Case report

Bacteremia caused by Brevibacterium species in a patient with chronic lymphocytic leukemia

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Abstract—We report a case of bacteremia caused by Brevibacterium species which is one of the coryneform bacteria, in a patient with chronic lymphocytic leukemia. We conclude that, if a coryneform bacteria is isolated from sterile body sites, it must be carefully evaluated, and especially in immunocompromised patients, Brevibacterium species should be considered as potential pathogens.

Key words: Brevibacterium sp.; immunocompromised patients.

CASE REPORT

A 60-year old with a relapse chronic lymphocytic leukemia (CLL) was evaluated because of fever, after fludarabin chemotherapy. On examination, temperature was 39.1°C. Admission laboratory results were hemoglobin, 7.5 g/dl; hematocrit, 21%; leucocytes, $13 \times 10^3$/mm$^3$ with a differential of 85% lymphocytes, 13% segmented neutrophils and 2% eosinophils. Blood cultures were taken and empirical therapy with ceftazidime plus amikacin was initiated. Three blood cultures were obtained and they were inoculated in BACTEC resin bottles (Becton Dickinson, USA). No growth was observed in the first 24 hours. However, on the second day, all the BACTEC bottles were slightly turbid and Gram stains revealed Gram-positive coccobacilli. The API-Coryne strip (Bio-Merieux, France) identified these isolates as Corynebacterium aquaticum. Since we observed some biochemical tests

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were not consistent for *C. aquaticum*, we sent one of the isolates to the PHLS Streptococcus and Diphtheria Reference Unit of Respiratory and Systemic Infection Laboratory in London, United Kingdom, where it was identified to the genus level as ‘Brevibacterium species’ according to phenotypic characteristics. The strain was nonhemolytic, nonmotile gram positive coccobacilli that produced a yellow circular convex colony. It was catalase, nitrate reduction, gelatin hydrolysis, casein hydrolysis and pyrazinamidase positive and did not produce acid from glucose, maltose, sucrose, mannitol, xylose, trehalose or ribose. Also, esculin hydrolysis, starch hydrolysis, urea hydrolysis, phospholipase D and CAMP tests were negative.

Susceptibility of the strain was tested by the E test. The MICs of penicillin G, ampicillin, cefalothin, imipenem, amoxicillin/clavulanic acid, amikacin, tetracyclin, erythromycin, rifampin, trimethoprim/sulphamethoxazole, ciprofloxacin, vancomycin were $0.25 \mu g/ml$, $0.25 \mu g/ml$, $0.25 \mu g/ml$, $0.125 \mu g/ml$, $0.38 \mu g/ml$, $0.19 \mu g/ml$, $0.016 \mu g/ml$, $0.032 \mu g/ml$, $0.0016 \mu g/ml$, $0.004 \mu g/ml$, $0.094 \mu g/ml$, $0.125 \mu g/ml$, respectively. The results were interpreted in accordance with the criteria established for staphylococci by the NCCLS [1]. According to the antimicrobial susceptibility test results, vancomycin was commenced. The patient responded well to therapy and no growth was observed in consecutive blood cultures.

Coryneform bacteria belonging to the genus Brevibacterium have been increasingly involved as opportunistic pathogens in various clinical, mostly nosocomial, settings [2]. Brevibacteria are catalase-positive, nonspore-forming, nonmotile, aerobic Gram-positive rods. They can be found in raw milk and surface-ripened cheese as well as on human skin and in animal sources [3].

Since 1984, many strains of brevibacteria have been reported from human sources, particularly from skin or structures adjacent to the skin. Diseases due to brevibacteria have also been described, e.g. osteomyelitis, meningitis, cholangitis, salpingitis, CAPD peritonitis and septicemia [3–7].

In immunocompromised patients, among a wide range of causative agents, a variety of unusual pathogens like Brevibacterium sp., may also be encountered in invasive infections. Since brevibacteria may easily be confused with apathogenic corynebacteria, physicians treating patients with immuno-compromising conditions should be aware of this bacterial genus as a potential cause of invasive infection, especially when isolated from sterile body sites.

REFERENCES