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Three New Cases of Melioidosis, Guadeloupe, French West Indies

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Melioidosis has been detected in the Caribbean, and an increasing number of cases has been reported in the past few decades, but only 2 cases were reported in Guadeloupe during the past 20 years. We describe 3 more cases that occurred during 2016–2017 and examine arguments for increasing endemicity.

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lower infiltrates, and multiple right hilar nodes. Bronchoalveolar lavage fluid contained B. pseudomallei. Intravenous ceftazidime (2 g 3×/d) for 40 days followed by oral TMP/SMX (320/1,600 mg 2×/d) slowly improved the clinical status, but 1 month after starting oral antimicrobial drug therapy, he had a drug reaction that caused eosinophilia and systematic symptoms. He died a year later despite appropriate treatment.

All patients were born and had always lived in the western part of Guadeloupe and Les Saintes islands, the rainiest places in Guadeloupe (1,500–5,500 mm of rainfall per year in 2017 [Météo France, http://www.meteofrance.gp/climat/pluies-annuelles/rr_an_guadeloupe]). The patients reported no travel history to endemic countries. All had a history of potential occupational or recreational exposure to B. pseudomallei (as farmers, gardeners) and predisposing risk factors, such as diabetes mellitus, chronic renal diseases, and alcoholism (1). The clinical manifestations of disease were classical, but all patients experienced severe side effects during their treatments, and the mortality rate was 100% (Table), which is much higher than in most series of reported cases, underlining the severity of this disease.

These 3 cases of melioidosis were identified over a 6-month period, in contrast with only 2 cases diagnosed and reported during the previous 20 years in Guadeloupe. The identification of the isolate from the first case was performed locally by the API-20NE system (bioMérieux, https://www.biomerieux.com) and confirmed by matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) mass spectrometry and by real-time PCR (6) at a reference laboratory in France. The isolates from the other cases were not identified correctly by the API-20NE system, as often described (7). However, after the first case, we were aware that a wrinkled colony-forming, oxidase-positive, gram-negative bacillus resistant to colistin and aminoglycosides could be B. pseudomallei. Thus, the strains were sent to the reference laboratory for confirmation. All the isolates were genotyped by multilocus sequence typing (8). They belonged to sequence type (ST) 92 (n = 2) and 95 (n = 1), 2 clones previously described in Central and South America and Caribbean islands: Brazil (ST92), Puerto Rico (ST95), Martinique, and Mexico (ST92 and ST95 in both areas) (9). This finding highlights the potential role of this region as a reservoir for these clones.

Our experience suggests that the incidence of B. pseudomallei infection is probably underestimated in the Caribbean because of inadequate diagnostic laboratory facilities and the lack of knowledge about melioidosis among physicians and microbiologists. The tropical climate in this region provides suitable conditions for bacterial survival, and elevated alcoholism and diabetes rates among Caribbean populations cause weakened immunitv that could lead to increased infection risk (10). Therefore, investigation of soil samples should be undertaken to identify the most likely sources of human infection in this area.

| Table. Main comparative data for 3 cases of melioidosis in Guadeloupe, French West Indies* |
|-----------------------------------------------|-----------------|-----------------|-----------------|
| Characteristic                              | Patient 1       | Patient 2       | Patient 3       |
| Age, y                                       | 54              | 66              | 52              |
| Sex                                          | M               | F               | M               |
| Place of birth                               | Guadeloupe      | Guadeloupe      | Guadeloupe      |
| Place of residence                           | Bouillante      | Deshaies        | Les Saintes     |
| Rainfall, mm/y                               | 2,500–3,000     | 1,500–2,000     | 1,500–2,000     |
| Concurrent conditions                        | Chronic renal failure (vascular nephropathy) | Diabetes | Chronic alcohol intake |
| Possible means of inoculation                | Gardening without gloves | Animals breeding, gardening without gloves | Animals breeding, gardening without shoes |
| Clinical presentation according to the Infectious Disease Association of Thailand† | 1: Multifocal infection with bacteremia (45% of cases, 87% mortality) | 3: Localized infection (42% of cases, 9% mortality) | 3: Localized infection (42% of cases, 9% mortality) |
| Time from first clinical signs to death      | 11 mo           | 2 mo            | 16 mo           |
| Organ involvement                            | Pneumonia       | Disseminated (psosas abscess, lung abscesses, bacteremia) | Pneumonia       |
| MLST                                         | ST92            | ST95            | ST92            |
| Treatment                                    | Ceftazidime + TMP/SMX, then doxycycline; TMP/SMX discontinued due to rash | Ceftazidime, meropenem, TMP/SMX | Ceftazidime + TMP/SMX; TMP/SMX discontinued due to DRESS syndrome |
| Outcome                                      | Death           | Death           | Death           |

