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Ulcerative keratitis due to *Kocuria palustris*: An emerging pathogen

Queratitis ulcerativa por Kocuria palustris*: un patógeno emergente*

Species from the genus *Kocuria*, earlier belonging to the genus *Micrococcus*, have been described as the causative agents of bacteremia, endocarditis, peritonitis, cholecystitis, urinary tract infection, brain abscesses and keratitis.[1] The increased clinical cases reported recently demonstrate the expanding spectrum of human infections caused by these microorganisms. *Kocuria palustris* was first described in 1999[2] and reported together with *Rothia mucilaginosa* as the etiologic agent of an ulcerative keratitis case in 2014.[3] We describe the first case of a *K. palustris* infection in pure culture.

A 68 year old woman was admitted to our hospital with suspicion of corneal ulcer in the left eye. She had been operated from cataract 10 years ago and had suffered from several swelling episodes. The patient underwent trabeculoctomy six months before the day of the admission. She had been using her monthly soft contact lenses until 2 days before the admission, when the first symptoms were present. She referred inflammation and swelling in the left eye. She showed epiphora and visual loss. Her left eye presented an erythematous conjunctiva, chemosis and opacification together with a central fluorescein-positive ulcer of approximately 1.4 mm–2.6 mm depth. In the fundus ultrasound of the left eye, vitreous opacities were observed. Suspicion of sub-scleral fissure was then suggested. However, no other signs of endophthalmitis or systemic infection symptoms were observed. Her right eye was unsuspicious. The final diagnosis was an ulcerative keratitis in the left eye possibly associated to the incorrect use of contact lens.

A corneal scraping and a corneal ulcer smear of the left eye were performed in order to identify the etiologic infectious agent. The patient started therapy with topical levofloxacin (5 mg/ml) and gentamicin (5 mg/ml) eye drops every hour, plus dexamethasone (1 mg/ml) eye drops twice daily. The corneal ulcer scraping sample was cultured in a thioglycolate broth at 37 °C. The 16s ribosomal RNA PCR performed from the smear sample was positive. The gene sequence analysis revealed *K. palustris*. After 4 days of incubation, the thioglycolate demonstrated microbial growth. A creamy colony grew on the blood agar plate subculture after 24 h of incubation at 37 °C. *K. palustris* identification was confirmed using MALDI-TOF. Susceptibility testing was performed following the European Committee on Antimicrobial Susceptibility Testing (EUCAST) standardized methodology. The MIC for different antimicrobial agents using the Etest method were as follows: penicillin G 0.125 μg/ml; clindamycin 0.125 μg/ml; vancomycin 0.38 μg/ml; gentamicin 0.19 μg/ml; moxifloxacin 0.5 μg/ml; rifampicin 0.016 μg/ml and linezolid 0.75 μg/ml. On the day 5, the patient was discharged with a significant clinical improvement and the treatment was adjusted to topical levofloxacin (5 mg/ml) eye drops four times daily for the three following days. On the follow-up visit, one month later, the patient showed no signs of infection.

Isolates belonging to the former genus *Micrococcus* are usually regarded as normal flora from skin and mucous membranes. *Kocuria* species have been isolated from the environment and clinical samples forming complex biofilms together with a variety of other microorganisms.[4,5] The clinical significance of *Kocuria* species overall is frequently ignored, as clinical microbiology laboratories consider it a contaminant due to its ubiquitous presence in the human microbiota.[6] However, the reports of *Kocuria* spp. clinical cases in the last years have highlighted its significance as a potential and invasive pathogen especially in neonates and immunocompromised patients.[1,7]

Ocular infections due to *Kocuria* spp. have been also described, including cases of keratitis,[3,8] keratoconjunctivitis[9] and canaliculitis.[10] This rare infection showed an unpredictable clinical course with frequent serious complications. As in the case described here, there is usually a previous history of an eye disorder. The infection management could require evisceration, keratoplasty and amniotic membrane graft treatment in complicated cases; and involved treatment with antimicrobials in all of the cases. Due to its susceptibility pattern, *Kocuria* spp. is generally covered in the empiric or initial directed antibiotic treatment with broad spectrum antibiotics. However, resistances to ampicillin, tetracycline and quinolones have been described.[1,8]

The present report implies that *Kocuria* spp. should be taken in consideration when isolated from corneal ulcer samples, especially in patients with a previous history of eye disorders.

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