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# Central Line-associated *Pantoea* spp. Bacteremia and Solid Organ Malignancy: A Report of Two Cases

Santral Kateter İlişkili *Pantoea* spp. Bakteriye misisi ve Solid Organ Malignitesi: İki Olgu Sunumu

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**Anahtar Kelimeler:** *Pantoea* spp., santral kateter bakteriye misisi, *Pantoea dispersa*, seftriakson

Dear Editor,

*Pantoea* spp., are facultative anaerobic Gram-negative bacilli that are members of the *Enterobacteriaceae* family. *Pantoea* spp. are known as etiologic agents of plant diseases. These opportunistic-pathogen bacteria may colonize the skin and respiratory, urinary and gastrointestinal systems while these regions serve as entrance for the disease. *Pantoea* spp., (most frequently *P. agglomerans*) may cause septic arthritis, pneumonia, sepsis, peritonitis, urinary tract infection, surgical site infections, and catheter-related nosocomial infections<sup>[1]</sup>. Herein, we report two cases of catheter-related *Pantoea* spp. blood stream infections (CRBSI).

A 56-year-old female patient who was investigated for urticaria etiology was diagnosed with clear cell ovarian cancer two years ago. After multiple chemotherapy regimens, follow-up imaging showed that patient's disease had progression. Hence, further chemotherapy was planned. During premedication drug infusion, she had chills followed by an increase in the body temperature (38.7 °C) in routine chemotherapy practice. She had a central venous catheter (CVC) implanted due to difficulty

in drug administration from peripheral vessels nearly two months ago. One set of blood culture (BacT/ALERT aerobic and anaerobic culture media, bioMerieux, France) from CVC was sent to the microbiology laboratory. Her leukocyte count was 5200/mm<sup>3</sup>. She was discharged without any medication at the end of chemotherapy. After one week, the patient was admitted with fever and it was seen that blood culture yielded Gram-negative bacilli which were identified as *Pantoea* spp. by Vitek MS (bio Merieux, France). Antibiotic susceptibility test (performed by Vitek 2, bioMerieux, France) showed the followings: cefuroxime resistant; ampicillin, amikacin, netilmicin, amoxicillin/clavulanic acid, trimethoprim/sulfamethoxazole, cefotaxime, piperacillin/tazobactam sensitive. She was hospitalized. Her vital findings were as follows: arterial blood pressure: 110/70 mmHg, pulse: 85/minute and respiratory rate: 18/min. Laboratory findings were as leukocyte: 8250/mm<sup>3</sup> and C-reactive protein: 1.26 mg/dL. There was no erythema in the CVC entry site and on its trace. One set of peripheral and CVC blood culture were performed. Ceftriaxone 2 g/day was started. Both peripheral and CVC cultures yielded *Pantoea* spp. Her fever resolved on day 3. However, repeated peripheral and CVC blood cultures on day 6

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and 11 of ceftriaxone, still yielded *Pantoea* spp. and coagulase-negative staphylococci. Afterwards CVC was removed and gentamicin was added to ceftriaxone treatment for seven days. Control blood cultures performed on day 16 of ceftriaxone were sterile. She was discharged 21 days after admission. There was no reinfection or relapse during the ten-month follow-up.

The second patient was a 33-year-old female, who was diagnosed with gastric cancer two-months ago. A CVC was implanted for neoadjuvant chemotherapy. After two doses of chemotherapy on day 28 of CVC, she had chills followed by an increase in the body temperature (39.9 °C). One set of blood culture from CVC was sent to the microbiology laboratory. Her arterial blood pressure was 130/80 mmHg, pulse was 76/minute, and respiratory rate was 16/min. Laboratory investigation revealed blood leukocytes: 5190/mm<sup>3</sup>, CRP: 5.33 mg/dL, procalcitonin: 11.6 mg/dL, and erythrocyte sedimentation rate: 17 mm/h. Empirical ceftazidime 3 g/day and teicoplanin 800 mg/day were started. One set of peripheral and CVC blood cultures yielded Gram-negative bacilli which were identified as *Pantoea dispersa* by Vitek MS (bio Merieux, France). Antimicrobial susceptibility test performed and evaluated according to EUCAST<sup>[2]</sup>, resulted as cefuroxime and ampicillin resistant; gentamicin, ciprofloxacin, trimethoprim/sulfamethoxazole, ceftriaxone and piperacillin/tazobactam sensitive. The catheter was removed due to port catheter infection and was sent for bacteriological culture. Catheter cultures and control blood cultures were sterile. There was no reinfection or relapse during the five-month follow-up.

Globally, the frequency of intravenous catheter use is increasing day by day. In the United States, nearly 150 million intravenous catheters are implanted for intravenous fluids, medications, blood and blood products, parenteral nutrition, monitoring the hemodynamic status or hemodialysis each year<sup>[3]</sup>. As there is an increase in the frequency of catheterization, there is also an increase in catheter-related infections. Catheter-related infections may manifest with systemic symptoms, such as fever, chills and/or erythema, swelling, and erythema on catheter entry site or trace. However, the presented cases had only chills and fever<sup>[4]</sup>. Catheter-related infection and CRBSI diagnosis require clinical findings as well as aerobic, anaerobic, mycological catheter blood cultures. In the presented cases, CRBSI was diagnosed with concomitant positivity of blood and catheter cultures (catheter culture being positive previously). However, lack of paired peripheral and CVC cultures in some sampling episodes during clinical course causes problems in requesting both peripheral and CVC cultures in such cases<sup>[5]</sup>. Only a limited number of clinical cases with bacteria belonging to *Pantoea* spp. have been reported. There is a report in which *P.*

*agglomerans* was isolated from blood cultures of five patients from oncology departments within three months. All patients had CVC and also there was no evidence of any other focus of infection<sup>[5]</sup>. Since we could not perform surveillance cultures, it is not easy to comment about the possible entrance site of the bacteria. There was a two-month gap between the presented cases. However, there was no *Pantoea* spp. infection during the follow-up period until December 2017.

In conclusion, these two cases suggest the importance of bacteriological sampling and improved culture and identification systems in the diagnosis of CVC infections as well as importance of CVC removal in the management.

### Ethics

Informed Consent: The consent is not needed for this submission.

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### Authorship Contributions

Surgical and Medical Practices: Ş.A., R.U., O.R.S., Concept: O.R.S., Design: O.R.S., E.Ö.K., Data Collection or Processing: E.Ö.K., Analysis or Interpretation: Ş.A., Literature Search: E.Ö.K., G.B., Writing: E.Ö.K., O.R.S.

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