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LETTER TO THE EDITOR

Spread of community-associated methicillin-resistant *Staphylococcus aureus* to Peru

Since the first outbreak of community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) described in Uruguay in 2003,¹ cases have been reported from other Latin American countries such as Argentina, Chile, Colombia, Venezuela, Ecuador and Brazil but none from Peru.^{2–6} We describe three patient cases infected with CA-MRSA in Peru and the molecular characteristics of these *S. aureus* isolates.

Patient (P) 1 was a 39-year-old Peruvian male working as a cooker in Argentina, where he developed a purulent infection in his hand. Upon return to Peru five days later, he was admitted with severe soft tissue infection extending to the upper arm, sepsis and pneumonia. He required a 9-day intensive care admission and was treated with vancomycin which was switched after 12 days to clindamycin. P2 was a 51-year-old American man who had been working as a pilot in Peru for 10 years. His last flight was to Puerto Rico 22 days earlier. He was admitted with cellulitis and subcutaneous abscess formation at the right shoulder which had spontaneously ruptured. The patient had started self-treatment with ciprofloxacin. On admission, intravenous cefazolin was started, this was switched to clindamycin after two days and to linezolid after culture results became available. Both patients were discharged in good condition. P3 was a 39-year-old woman who frequently travelled to Ecuador. She presented at the emergency room with purulent cellulitis of the left thigh. She had a history of recurrent soft tissue infections with the previous episode occurring three months earlier. She was sent home with oral clindamycin. Clinical improvement was confirmed one week later.

S. aureus isolates recovered from blood (P1) and pus cultures (P2 and P3) were resistant to oxacillin but susceptible to clindamycin, gentamicin, trimethoprim-sulfamethoxazole, and chloramphenicol. The isolate from P2 was also co-resistant to erythromycin and ciprofloxacin. The three isolates showed the presence of SCCmec IV and Panton-Valentine leukocidin (PVL) genes. The isolate from P1 belonged to *spa* type t019 associated with multilocus sequence type (ST) 30. CA-MRSA ST30 has been widely described in the eastern region of South America including Argentina, where the patient acquired the infection.^{2,5,7}

Molecular typing of the isolate from P2 revealed *spa* type t008 associated to ST8, presence of the *arcA* gene (that encodes an arginine deiminase present into the arginine catabolic mobile element) and the pulsotype characteristic of the CA-MRSA USA300 clone. This clone is predominant in North America but spreading to Latin America.⁸ The isolate from P3 had identical *spa* type t008 and pulsotype related to the USA300 clone, but lacked the *arcA* gene. These findings suggested that this isolate corresponds to the CA-MRSA USA300 variant clone described as the predominant CA-MRSA clone in Colombia, Venezuela and Ecuador.⁴

These clinical cases are the first reports of CA-MRSA in Peru. They share the clinical and molecular hallmarks of CA-MRSA: skin and soft tissue infections in otherwise healthy patients and the presence of SCCmec IV and PVL genes, and they illustrate the cross-border spread of CA-MRSA in Latin-America.

References

1. Ma XX, Galiana A, Pedreira W, Mowszowicz M, Christophersen I, Machiavello S, et al. Community-acquired methicillin-resistant *Staphylococcus aureus*, Uruguay. *Emerg Infect Dis* 2005;11:973–6.
2. Gardella N, von Specht M, Cuiroloc A, Rosatoc A, Gutkind G, Molleracha M. Diagnostic Community-associated methicillin-resistant *Staphylococcus aureus*, eastern Argentina. *Microbiol Infect Dis* 2008;62:343–7.
3. Noriega LM, González P, Hormazábal JC, Pinto C, Canals M, Munita JM, et al. *Staphylococcus aureus* comunitario resistente a cloxacilina: Comunicación de los primeros cinco casos descritos en Chile. *Rev Med Chile* 2008;136:885–91.
4. Reyes J, Rincón S, Díaz L, Panesso D, Contreras GA, Zurita J, et al. Dissemination of methicillin-resistant *Staphylococcus aureus* USA300 sequence type 8 lineage in Latin America. *Clin Infect Dis* 2009;49:1861–7.
5. Ribeiro A, Dias C, Silva-Carvalho MC, Berquó L, Ferreira FA, Santos RN, et al. First report of infection with community-acquired methicillin-resistant *Staphylococcus aureus* in South America. *J Clin Microbiol* 2005;43:1985–8.
6. Sola C, Saka HA. Cordoba MRSA Collaborative Study Group, Vindel A, Bocco JL. Emergence and dissemination of a community-associated methicillin-resistant Panton-Valentine leukocidin-positive *Staphylococcus aureus* clone sharing the sequence type 5 lineage with the most prevalent nosocomial clone in the same region of Argentina. *J Clin Microbiol* 2008;46:1826–31.
7. Sola C, Saka HA, Vindel A, Bocco JL, Córdoba S. aureus Collaborative Study Group. High frequency of Panton-Valentine leukocidin genes in invasive methicillin-susceptible *Staphylococcus*

- aureus* strains and the relationship with methicillin-resistant *Staphylococcus aureus* in Córdoba, Argentina. *Eur J Clin Microbiol Infect Dis* 2007;26:281–6.
8. Deleo FR, Otto M, Kreiswirth BN, Chambers HF. Community-associated methicillin-resistant *Staphylococcus aureus*. *Lancet* 2010;375:1557–68.

Coralith García*
Instituto de Medicina Tropical Alexander von Humboldt,
Universidad Peruana Cayetano Heredia,
Av. Honorio Delgado 430, Lima31,
Peru
E-mail address: coralith.garcia@upch.pe

Ariane Deplano
Laboratoire de Référence MRSA-Staphylococci,
Erasmus Hospital, Université Libre de Bruxelles,
Brussels, Belgium

Olivier Denis
Laboratoire de Référence MRSA-Staphylococci,
Erasmus Hospital, Université Libre de Bruxelles,
Brussels, Belgium

Mey León
Instituto de Medicina Tropical Alexander von Humboldt,
Universidad Peruana Cayetano Heredia,
Av. Honorio Delgado 430, Lima31,
Peru

Hugo Siu
Instituto de Medicina Tropical Alexander von Humboldt,
Universidad Peruana Cayetano Heredia,
Av. Honorio Delgado 430, Lima31,
Peru

Omayra Chinchá
Instituto de Medicina Tropical Alexander von Humboldt,
Universidad Peruana Cayetano Heredia,
Av. Honorio Delgado 430, Lima31,
Peru

Frine Samalvides
Instituto de Medicina Tropical Alexander von Humboldt,
Universidad Peruana Cayetano Heredia,
Av. Honorio Delgado 430, Lima31,
Peru

Jan Jacobs
Institute of Tropical Medicine Antwerp, Antwerp, Belgium

* Corresponding author. Tel.: +32 51 1 4823910; fax: +32 51 1 4823404.