*DRESS, drug reaction with eosinophilia and systematic symptoms; MLST, multilocus sequence typing; ST, sequence type; TMP/SMX, trimethoprim/sulfamethoxazole.
†Punyagupta S. Melioidosis: review of 686 cases and presentation of a new clinical classification. In: Punyagupta S, Sirisanthana T, Stapatayavong B, eds. Melioidosis. Bangkok: Bangkok Medical; 1989:217–29; Leelarasamee A, Bovornkitti S. Melioidosis: review and update. Rev Infect Dis. 1989; 11:413–29.
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About the Author
Dr. Melot is a medical doctor in infectious and tropical diseases at University Hospital of Guadeloupe, Pointe-à-Pitre, France, and holds a master’s degree in public health and epidemiology. Her primary research interests include the study of tropical endemic infections.

References
1. Currie BJ, Ward L, Cheng AC. The epidemiology and clinical spectrum of melioidosis: 540 cases from the 20 year Darwin prospective study. PLoS Negl Trop Dis. 2010;4:e4900. https://doi.org/10.1371/journal.pntd.0000490
2. Limmathurotsakul D, Golding N, Dance DAB, Messina JP, Pigott DM, Moyes CL, et al. Predicted global distribution of Burkholderia pseudomallei and burden of melioidosis. Nat Microbiol. 2016;1:15008. https://doi.org/10.1038/nmicrobiol.2015.8
3. Torres AG, Montufar FE, Gee JE, Hoffmaster AR, Elrod MG, Duarte-Valderrama C, et al. Melioidosis is in the Americas: a call to action for diagnosing and treating the disease. Am J Trop Med Hyg. 2018;99:563–4. https://doi.org/10.4269/ajtmh.18-0418
4. Sanchez-Villamil JJ, Torres AG. Melioidosis in Mexico, Central America, and the Caribbean. Trop Med Infect Dis. 2018;3:24. https://doi.org/10.3390/tropicalmed301024
5. Benoit TJ, Blaney DD, Doker TJ, Gee JE, Elrod MG, Rolim DB, et al. A review of melioidosis cases in the Americas. Am J Trop Med Hyg. 2015;93:1134–9. https://doi.org/10.4269/ajtmh.15-0405
6. Thibault FM, Valade E, Vidal DR. Identification and discrimination of Burkholderia pseudomallei, B. mallei, and B. thailandensis by real-time PCR targeting type III secretion system genes. J Clin Microbiol. 2004;42:5871–4. https://doi.org/10.1128/JCM.42.12.5871-5874.2004
7. Glass MB, Popovic T. Preliminary evaluation of the API 20NE and RapID NF plus systems for rapid identification of Burkholderia pseudomallei and B. mallei. J Clin Microbiol. 2005;43:479–83. https://doi.org/10.1128/JCM.43.1.479-483.2005
8. Godoy D, Randle G, Simpson AJ, Aaensen DM, Pitt TL, Kinoshita R, et al. Multilocus sequence typing and evolutionary relationships among the causative agents of melioidosis and glanders, Burkholderia pseudomallei and Burkholderia mallei. J Clin Microbiol. 2003;41:2068–79. https://doi.org/10.1128/JCM.41.5.2068-2079.2003
9. Hall CM, Jaramillo S, Jimenez R, Stone NE, Cenntner H, Busch JD, et al. Burkholderia pseudomallei, the causative agent of melioidosis, is rare but ecologically established and widely dispersed in the environment in Puerto Rico. PLoS Negl Trop Dis. 2019;13:e0007727. https://doi.org/10.1371/journal.pntd.0007727
10. Carrère P, Fagour C, Sportouch D, Gane-Troplent F, Hélène-Pelage J, Lang T, et al. Diabetes mellitus and obesity in the French Caribbean: a special vulnerability for women? Women Health. 2018;58:145–59. https://doi.org/10.1080/03630242.2017.1282396

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Coccidioidomycosis Skin Testing in a Commercially Insured Population, United States, 2014–2017

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Coccidioidomycosis skin testing appears to be uncommon, based on US health insurance claims data. Patient demographic features were consistent with the approval of the test for adults, but few patients had previous coccidioidomycosis diagnosis codes supporting its use for detecting delayed-type hypersensitivity in those with a history of pulmonary coccidioidomycosis.

Coccidioidal skin testing has been a valuable epidemiologic and clinical tool for estimating the prevalence of previous Coccidioides spp. exposure and monitoring treatment response (1–3). Such testing could also be useful for evaluating healthy persons’ risk of developing coccidioidomycosis (3). The skin test became commercially available again in 2014 after more than a decade; it is approved for adults 18–64 of age who have a history of pulmonary coccidioidomycosis (3,4). However, little is known about its use.

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