 (35)
Mechanical ventilator	6 (30)
Urinary catheter	4 (20)
Total parenteral nutrition	3 (15)
History of surgery in the last month	3 (15)
History of endoscopy in the last month	1 (5)
History of angiography in the last month	1 (5)
Bone marrow transplantation, graft versus host disease	1 (5)
Hemodialysis	1 (5)
Total number of patients with any risk factor	19 (95)

growths with *S. paucimobilis*, with two consecutive growths observed in this patient (Table 3,4; patient no: 3). The time to negative blood cultures was found to be 4.9 ± 2.445 days on average (median: 3 days, min-max: 2-9 days).

Six patients (30%) were followed up in intensive care units and 14 in wards. Six patients required mechanical ventilation. There were no patients requiring mechanical ventilation or intensive care due to *S. paucimobilis* bacteremia. Our patients requiring mechanical ventilation had diagnoses of terminal leukemia, metabolic disease, intracranial hemorrhage, head trauma, autoimmune encephalitis, and congenital heart disease. The year of admission, admission unit, reason for admission, and cause of bacteremia are given in Table 3.

Four patients had polymicrobial growth. Microorganisms growing alongside *S. paucimobilis* included *Klebsiella pneumoniae*, *Shewanella putrefaciens*, *Staphylococcus aureus*, *Staphylococcus auricularis*, and *Staphylococcus lugdunensis* (Table 3). Catheter-related bloodstream infection was suspected in two patients (Table 4). The antimicrobial susceptibility pattern of *S. paucimobilis* in blood culture samples is shown in Figure 1. Resistance to any antibiotic was detected in 70% of patients (meropenem, ceftriaxone, ampicillin/sulbactam, ciprofloxacin, trimethoprim/sulfamethoxazole, piperacillin/tazobactam, ceftazidime, cefepime resistance rates were 5%, 10%, 10%, 15%, 20%, 30%, 45%, and 45%, respectively). No resistance to amikacin and imipenem was detected. Colistin resistance was studied in 11 (55%) patients, and resistance was detected in all of them.

Table 3. Hospital admission year, admission unit, reason for admission, blood sample, cause of bacteremia, and presence of polymicrobial growth in patients with *S. paucimobilis* bacteremia

Patient No	Admission Year	Admission Unit	Reason for Admission	Blood Sample	Cause of Bacteremia	Presence of Polymicrobial Growth
1	2016	Pediatric hematology	Chemotherapy febrile neutropenia	Peripheral blood	Primary bacteremia	None
2	2016	Neonatal intinsive care unit	Early neonatal sepsis prematurity	Peripheral blood	Primary bacteremia[1]	None
3	2016	Pediatric oncology	Fever, nutritional disorder	Peripheral blood	Primary bacteremia	None
4	2016	Pediatric nephrology	Hemodialysis catheter infection	Peripheral blood	Primary bacteremia	None
5	2016	Pediatric intensive care unit	Head trauma	Peripheral blood	Primary bacteremia	None
6	2017	Pediatric oncology	Chemotherapy febrile neutropenia	Peripheral blood	Primary bacteremia	None
7	2017	Pediatric oncology	Chemotherapy febrile neutropenia	Peripheral blood	Primary bacteremia	None
8	2017	Pediatric intensive care unit	Congenital heart disease, operation	Catheter	Secondary bacteremia[2]	Present[5]
9	2018	Pediatric intensive care unit	Intracranial hemorrhage	Peripheral blood	Primary nacteremia	None
10	2018	Cardiovascular surgery ward	Congenital heart disease, operation	Peripheral blood	Primary bacteremia	None
11	2018	Pediatric hematology	Chemotherapy febrile neutropenia	Peripheral blood	Primary bacteremia	None
12	2019	Pediatric oncology	Chemotherapy febrile neutropenia	Peripheral blood	Primary bacteremia	Present[6]
13	2020	Pediatric metabolism	Pneumonia	Peripheral blood	Secondary bacteremia[3]	None
14	2020	Pediatric infection	Fever, nutritional disorder rash	Peripheral blood	Primary bacteremia	None
15	2021	Pediatric infection	Fever, nutritional disorder	Peripheral blood	Primary bacteremia	None
16	2021	Pediatric hematology	Chemotherapy febrile neutropenia	Peripheral blood	Primary bacteremia	None
17	2022	Pediatric intensive care unit	Metabolic coma	Catheter	Secondary bacteremia[4]	None
18	2023	Pediatric oncology	Pneumonia	Peripheral blood	Secondary bacteremia[3]	Presenet [7]
19	2023	Pediatric intensive care unit	Status epilepticus	Peripheral blood	Secondary bacteremia[3]	None
20	2023	Pediatric oncology	Chemotherapy febrile neutropenia	Peripheral blood	Secondary bacteremia[3]	Present[8]

