

Andrés Agulla^{a,*}, Patricia Ordóñez^a, Hortensia Álvarez^b y Ana Mariño^b

^a Servicio de Microbiología, Complejo Hospitalario Arquitecto Marcide, Área Sanitaria de Ferrol, A Coruña, España

^b Unidad de Enfermedades Infecciosas, Complejo Hospitalario Arquitecto Marcide, Área Sanitaria de Ferrol, A Coruña, España

*Autor para correspondencia.

Correo electrónico: jose.andres.agulla.budino@sergas.es (A. Agulla).

doi:10.1016/j.eimc.2009.07.010

Community-associated methicillin-resistant *Staphylococcus aureus* disease in two members of a household in Spain

Infección invasora por *Staphylococcus aureus* comunitario en dos miembros de una familia

Dear Editor:

We present 2 cases of community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) pneumonia in a young, previously healthy woman and her newborn. To the best of our knowledge this is the first reported intra-family cluster of CA-MRSA pneumonia. If reported cases of household transmission of invasive CA-MRSA increase, stricter infection control measures might be needed in the management of these patients and their households.

Patient 1 (PT1). A 38-year-old Filipino woman with a past medical history of mild asthma was admitted to our institution with severe community-acquired pneumonia. Bilateral alveolar infiltrates were observed on chest radiographs. She was admitted to the intensive care unit (ICU), and antimicrobial therapy with ceftriaxone and clarithromycin was started. She had migrated to Spain 4 years before and lived in a 3-bedroom flat with 8 other people, all adults except for her baby boy, who was born 3 months before through an uncomplicated vaginal delivery. Clinically, she remained intermittently febrile during her ICU stay. On hospital day (HD) 4, the 2 sets of blood cultures obtained on admission were reported to be positive for MRSA. The isolate was susceptible to all other non-beta-lactam antimicrobials routinely tested, including clindamycin, erythromycin, trimethoprim/sulfamethoxazole, doxycycline, aminoglycosides, and levofloxacin, among others. Antimicrobial therapy was then switched to vancomycin and levofloxacin, and the patient rapidly defervesced. New blood cultures were negative and a transesophageal echocardiogram was performed without evidence of infective endocarditis. On HD 10, vancomycin and levofloxacin were discontinued and linezolid 600 mg bid po was started to complete 4 weeks of therapy without further complications.

Patient 2. (PT2) Twelve days after admission of PT1, her 3-month-old baby boy was admitted to our hospital with a 24-hour history of irritability, somnolence, and fever. On chest radiography, a right lower lobe infiltrate was seen. Antimicrobial therapy with vancomycin and cefotaxime were started. The patient's condition remained mainly unchanged, with persistent fever and elevated inflammatory markers. A second chest radiograph showed significantly increased right pleural effusion. Culture of the pleural fluid yielded MRSA with the same susceptibility pattern as that observed in PT1. The pleural effusion was percutaneously aspirated and antimicrobial therapy was changed to linezolid and meropenem. Soon after, the patient became afebrile and received 4 weeks of antimicrobials without further complications.

Family environment: PT1 and PT2 shared a 3-bedroom flat in the metropolitan area of Madrid with 7 more people, all of Filipino

ethnicity. Nasal swabs for culture were obtained from all the household members. MRSA with an identical susceptibility pattern was isolated in one of them.

Molecular typing of the isolates: Clinical isolates from both patients and the one obtained from the healthy household member were analyzed by sequencing of the protein A gene polymorphic region (*spa*-typing). All isolates were found to belong to *spa*-type 019, which has been described only in clone ST30, also known as the South Pacific clone. Analysis by PCR showed that the 3 isolates carried the SCCmec element of type IV and the *lukPV* genes (coding for the Panton-Valentine leukocidin [PVL]).

