

Isolated Skin Pantoea Agglomerans Infection: An Entomodermoscopy Description

Amani Fliti^{1*}, Meryem Elomari Alaoui¹, Mariame Meziane¹, Nadia Ismaili¹, Laila Benzekri¹, Karima Senouci¹

¹Department of Dermatology and Venerology, University Hospital Center Ibn Sina, University of Mohamed V, Rabat, Morocco

DOI: [10.36347/sjmcr.2024.v12i03.011](https://doi.org/10.36347/sjmcr.2024.v12i03.011)

| Received: 06.02.2023 | Accepted: 14.03.2024 | Published: 17.03.2024

*Corresponding author: Amani Fliti

Department of Dermatology and Venerology, University Hospital Center Ibn Sina, University of Mohamed V, Rabat, Morocco

Abstract

Case Report

Pantoea agglomerans is an environmental and agricultural gram-negative aerobic bacilli, and it uncommonly causes skin infections and presents with nonspecific clinical and histological findings. Hereby, we report a unique rare case of isolated cutaneous infection with Pantoea agglomerans with a first entomodermoscopy description.

Keywords: Pantoea agglomerans, Enterobacter agglomerans, dermoscopy, wound superinfection.

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Pantoea agglomerans (or Enterobacter agglomerans) is an environmental and agricultural gram-negative aerobic bacilli [1]. The species of Pantoea are commonly found in plants, soil, and feces of humans and animals. However, the bacteria is frequently seen in humans and isolated in hospitals. It can infect any organ system in the body, and the severity of infection ranges from nonlife-threatening skin infection to fatal multiorgan system disorders [2]. Hereby, we report a unique rare case of isolated cutaneous infection with P.Agglomerans with a first entomodermoscopy description.

CASE REPORT

A 30-year-old patient presented with a 3 months' history of a growing itchy plaque of the right digit. He denied any drug intake, joint pain, fever, chills, sore throat or weight loss. Being a farmer as an occupation, he reported being bitten by a prickly pear during gardening activities, our dermatological examination revealed an isolated 3 cm erythematous infiltrated plaque of the interphalangeal joint of the right index, yellow crust were seen at the border of the lesion (Figure 1).



Figure 1: Isolated erythematous infiltrated plaque of the interphalangeal joint of the right index

The dermoscopy examination revealed: white scales, hemorrhagic dots, keratotic plug and orange-yellow area (Figure 2).

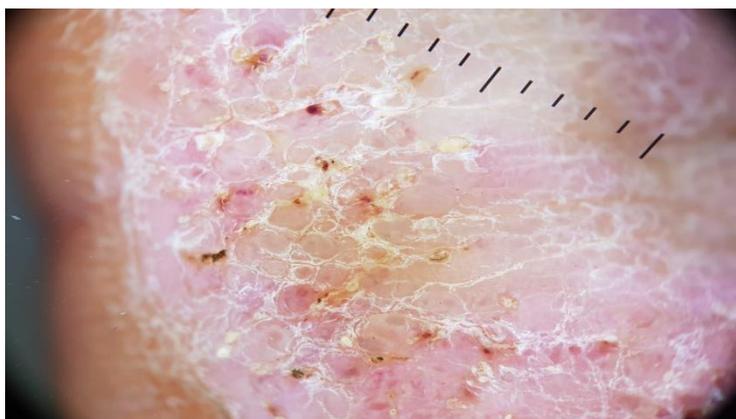


Figure 2: Dermoscopy (Dermlite4): white scales, hemorrhagic dots, keratotic plug and orange-yellow area

There was no lymph nodes involvement or splenomegaly. He tested negative for HIV, ANA. The plain X ray and the complete blood count was normal. We performed two deep 5mm punch biopsies, the 1st one for histological examination, the 2nd one for bacterial culture. The Histology report showed a dense lichenoid dermatitis with multiple granulomas, while the tissue bacterial culture isolated a *P. agglomerans* infection (10^5) after 5 weeks, the bacteria was sensitive to peniciline so we treated the patient with 50mg/kg/j of Amoxicillin for 1months, with no improvement we decided to switch to sulfamethoxazole trimethoprim 800mg 2 times per day.

DISCUSSION

P. agglomerans is a clinically significant pathogen in dermatology. It is abundantly present in plants, feces and seed, it possesses strong allergenic properties, which can cause cutaneous late phase Type 3 hypersensitivity reaction, skin infections but also can be used as an adjunct in the treatment of malignant and nonmalignant dermatosis. Cutaneous infection by this organism can occur as a wound superinfection, or the organism may enter the skin with other organic materials when penetrating trauma occurs to the skin [2, 4].