[1]Mother with chorioamnionitis, [2]Secondary to respiratory system and catheter infection, [3]Secondary to respiratory system, [4]Secondary to gastrointestinal system and catheter infection, [5]*Klebsiella pneumoniae* and *Shewanella putrefaciens*, [6]*Staphylococcus aureus*, [7]*Staphylococcus auricularis*, [8]*Staphylococcus lugdunensis*.

Mean length of stay was 27.3 ± 31.004 days (median: 19 days, min-max: 2-140 days), and the mean length of stay after culture growth was 17 ± 18.58 days (median: 10 days, min-max: 2-83 days). Looking at the distribution of hospitalization durations, 11 patients had a stay of 20 days or less, five patients had a stay of 21-40 days, and four patients had a stay longer than 40 days. Nine patients received treatment for 14 days or less, while 11 patients received treatment for more than 14

Table 4. Immunosuppression during *S. paucimobilis* growth, presence of catheter-related bloodstream infection, antibiotics used in the last month prior to bacteremia, treatments administered for *S. paucimobilis*, antibiotic susceptibilities, and prognosis

Patient No	Immunosuppression During *S. Paucimobilis* Growth	Presence of Catheter-Related Bloodstream Infection	Antibiotics Used in The Last Month Prior to Bacteremia	Treatment Administered	Antibiotic Susceptibility	Prognosis
1	Present	None	Cefaperazone-sulbactam	Meropenem	Susceptible	Recovered
2	None	None		Cefotaxime, gentamicin	Susceptible	Recovered
3	Present	None	Cefixime, piperacillin-tazobactam	Meropenem	Susceptible	Recovered
4	None	None	Cefixime	Meropenem, gentamicin	Susceptible	Recovered
5	None	None		Ceftriaxone	Susceptible	Recovered
6	Present	None	Co-amoxiclav	Piperacillin-tazobaktam	Resistant	Recovered
7	Present	None		Meropenem	Susceptible	Recovered
8	None	Present	Piperacillin-tazobactam	Meropenem, ciprofloxacin, amicasin	Susceptible	Recovered
9	None	None	Ceftriaxone, piperacillin-tazobaktam	Meropenem, ciprofloxacin	Susceptible	Exitus
10	None	None		Co-amoxiclav	Susceptible	Recovered
11	Present	None	Cefaperazone-sulbactam	Piperacillin-tazobactam	Susceptible	Recovered
12	Present	None		Meropenem	Susceptible	Recovered
13	None	None	Ceftriaxone	Meropenem	Susceptible	Recovered
14	None	None		Cefotaxime	Susceptible	Recovered
15	None	None		Ceftriaxone	Susceptible	Recovered
16	Present	None	Meropenem	Meropenem	Susceptible	Recovered
17	None	Present	Cefotaxime	Meropenem	Susceptible	Recovered
18	Present	None	Co-amoxiclav	Meropenem	Susceptible	Recovered
19	Present	None	Ceftriaxone	Cefepim	Resistant	Recovered
20	Present	None	Meropenem	Meropenem, ciprofloxacin	Susceptible	Exitus

days; the average treatment duration was 14.7 ± 7.685 days (median: 15 days, min-max: 5-35 days). Five patients received dual antibiotic therapy, and 15 patients received single antibiotic therapy. The treatments administered, antibiotic sensitivities, and prognosis are shown in Table 4. Empirical treatments were revised based on culture antibiograms; however, antibiotic changes were not made in two patients despite the causative agent appearing resistant to the current antibiotic, as a clinical response was obtained. No patient died during the period of *S. paucimobilis* bacteremia; deaths occurred after the sepsis resolved and cultures became negative (Table 4). Therefore, no mortality related to *S. paucimobilis* was observed, and the overall mortality rate was 10%. One patient had terminal-stage acute lymphoblastic leukemia, and another patient had a metabolic disorder and died due to intracranial hemorrhage.