Discussion: We herein report 2 cases of CA-MRSA pneumonia in a household setting of previously healthy young individuals of Filipino ethnicity in Spain. The epidemiology of CA-MRSA infections in the United States has been extensively investigated, and they known to account for most skin and soft tissue infections (SSTIs). There are fewer data on the magnitude of this problem in other areas of the world, although it appears that the incidence of CA-MRSA infection in countries other than USA is generally lower. For instance, in a prospective study conducted between 1999 and 2003 in a French 500-bed community hospital study including 197 patients with community-acquired staphylococcal SSTI, only 3% had criteria for CA-MRSA infection.¹ Figures in the United Kingdom and Scandinavian countries seem to be somewhat higher. In a recent nationwide point-prevalence study of all MRSA isolated in a single day in 149 Spanish hospitals, none of the isolates produced PVL.² Nevertheless, there are recent reports of CA-MRSA infections, mainly SSTI, in the immigrant population in Spain.^{3,4} Regarding the overall molecular epidemiology of CA-MRSA, Vandenesch et al⁵ found that the CA-MRSA sequence type (ST) showed clear continent specificity: ST-1 in USA, ST-80 in Europe (European clone) and ST-30 in Oceania (Southwest Pacific clone) and suggested the possibility of simultaneous co-evolution of CA-MRSA organisms in different locations.

Several authors have reported clustering of CA-MRSA colonization in households.⁶ Nevertheless documentation of intrafamilial clusters of CA-MRSA infections, mainly in the setting of SSTI, is relatively rare.^{7–9} To the best of our knowledge, this is the first report of clustered invasive CA-MRSA infections within a household. Currently there are many uncertainties regarding the infection control measures to adopt in the household setting when CA-MRSA has been diagnosed.¹⁰ As opposed to the hospital setting, the association between nasal colonization and infection in the community is not so straight forward. Furthermore, colonization of different sites (pharynx, axilla, rectum, peritoneum) may also have an important role, and there are no studies that inconclusively support the benefit of decolonization. With this level of evidence, the CDC recommends clinicians to ask about similar cases of SSTI in household members and other close contacts and reinforce basic hygienic measures among them. Nasal decolonization with topical mupirocin and antiseptic body washes are recommended in patients with recurrent infection and when ongoing MRSA transmission is occurring in a well-defined, closely-associated cohort, such as a household.

References

1. Del Giudice P, Blanc V, Durupt F, Bes M, Martínez JP, Counillon E, et al. Emergence of two populations of methicillin-resistant *Staphylococcus aureus* with distinct epidemiological, clinical and biological features, isolated from patients with community-acquired skin infections. *Br J Dermatol*. 2006;154:118–24.
2. Cuevas O, Cercenado E, Bouza E, Castellares C, Trincado P, Cabrera R, et al. Molecular epidemiology of methicillin-resistant *Staphylococcus aureus* in Spain: a multicentre prevalence study (2002). *Clin Microbiol Infect*. 2007;13:250–6.
3. Cercenado E, Cuevas O, Marín M, Bouza E, Trincado P, Boquete T, et al. Community-acquired methicillin-resistant *Staphylococcus aureus* in Madrid, Spain: transcontinental importation and polyclonal emergence of Pantón-Valentine leukocidin-positive isolates. *Diagn Microbiol Infect Dis*. 2008;61:143–9.
4. Manzur A, Dominguez AM, Pujol M, González MP, Limon E, Hornero A, et al. Community-acquired methicillin-resistant *Staphylococcus aureus* infections: an emerging threat in Spain. *Clin Microbiol Infect*. 2008;14:377–80.
5. Vandenesch F, Naimi T, Enright MC, Lina G, Nimmo GR, Heffernan H, et al. Community-acquired methicillin-resistant *Staphylococcus aureus* carrying Pantón-Valentine leukocidin genes: worldwide emergence. *Emerg Infect Dis*. 2003;9:978–84.
6. Faden H, Ferguson S. Community-acquired methicillin-resistant *Staphylococcus aureus* and intrafamilial spread of pustular disease. *Pediatr Infect Dis J*. 2001;20:554–5.
7. Lemaire X, Legout L, François C, Lina G, Beltrand E, Senneville E, et al. First case of intrafamily transmission of a new MRSA clone with toxic shock syndrome toxin-1. *Scand J Infect Dis*. 2008;40:675–6.
8. Hugo Johansson PJ, Gustafsson EB, Ringberg H. High prevalence of MRSA in household contacts. *Scandinavian Journal of Infectious Diseases*. 2007;39:764–8.
9. Moellering Jr RC. Intrafamilial Spread of Methicillin-Resistant *Staphylococcus aureus* Infections. Reply. *JAMA*. 2008;299:2511–2.
10. Gorwitz RJ, Jernigan DB, Powers JH, Jernigan JA, and Participants in the CDCConvened Experts' Meeting on Management of MRSA in the Community. Strategies for clinical management of MRSA in the community: Summary of an experts' meeting convened by the Centers for Disease Control and Prevention. 2006. Available at http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca.html.

