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 cefazolin 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 Pantoff-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 staphyloccocal SSTI, only 3% had criteria for CA-MRSA infection. 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. Nevertheless, there are recent reports of CA-MRSA infections, mainly SSTI, in the immigrant population in Spain. Regarding the overall molecular epidemiology of CA-MRSA, Vandenesch et al. 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. Nevertheless documentation of intrafamilial clusters of CA-MRSA infections, mainly in the setting of SSTI, is relatively rare. 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. As opposed to the hospital setting, the association between nasal colonization and infection in the community is not so straightforward. Furthermore, colonization of different sites (pharynx, axilla, rectum, perineum) 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 antisepsic 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**:

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**Referencias**


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Éxito en el tratamiento de rescate de candidiasis 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 sub poblaciones linfocitarias compatibles), 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 de máxima seguridad y eficacia. 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 candidiasis 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 promediatedor sobre la eliminación de *Candida* en biofilm mediante caspofungina/afotericina B liposomal.

Por tanto, se decide tratamiento sistémico con caspofungina en dosis de 50 mg/m² y sellado de la vía central con afotericina B liposomal (en dosis de 3 mg/ml durante 8 h/día al procurar el aporte de nutrición parenteral durante 16 h diarias) durante 14 días desde el primer hemocultivo negativo. 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 inmunosuprimidos y, incluso, por debajo de los 3 meses de vida. 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 fluconazol. 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 candidiasis asociada a catéter central es criterio de retirada de éste. No obstante, en situaciones excepcionales, motivadas por la situación del paciente, el tratamiento sistémico con caspofungina combinado con sellado del catéter con afotericina B

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**Tabla 1**

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<tr>
<th>Antifúngico</th>
<th>CMI (µg/ml)</th>
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<td>Fluconazol</td>
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</table>

CMI: concentración mínima inhibitoria; S: sensible.