

CASE REPORT

## Prevotella Buccae Bacteremia and Febrile Neutropenia: Report of one Case

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ABSTRACT

An increasing number of anaerobic bacteremias of oral origin have been described during the recent years as a cause of fever in neutropenic cancer patients. In this paper, we describe a case of *Prevotella buccae* bacteremia, the first one to our knowledge, emphasizing thus the importance of considering the oral commensals when selecting antimicrobial regimens.

INTRODUCTION

Any organism, even what is thought to be a harmless commensal, has the potential to cause significant infections in cancer neutropenic patients. "New" pathogens emerged in the past few years as a result of the potent chemotherapeutic regimens [1]. We describe a case of febrile neutropenia, due to *Prevotella buccae* bacteremia, which, to our knowledge, is the first in the literature.

CASE REPORT

A 24-year-old man, with an acute myeloid leukemia in complete remission, underwent a conditioning regimen, consisting of melphalan, fludarabine, antithymocyte globulin and total body irradiation, before the allogeneic bone marrow transplantation. As infection prophylaxis, ciprofloxacin, trimethoprim/sulfamethoxazole, itraconazole and acyclovir were administered. On day 10 of the post-chemotherapy period, the patient developed fever (38.3°C), without rigors, and signs of hemodynamic decompensation. He complained also of dysphagia and retrosternal pain. Mild oral mucositis was present with probable esophagitis, but esophagoscopy was not performed. With the exception of severe neutropenia ( $<50/\text{mm}^3$ ) and thrombocytopenia ( $11,000/\text{mm}^3$ ), no other severe abnormalities were detected in his hematological and biochemical profile. Urine examination and chest x-ray were normal. Three sets of blood cultures were drawn and treatment with piperacillin/tazobactam 4gr qid IV was initiated. The stem cells were infused the day after and two days later the temperature was normalized. All blood cultures revealed *Prevotella buccae*.

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### MICROBIOLOGICAL DATA

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Specimens were processed using the BACTEC 9240 non-radiometric continuous monitoring blood culture system. All three blood culture sets had the anaerobic bottles lagged as positive on day two; two aerobic bottles also turned positive on days seven and eight. Direct examination of the smear revealed Gram negative rods. The aliquot was subcultured onto Columbia blood agar 5% SB both aerobically and anaerobically and onto Schaedler 5% SB supplemented with Vitamin K<sub>1</sub> anaerobically. The ANOXOMAT system was used as anaerobic environment while the BBL Crystal Identification System (Anaerobe ID kit) was also used. Antibiotic susceptibility testing was done on the basis of Kirby Bauer disk diffusion. The germ proved to be intermediately resistant to penicillin and susceptible to the other agents tested (amoxicillin-clavulanate, piperacillin-tazobactam, clindamycin, imipenem, metronidazole).

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### DISCUSSION

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The relatively new genus *Prevotella*, named so in 1990, was previously included in the genus *Bacteroides*. It includes saccharolytic pigmented and non-pigmented anaerobic gram negative rods. *Prevotella*, along with *Bacteroides* spp., are numerically the most prevalent organisms of the normal human bacterial flora. Most species are encountered mainly in the oral cavity and the pharynx, but the alimentary and the female genital tract are also normal habitats for some of them [2-4]. *Prevotella* spp., usually as part of a mixed flora, are implicated in dental, oropharyngeal, pleuropulmonary, abdominal and gynaecological infections [5-9]. They are not a frequent cause of bacteremia. In an analysis of 281,797 consecutive blood cultures performed at the Mayo Clinic over an eight-year period (1984-92), among the 20,456 probable pathogens detected, only 28 (0.1%) were *Prevotella* spp. [10]. In the Jules Bordet Institute, only three *Prevotella* spp. have been isolated in blood cultures over the past six years, while the total number of positives was approximately 1150. Resistance to beta-lactams is secondary to beta-lactamase production and is encountered in 40% of isolates [3]. *Prevotella buccae* is a non pigmented, pentose fermenting species. It is a commensal of oropharynx and is mainly involved in dental, oral and respiratory infections [2,3,7,8,11]. Furthermore, only one case of clinically significant bacteremia due to *P.buccae* was identified by searching in MEDLINE [12].

It is well known that normal oral commensals, both aerobic and anaerobic, gain access to the blood stream through breaches of the mucosa in cancer neutropenic patients. The selective pressure of quinolone prophylaxis and the profound and prolonged neutropenia along with the oral lesions (mainly

due to post-chemotherapy mucositis but also to infections and bleeding) resulted in the emergence of new pathogens. Some of these germs, considered of low virulence, proved to be liable for the cause of clinically significant bacteremias [1]. *Streptococcus viridans* remains the most commonly involved germ of the oral flora, but *Stomatococcus mucilaginosus* [13], *Capnocytophaga* spp. [14], *Leptotrichia buccalis* [15], *Eubacterium* spp. [16] and *Fusobacterium* spp. [17] have also been reported in recent years as etiologic agents of febrile neutropenia. In the Jules Bordet Institute, *S. mucilaginosus* and *Fusobacterium* spp. proved to be responsible for 5.3% and 5% of bacteremias in febrile neutropenic patients [13,17]. It is the first time that *Prevotella buccae* bacteremia is recognized as a cause of febrile neutropenia. All aforementioned predisposing factors were present. No special symptoms or signs were detected, and the evolution was benign, comparable to that attested in our *Fusobacterium* series [17].

In summary, one more oral anaerobe, *Prevotella buccae*, proved to be a potential pathogen in granulocytopenic patients and it is possible that this will be the case for more commensals of the mouth. This emphasises the need of measures for prevention and control of the mucositis. Clinicians, therefore, have to be aware of the spectrum and the susceptibility patterns of these germs. In case of mucositis, if fever persists, despite first line empirical therapy lacking specific antianaerobic activity, the pathogens should be covered, even if cultures are negative. It seems that combinations of beta-lactams and beta-lactamase inhibitors are efficient, safe and probably cost effective.

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## PREVOTELLA BUCCAE BACTEREMIA AND FEBRILE NEUTROPENIA

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