José Ramón Paño-Pardo^{a,*}, Adela García^b, Francisco Aracil^c and Antonio Martínez^d

^a Infectious Disease Unit, Hospital Universitario La Paz - IDIPAZ, Madrid, Spain

^b Department of Microbiology, Hospital Universitario La Paz, Madrid, Spain

^c Department of Pediatrics Hospital Universitario La Paz - IDIPAZ, Madrid, Spain

^d Department of Respiratory Medicine Hospital Universitario La Paz - IDIPAZ, Madrid, Spain

*Corresponding author.

E-mail address: joserrapa@gmail.com (J.R. Paño-Pardo).

doi:10.1016/j.eimc.2009.07.016

Éxito en el tratamiento de rescate de candidemia asociada a catéter venoso central

Successful treatment of catheter-associated candidemia without removing the central venous line

Sr. Editor:

Presentamos el caso de un lactante de 7 meses de vida, con inmunodeficiencia primaria (síndrome de Omenn diagnosticado por la presencia de eritrodermia, eosinofilia y linfocitopenia grave con patrón de subpoblaciones linfocitarias compatibles)¹, que ha tenido sepsis de repetición (por gérmenes gramnegativos y grampositivos) que han obligado a la retirada previa de un catéter venoso central. La paciente presenta una malnutrición grave. Debido al alto riesgo infeccioso que la malnutrición añade a la inmunodeficiencia primaria se decide la colocación de un catéter venoso central para nutrición parenteral. Portadora de catéter vascular central (catéter Hickman; el catéter previo se retiró a causa de sepsis por *Lactococcus lactis*), al mes de haberse colocado el catéter se aisló tras un pico febril en hemocultivo (central y periférico) de *Candida parapsilosis* con el patrón de sensibilidad mostrado en la tabla 1.

Ante la presencia de candidemia asociada a catéter venoso central se plantea la retirada de éste. Sin embargo, la paciente

presenta una dificultad extrema para canalizar vías periféricas, con la necesidad de mantener la nutrición parenteral. En todo momento durante este episodio la paciente se mantiene estable sin necesidad de fármacos vasoactivos. Es conocido el éxito del tratamiento de sellado del catéter venoso central y los trabajos prometedores sobre la eliminación de *Candida* en *biofilm* mediante caspofungina/anfotericina B liposomal.

Por tanto, se decide tratamiento sistémico con caspofungina en dosis de 50 mg/m² y sellado de la vía central con anfotericina B liposomal (en dosis de 3 mg/ml durante 8 h/día al procurar el aporte de nutrición parenteral durante 16 h diarias)¹ durante 14 días desde el primer hemocultivo negativo². Se excluyó la existencia de implantes metastásicos. El primer hemocultivo estéril de control se extrae a la semana de iniciar el tratamiento antifúngico.

La preferencia por caspofungina se debe al hecho de tratarse de un paciente que había recibido tratamiento antibiótico de amplio espectro en múltiples ocasiones y repetidos ingresos en cuidados intensivos que hizo temer la presencia de una cepa resistente. Existe experiencia en el tratamiento con caspofungina en pacientes inmunosuprimidos³ e, incluso, por debajo de los 3 meses de vida⁴. No se empleó dosis de carga de caspofungina al no estar establecida la necesidad de esta pauta en pacientes pediátricos. Dada la excelente respuesta clínica se decide no cambiar la pauta antifúngica a pesar del resultado de sensibilidad antifúngica. Además, el efecto frente a *Candida* es fungicida en el caso de las equinocandinas frente al fungistático de fluconazol⁵. En este caso es posible que el fluconazol, tras conocer los datos de sensibilidad, hubiera sido una buena alternativa terapéutica por seguridad y eficacia.

La paciente fallece 3 meses después en el contexto de sepsis por un bacilo gramnegativo, pero no se aislaron hongos levaduriformes en la evolución.

La candidemia asociada a catéter central es criterio de retirada de este⁶. No obstante, en situaciones excepcionales, motivadas por la situación del paciente, el tratamiento sistémico con caspofungina combinado con sellado del catéter con anfotericina B

Tabla 1
Sensibilidad a los antifúngicos frente a *Candida parapsilosis*

Antifúngico	CMI (µg/ml)	Interpretación
Anfotericina	1	(S)
Fluconazol	1	(S)
Itraconazol	0,125	(S)
Flucitosina	0,25	(S)

CMI: concentración mínima inhibitoria; S: sensible.