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Case Report

Sepsis of Burkholderia Cepacia: An Unusual Case Report from Madagascar

Moustafa Abdou Soilihi[1]*, Indretsy Mahavivola Ernestho-ghoud[2], Sona Jean Marc Velolahy[3], Hanta Marie Danielle Vololontiana[4] and Nasolotsiry Enintsoa Raveloson[1]

[1]*Intensive care Departement, University Hospital Centre, Andohatapenaka, Antananarivo, Madagascar*

[2]*Internal Medicine Department, Private Medical Clinic, Antananarivo, Madagascar*

[3]*Emergency Departement, University Hospital Centre, Joseph Ravoahangy Andrianavalona Antananarivo, Madagascar*

[4]*Internal Medicine Department, University Hospital Centre, Joseph Raseta Befelatanana Antananarivo, Madagascar*

***Corresponding Author:** Moustafa Abdou Soilihi, Intensive care Departement, University Hospital Centre, Andohatapenaka, Antananarivo, Madagascar.

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Summary

The case consisted of septicemia due to *Burkholderia cepacia* during hemodialisis. We reported a case of a 76-year-old Malagasy man with stage V chronic kidney disease, hemodialysis-dependent, who was admitted to the hospital for fever and chills during hemodialysis. Blood cultures showed *Burkholderia cepacia*. From this case, *B. cepacia* consisted of the main differential diagnosis of severe sepsis in dialysis patient. Such identifcation is necessary to help in timely diagnosis of hospital acquired infections and to provide appropriate antimicrobial therapy.

Keywords: *Burkholderia cepacian*; Sepsis; Chronic kidney disease; Dialysis

Introduction

Burkholderia cepacia infections are increasingly encountered in hospital in the case of cystic fibrosis or nosocomial infections [1]. Cepacia syndrome is characterized by rapidly progressing radiologic and clinical signs of necrotizing pneumonia, acute respiratory distress syndrome, bacteremia, and a mortality rate up to 75% in cystic fibrosis patients [2]. This infection was frequently reported in Asia, Europe and in the USA. Related data has rarely been reported from sub-Saharan Africa. We herein report a case of *B. cepacia* sepsis during dialysis in a patient with end-stage renal disease.

Observation

The case consisted of a 76 year-old Malagasy man who was admitted to hospital with acute fever and chills during and after dialysis from a week. Prostate cancer complicated by end-stage renal disease was noted. He had regularly dialysis for three times a week. A dialysis catheter and suprapubic catheter were in place. He had no relevant past medical history. The physical examination revealed hyperthermia at 39.9°C, arterial hypotension at 80/47 mmHg, and tachycardia at 120 bpm. The remainder of his physical examination was within normal limits. Laboratory findings showed normocytic anaemia at 10 g/dl, thrombocytopenia at 120 G/L and normal leukocytes. The C reactiv protein was elevated to 96 mg/L. His urine and sputum culture were sterile. Thin smear was negative. Renal, liver and thyroid function were normal. The thoracic-abdominal-pelvic CT-scan was unremarkable. Empiric antibiotic by ceftriaxone® was started. Permanent fever and chills was recorded especially during dialysis. However, seven days later, blood cultures

identified *B cepacia*, sensitive only to bactrim® and cotrim®. Cardiac ultrasound was unremarkable. Our patient presented sepsis of *B. Cepacia*. Trimethoprim sulfamethoxazole® was introduced. Fever and chills did not disappear. Five days later the dialysis catheter was replaced. Catheter culture was sterile. The next dialysis was unventful. The patient was followed for more than one year and there were no other new systematic symptoms.

Discussion

Our patient presented sepsis of *B. cepacia* with cytopenia. Most studies report *B. cepacia* sepsis with a pulmonary origin in the setting of cystic fibrosis or dialysis catheter-induced infection [3]. Cystic fibrosis, immunocompromised and haemodialysis patients are particularly vulnerable. The clinical manifestations are highly variable, ranging from asymptomatic to necrotizing pneumonia, sepsis and death [2, 4]. In addition to most frequent clinical forms, a case report showed the presence of sepsis of *B. cepacia* during dialysis in a 60 year-old-man. The culture of the dialysis catheter was sterile. The source of the infection was unexplained [5]. However, in 1996, a review of the risks of medical and dental equipment in the transmission of *B. cepacia* in cystic fibrosis was published [6]. *B. cepacia* is a bacterial species naturally resistant to many antibiotics. In practice, possible antibiotic treatments are piperacillin, ceftazidime, cotrimoxazole [7, 8]. However, the choice for antimicrobial therapy is usually chosen based on in vitro susceptibility, while duration of therapy be based upon clinical and microbiologic response. For serious infection with susceptible strains, a two-drug combination of parenteral trimethoprim-sulfamethoxazole plus a β-lactam (ceftazidime, piperacillin, meropenem) or a fuoroquinolone should be utilized [9]. For serious infection with trimethoprim-sulfamethoxazole-resistant strains or sulfa drug allergy, combination therapy guided by in vitro susceptibility results should be administered [10]. In a study by Blumer et al [11], the combination of meropenem/ tobramycin and ceftazidime/ tobramycin improved clinical status and reduced bacterial burden in 96 and 92% of treated patients, respectively. Bonacorsi et al. had proven enhanced bactericidal activity of ciprofoxacin in combination with other agents [12]. Further, triple antimicrobial combination based on meropenem was suggested useful than double or single agents [13]. Macrolides in combination with other antimicrobials had shown moderate synergism [14], while specifc combinations including fosfomycin/tobramycin exhibited poor activity against *B cepacia* [15]. In the previous study in dialysis, infectious disease recommended that the patient be treated with ciprofloxacin and piperacillin/ tazobactam [5]. In our case, *B cepacia* was sensitive by bactrim® and cotrim®. Sepsis origin was unexplained. However, after administration of Bactrim®, the infectious syndrome did not disappear. The dialysis catheter was changed. Dialysis catheter culture was sterile. We have not found similar case at dialysis center. Our single case can not be compared with literature data. In addition, this cytopenia was rarely reported in other studies [5]. However, the causal relationship between cytopenia and sepsis of *B. cepacia* sepsis was difficult to establish in the case of severe sepsis. As far as we can tell, there have been no more such cases that have been formally published in sub-Saharan Africa, and this would be the first case reported from Madagascar.

Conclusion

From this case, *B. cepacia* consisted of the main differential diagnosis of severe sepsis in dialysis patient. Nosocomial infection was successfully controlled by bactrim® alone. Such identifcation is necessary to help in timely diagnosis of hospital acquired infections and to provide appropriate antimicrobial therapy.

Author's Contribution

All authors contributed to project conception and critical review of manuscript. The author (s) read and approved the final manuscript.

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