Discussion

S. paucimobilis was first isolated in 1979 from a sailor›s leg ulcer. At the time, it was first reported to cause disease in humans, it was known as *Pseudomonas paucimobilis*. In 1990, it was renamed *S. paucimobilis* (1). *S. paucimobilis* is a microorganism commonly found in nature. Although it has weak pathogenicity, it can cause infections in immunocompromised individuals. It has also been associated with various comorbidities (5). Ninety percent of our patients had different comorbidities such as metabolic disease, chronic kidney disease, and malignancy. In a meta-analysis published by Ionescu et al. in 2022, a literature review identified a total of 262 *S. paucimobilis* cases, 62 of which were pediatric cases, and 116 of these were bloodstream infections (8). Of all cases, 43.10% were healthcare-associated, and 37.06% were community-acquired. There were 23 (19.82%) patients whose

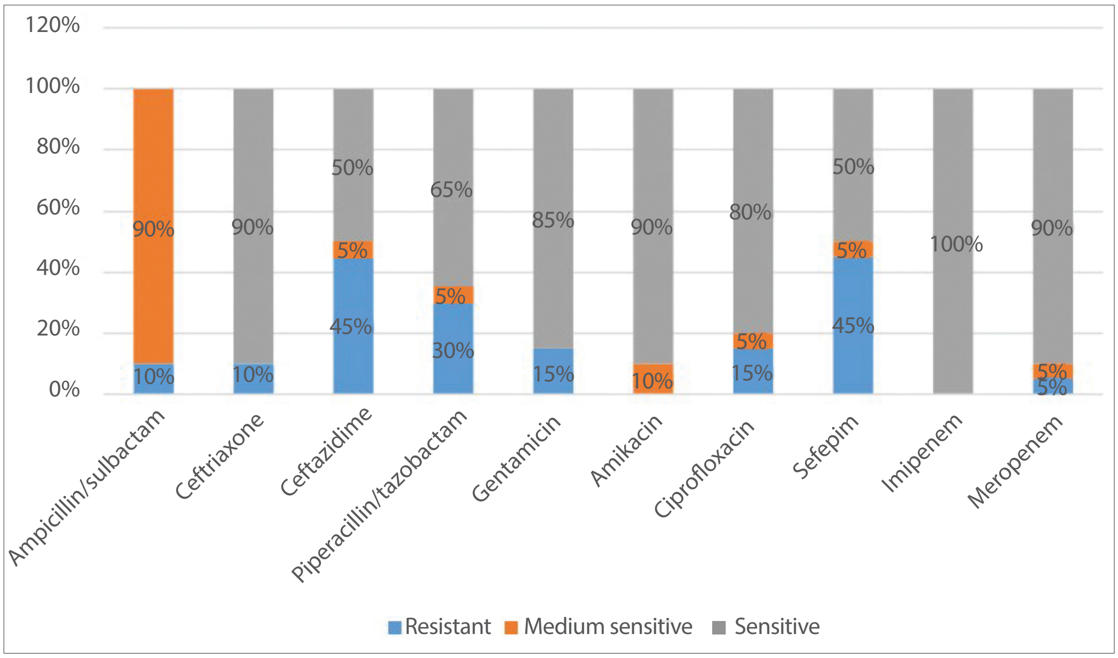

Figure 1. The antimicrobial susceptibility pattern of *S. paucimobilis* is shown in the blood culture samples.

source was not specified. Fourteen (70%) of our patients were considered to have healthcare-associated infections, and six (30%) had community-acquired infections.