Because *P. agglomerans* uncommonly causes skin infections and presents with nonspecific clinical and histological findings, dermatologic diagnosis may be delayed [3].

A previous history of plant injury and the observation of persistent inflammatory changes, erythematous nodules or suppurative ulcers refractory to conventional antimicrobial therapy should raise the diagnostic suspicion of wound infection by *P. agglomerans* [5-7].

The main complications are: septic arthritis, spondylodiscitis, or tibial osteitis, peritonitis and sepsis.

The main dermoscopic features of cutaneous infection by *P. Agglomerans* are: yellowish and orange area which corresponds histologically to granulomas,

hemorrhagic dots, white scales, diffuse erythema and keratotic plug.

Imaging tests such as ultrasonography or magnetic resonance imaging can be useful tools to identify and locate retained foreign materials, the radiolucent nature and a possible migration beyond the inoculation site may hinder their identification [8].

Diagnosis is via bacterial culture as histology is usually nonspecific and may not offer a conclusive diagnosis

Susceptibility testing is very useful in choosing an antibiotic; they have been completed in many reports of *P. agglomerans* infections, and the bacteria are often found to be susceptible to amikacin, gentamicin, meropenem, ciprofloxacin, levofloxacin, amoxicillin/clavulanate, sulfamethoxazole trimethoprim, and broad-spectrum cephalosporins (i.e., ceftazidime and cefepime) [9].

CONCLUSION

Our patient had an isolated verrucous plaque of the digit, our first diagnosis was cutaneous tuberculosis because it is still the main public health disease in Morocco, in our case the histology wasn't specific and didn't offer a conclusive diagnosis, Bacterial culture and sensitivity determined the choice of antibiotics for treatment.

Funding: None

Conflicts of Interest: The authors declare no conflicts of interest.

REFERENCES

1. Cicchetti, R., Iacobini, M., Midulla, F., Papoff, P., Mancuso, M., & Moretti, C. (2006). *Pantoea agglomerans* sepsis after rotavirus gastroenteritis. *The Pediatric infectious disease journal*, 25(3), 280-281.

2. Olmos-Alpiste, F., Ezquerro, G. M., & Pujol, R. M. (2022). Wound infection by *Pantoea agglomerans* after penetrating plant injury. *Indian Journal of Dermatology, Venereology and Leprology*, 88(5), 633-635.
3. Cruz, A. T., Cazacu, A. C., & Allen, C. H. (2007). *Pantoea agglomerans*, a plant pathogen causing human disease. *Journal of clinical microbiology*, 45(6), 1989-1992.
4. Okwundu, N., & Mercer, J. (2019). *Pantoea agglomerans* cutaneous infection. *Journal of Dermatology and Dermatologic Surgery*, 23(1), 41-43.
5. Friedling, F., Kekulé, A. S., WCh, M., & Stadie, V. (2015). *Pantoea agglomerans*-an underestimated pathogenic agent in penetrating trauma involving vegetative material. *Journal of the European Academy of Dermatology and Venereology: JEADV*, 30(6), 1025-1026.
6. Harris, E. J. (2010). Retained Hawthorn fragment in a child's foot complicated by infection: diagnosis and excision aided by localization with ultrasound. *The Journal of foot and ankle surgery*, 49(2), 161-165.
7. Kratz, A., Greenberg, D., Barki, Y., Cohen, E., & Lifshitz, M. (2003). *Pantoea agglomerans* as a cause of septic arthritis after palm tree thorn injury; case report and literature review. *Archives of disease in childhood*, 88(6), 542-544.
8. De Champs, C., Le Seaux, S., Dubost, J. J., Boisgard, S., Sauvezie, B., & Sirot, J. (2000). Isolation of *Pantoea agglomerans* in two cases of septic monoarthritis after plant thorn and wood sliver injuries. *Journal of clinical microbiology*, 38(1), 460-461.
9. Penner, M., Romans, B., Tah, L., Argubright, B., & Strohmeyer, M. (2022). Successful treatment of *Pantoea agglomerans* bacteremia using oral antibiotics. *Case Reports in Infectious Diseases*, 2022, 6136265. doi: 10.1155/2022/6136265. PMID: 35502196; PMCID: PMC9056224.