

## Skin Infection Due to *Serratia marcescens* in an Immunocompetent Patient

### Infección cutánea por *Serratia marcescens* en paciente inmunocompetente

To the Editor:

*Serratia marcescens* is a gram-negative bacillus of the Enterobacteriaceae family. Skin infections by this microorganism are uncommon, and immunodepressed patients are at the greatest risk of developing them. We present the case of a 40-year-old man with no past history of interest who consulted with painful lesions that had been present on the dorsum of the left hand for 4 months. The lesions had been treated with topical antibiotics (mupirocin and fusidic acid) and systemic antibiotics (amoxicillin-clavulanate), but the patient's condition had not improved. Examination revealed 3 abscesses with an inflammatory appearance and hard consistency; there was an orifice on one of the lesions through which it was possible to express purulent material (Figure 1). No accompanying skin lesions, enlarged lymph nodes, or signs of systemic involvement were detected. As mycobacterial infection was suspected, the content of the abscess was cultured and a biopsy of the lesion taken. The results of the laboratory workup were normal, except for elevation of the acute phase reactants. The microbiology report indicated growth of the bacterium *S marcescens* sensitive to cefotaxime, ciprofloxacin, gentamicin, piperacillin-tazobactam, and trimethoprim-sulfamethoxazole. Histopathology revealed nonspecific inflammatory reaction suggestive of advanced cellulitis. In order to rule out the presence of immunodepression, the patient underwent a Mantoux test, chest x-ray, protein electrophoresis, and serology testing for human immunodeficiency virus (HIV), hepatitis B virus, hepatitis C virus, and syphilis. The results of all these tests were normal or negative. Once the results of the antibiogram were available, treatment was started with oral ciprofloxacin (750 mg/d); after 15 days this was changed to trimethoprim-sulfamethoxazole (800/160 mg every 12 hours), which was maintained for 3 months, leading to complete resolution of the lesions. A month



Figure 1 Purulent abscesses on the dorsum of the hand.



Figure 2 After resolution of the lesions.

later, the patient presented a new lesion at the same site; therefore, antibiotic treatment was restarted for 2 months. One year later, no recurrences have been detected.

*S marcescens* is a facultative anaerobe with a high capacity for survival in hostile conditions. It is found in nutrient-poor reservoirs, such as drinking water and pipes, and in a wide variety of disinfectants. Consequently, it can act as a nosocomial agent.<sup>1</sup> It also colonizes the gastrointestinal tract and, frequently, the respiratory and genitourinary tracts, as well as the oropharynx.<sup>2</sup> This microorganism can cause opportunistic infections, as well as septicemia, endocarditis, and arthritis, which may be nosocomial or community-acquired. Skin and eye infections by this agent are exceptional.<sup>3</sup> Patients with immunosuppression, due either to medical treatment or to systemic diseases, are the group at the highest risk of developing infections by this microorganism, which is very often resistant to conventional antibiotic therapy.<sup>4</sup>

Skin infections by *S marcescens* are uncommon: they almost always occur in immunodepressed patients and almost never in immunocompetent patients. Rodríguez García et al<sup>5</sup> reported the case of a 10-year-old patient with a granulomatous skin lesion caused by *S marcescens* that resolved after treatment with ciprofloxacin for 15 days. No portal of entry or immunosuppression was identified. Yoshida et al<sup>4</sup> recently reported another case in a 54-year-old woman with a history of hemorrhagic colitis who presented an erythematous plaque on the cheek. *S marcescens* was isolated in culture, and no recurrences were observed after 2 months of treatment with ciprofloxacin. The microorganism has also been reported in patients with other diseases, such as diabetes, kidney failure,<sup>5</sup> cirrhosis of the liver, and venous insufficiency.<sup>3</sup> Previous injury, animal bites,<sup>6</sup> and ulcers<sup>7</sup> on the lower extremities can act as a portal of entry. Our patient reported previous injury with a sharp object. This and the absence of immunodepression suggested that the wound was the portal of entry.

The clinical manifestations of skin infection by *S marcescens* include granulomatous lesions, necrotizing fasciitis, nodules, cellulitis, dermal abscesses, ulcers, and there is even a report of a disseminated papular eruption caused by this opportunistic agent in an HIV-infected patient.<sup>8</sup>

These infections can be divided into 2 groups: acute forms, which usually present as cellulitis or abscesses<sup>1</sup> and

can progress to ulcers<sup>3,9</sup> and severe necrotizing fasciitis,<sup>10</sup> and chronic forms, which occasionally present as nodules with an intermittent course or as granulomatous lesions.<sup>5</sup>

Differential diagnosis should be made with those entities that can lead to sporotrichoid spread, such as sporotrichosis, tularemia, leishmaniasis, nocardiosis, swimming pool granuloma, and staphylococcal or streptococcal infections. Chronic granulomatous infections such as coccidioidomycosis, histoplasmosis, blastomycosis, syphilis, and cutaneous tuberculosis with a positive tuberculin test, should also be considered.

It is important to perform cultures of the exudate of the lesion to ensure correct diagnosis and treatment, since this microorganism is resistant to conventional antibiotics and usually requires long-term pharmacologic therapy; therefore, it can prove difficult to control. Long-term follow-up is recommended in order to detect underlying immunodepression.

### Conflict of Interest

The authors declare that they have no conflict of interest.

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