S. paucimobilis-associated infections have been reported in cases of in-hospital device use (2). Our patients also had a history of mechanical ventilator, urinary catheter, nasogastric tube, central venous catheter, and tracheostomy tube use. There are reports of in-hospital outbreaks in the literature. Bavaro et al. have reported an outbreak associated with *S. paucimobilis* in three end-stage renal failure patients undergoing dialysis in the same room in a dialysis unit (3). Hospital-acquired outbreaks can occur as a result of the growth of this bacterium in distilled water (9). Mutlu et al. reported an outbreak associated with *S. paucimobilis* in a neonatal intensive care unit in 2010 (9). Over a six-week period, 12 newborns developed sepsis, and one patient developed septic shock. The causative agent was cultured from distilled water. One of our patients was a newborn, followed up with a diagnosis of early neonatal sepsis. A secondary infection related to chorioamnionitis in the mother was considered. Since our study was retrospective, the outbreak situation could not be evaluated; however, our study supports that hospital devices pose a risk. The source could not be determined because samples could not be obtained from the devices. Waterborne pathogens can spread to a wide variety of equipment used in healthcare settings and can persist on the surfaces of devices even after recommended disinfection measures have been applied (10). According to World Health Organization drinking water standards, 2-3 mg/L of chlorine must be added to water to achieve the required concentration (11). According to studies, 8 mg/L of chlorine must be added to water to prevent Sphingomonas-related biofilm formation. It is necessary to find a solution to prevent water colonization, especially in hospital environments (5).

Of the 62 pediatric *S. paucimobilis* infections reported in the literature, 55 were bloodstream infections. Of the bloodstream infections, 34 (54.83%) were primary bacteremia, seven were catheter-related bloodstream infections, three were urosepsis, one was pneumonia, one was intra-abdominal infection, and nine were unspecified (8). The rate of primary bacteremia in our patients was 70%.

In general, *S. paucimobilis* is susceptible to carbapenems, aminoglycosides, trimethoprim-sulfamethoxazole, and piperacillin/tazobactam (2). Past reports have stated that third-generation cephalosporins or aminoglycosides are the best options for treating *S. paucimobilis*, but in a 2013 study by Bayram et al., ceftazidime resistance was found to be 20% and amikacin resistance 13.6% (12). In the outbreak reported by Menekşe et al., amikacin susceptibility was 97.5%, and imipenem and meropenem resistance was 5.4% (10). The study by Ionescu et al. reported that *S. paucimobilis* is intrinsically resistant to colistin and therefore cannot be used as monotherapy (8). Resistance to ureidopenicins, ceftazidime, and cefepime was also detected. Colistin resistance was tested in 11 of our patients (55%), and all were found to be resistant. In the study by Aşkın et al., 181 *S. paucimobilis* growths were detected in blood cultures from 51 patients, and all were found to be sensitive to cefoperazone-sulbactam (5). Resistance to carbapenems and quinolones was found to be very low. In the study by Rohilla et al., susceptibility to third- and fourth-generation cephalosporins was high (81% to ceftriaxone and

86% to cefepime), and the highest resistance rate was found against colistin (61%) (2). In our study, no resistance to amikacin and imipenem was detected. We found low resistance to carbapenems and quinolones (5% resistance to meropenem, 15% resistance to ciprofloxacin). Quinolones, carbapenems, beta-lactam/beta-lactamase inhibitors, and aminoglycosides were generally effective against *S. paucimobilis* (2). These drugs were also used in our treatment.

It has been reported that hematology-oncology patients account for 1.08-13.3% of healthcare-associated infections but do not cause serious mortality and morbidity (1). In our study, 45% of patients had hematological or oncological malignancies. One of these patients was lost due to the terminal stage of their primary disease. Aşkın et al. found a two-year mortality rate of 3.9% due to *S. paucimobilis* in their study of pediatric patients with only hematological-oncological malignancies (5). The mortality rate due to *S. paucimobilis* in the literature is 5.5% (5). Two of our patients died, but none died due to sepsis associated with *S. paucimobilis*. One of our patients died due to intracranial hemorrhage while being followed up for a mitochondrial disease, and the other patient died due to terminal leukemia. Comorbid conditions were factors determining mortality.

