CATHETER-RELATED INFECTION DUE TO KOCURIA KRISTINAE IN A PATIENT WITH ACUTE LYMPHOBLASTIC LEUKEMIA

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Abstract
Kocuria kristinae is a gram positive coccus belonging to Micrococcaceae family. It normally inhabits skin, mucous membranes and human oropharynx; However, it may cause opportunistic infections in immunocompromised patients. Thus, an unusual case of a Kocuria kristinae intravenous catheter-related infection had been reported in a 5-years old child with acute lymphoblastic leukemia (ALL). With much effort the author made to find a similar report, no case of a catheter-related infection caused by Kocuria kristinae in Basrah had been found.

Introduction
Kocuria spp. are members of the Micrococcaceae family. They were previously classified into the Micrococcus genus. They have now been reclassified as Kocuria, based on their phylogenetic and chemotaxonomic analyses. Kocuria spp. are widely distributed in nature and they are also found frequently as normal skin flora in humans and other mammals. Kocuria kristinae is a facultative anaerobic gram-positive coccus that arranged in tetrads. It is non-motile, catalase-positive, and coagulase-negative. Documented cases of Kocuria infections in humans are limited. Like other Kocuria spp, K. Kristinae was not considered to be a primary pathogen, but during recent years, well documented cases of catheter-related bacteremia and infective endocarditis which were caused by this organism in patients with different malignancies, in cases of peritonitis (which was related to peritoneal dialysis in a case of acute cholecystitis, in a case of catheter-related urinary tract infection, and bacteremia in a pregnant, but otherwise healthy adult female, had been reported.

Case Presentation
In April 2014, a 5 year old male child with acute lymphoblastic leukemia was admitted to Basrah Children Specialty Hospital for the induction course of chemotherapy. During admission he developed a local intravenous catheter infection including induration, erythema and tenderness at the catheter exit site.

Microbiology
Catheter tip and peripheral blood specimen were collected for culture. Culture of blood from peripheral vein was performed with a BACTEC system (BACTEC 9210; Becton Dickinson) with BACTEC PEDS PLUS/F culture vials. The catheter tip was cultured by the semi quantitative method, which was performed by rolling the external surface of a catheter tip back and forth on the surface of a blood agar plate 3-4 times, and then the plate was incubated for 24 hours in 5% CO2 at 35°C, after which the numbers of colony forming units (CFU) were quantified. The Breakpoints for detection of catheter tip colonization were ≥15 CFU. Blood culture yielded no growth. The colonies isolated from the catheter tip on blood agar were small in size, creamy, non-hemolytic, smooth, rounded & convex (Figure 1).
Gram-stained smear from the colonies showed gram-positive cocci arranged in pairs and tetrads, which were catalase positive, coagulase negative, and non-motile. The isolate was identified as K. kristinae with the commercially available API Staph system (Biomerieux) (Figure 2). This identification was confirmed with BD phoenix system with a probability of identification of 99% (Figure 3). Due to the lack of facilities, the isolate of K. kristinae could not be confirmed by genotyping. As there was no database for MIC calculation for Kocuria spp in BD phoenix identification system. Susceptibility test was performed on Muller Hinton Agar by Kirby Bauer disc diffusion method according to Clinical and Laboratory Standards Institute (formerly NCCLS) guidelines for coagulase–negative Staphylococcus\textsuperscript{11}. Isolates were susceptible to penicillin, oxacillin, vancomycin, erythromycin, clindamycin, ciprofloxacin, cefalothin, and trimethoprim/sulfamethoxazole.

Figure 1: Kocuria kristinae colonies on blood agar

Figure 2: API Staph for Kocuria kristinae
Figure 3: Laboratory report of BD phoenix identification system which identified the isolate as K. kristinae with a probability of 99%.

References