Conclusion

In conclusion, *S. paucimobilis* can cause various diseases in healthy and immunocompromised individuals. Although it is a microorganism with low clinical virulence, it can lead to septic shock, especially in immunocompromised patients. This bacterium, which causes increasingly frequent infections, should not be overlooked. More descriptive research is needed to characterize its clinical and microbiological features. This study showed that bloodstream infections associated with *S. paucimobilis* can lead to community-acquired or healthcare-associated infections and can be severe in immunocompromised and chronically ill individuals.

Ethics Committe Approval: This study was approved by the Çukurova University Faculty of Medicine Clinical Research Ethics Committee (Decision no: 2024/145, Date: 14.06.2024).

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References

1. *Kulkarni G. Bleached sphingomonas paucimobilis. Saudi J Pathol Microbiol 2020;5(11):446-52. https://doi.org/10.36348/sjpm.2020.v05i11.001*
2. *Rohilla R, Raina D, Singh M, Pandita AK, Patwal S. Evaluation of sphingomonas paucimobilis as an emerging nosocomial pathogen in a teaching hospital in Uttarakhand. Iran J Microbiol 2021;13(5):617-23. https://doi.org/10.18502/ijm.v13i5.7425*
3. *Bavaro DF, Mariani MF, Stea ED, Gesualdo L, Angarano G, Carbonara S. Sphingomonas paucimobilis outbreak in a dialysis room: Case report and literature review of an emerging healthcare associated infection. American Journal of Infection Control 2020;48(10):1267-9. https://doi.org/10.1016/j.ajic.2020.01.018*
4. *Lin JN, Lai CH, Chen YH, Lin HL, Huang CK, Chen WF, et al. Sphingomonas paucimobilis bacteremia in humans: 16 case reports and a literature review. J Microbiol Immunol Infect 2010;43(1):35-42. https://doi.org/10.1016/S1684-1182(10)60005-9*
5. *Aşkın FN, Erinmez M, Ören AC, Manay AB, Zer Y. Sphingomonas paucimobilis outbreak a pediatric hematology-oncology hospital: epidemiological investigation and literature review of an emerging healthcare-associated infection. The Japanese Medical Journal 2022;75(4):374-81. https://doi.org/10.7883/yoken.JJID.2021.661*
6. *Centers for Disease Control and Prevention. Bloodstream infection event (central line-associated bloodstream infection and non-central line-associated bloodstream infection). Device-associated Module BSI 2017;1-38.*
7. *European Society of Clinical Microbiology and Infectious Diseases. Clinical breakpoints and dosing of of antibiotics; Clinical breakpoints and guidance. Available from: https://www.eucast.org/ast_of_bacteria/previous_versions_of_documents (Accessed date: October 2024).*
8. *Ionescu, MI, Neagoe DS, Crˇaciun AM, Moldovan OT. The gram-negative bacilli isolated from caves-sphingomonas paucimobilis and hafnia alvei and a review of their involvement in human infections. Int J Environ Res Public Health 2022;19(4):2324-45. https://doi.org/10.3390/ijerph19042324*
9. *Mutlu M, Bayramoglu G, Yilmaz G, Saygin B, Aslan Y. Outbreak of sphingomonas paucimobilis septicemia in a neonatal intensive care unit. Indian pediatrics 2011;48:723-5. https://doi.org/10.1007/s13312-011-0114-x*
10. *Menekşe Ş, Tanrıverdi ES, Altınay E, Oğuş H, Aydoğan AA, Sağlam D, et al. A long-lasting sphingomonas paucimobilis outbreak: A potential for pathogens to persist on environmental devices despite disinfection measures. American Journal of Infection Control 2023;51(7):765-71. https://doi.org/10.1016/j.ajic.2022.10.012*
11. *World Health Organization (WHO) Guidelines for Drinking-Water Quality, 3rd ed. Genava: WHO; 2008. Available from: https://apps.who.int.iris/rest/bitstreams/907844/retrieve (Accessed date: 02.08.2023).*
12. *Bayram N, Devrim İ, Apa H, Gülfidan G, Türkyılmaz HN, Günay İ. Sphingomonas paucimobilis infections in children: 24 case reports. Mediterr J Hematol Infect Dis 2013;5(1):e2013040. https://doi.org/10.4084/mjhid.2013.040*