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## ORIGINAL ARTICLE

# Skin Infections Caused by Community-Acquired Methicillin-Resistant *Staphylococcus aureus*: Clinical and Microbiological Characteristics of 11 Cases<sup>☆</sup>

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### KEYWORDS

Methicillin-resistant  
*Staphylococcus aureus*;  
Community;  
Abscess;  
Necrosis;  
Cotrimoxazole

### Abstract

**Introduction:** Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) is an emerging pathogen that causes skin and soft-tissue infections.

**Objective:** To describe the clinical characteristics of skin infections caused by CA-MRSA and correlations with the available demographic and microbiological data.

**Material and methods:** This was a descriptive study of patients with a microbiologically confirmed diagnosis of CA-MRSA infection treated in a dermatology department between June 2009 and December 2011. We recorded demographic details, the clinical characteristics of lesions, and the treatments used.

**Results:** We studied 11 patients (5 men and 6 women); 91% were under 40 years of age and had no relevant past medical history. The most common presentation was a skin abscess (with or without cellulitis). In all such cases, marked tissue necrosis and little or no purulent exudate was observed when the abscess was drained. Fifty percent of these abscesses had been treated previously with  $\beta$ -lactam antibiotics, and in all cases the lesions resolved after surgical drainage, which was combined in 63% of cases with quinolones or cotrimoxazole.

**Conclusions:** Today, skin infections due to CA-MRSA affect healthy young athletes who have no contact with healthcare settings. The most common presentation is a skin abscess characterized by marked tissue necrosis and little or no purulent exudate. In cases with these characteristics in susceptible patients, the involvement of CA-MRSA as the causative agent should be suspected. The abscesses should be drained whenever possible and, if necessary, antibiotic treatment should be prescribed; empirical use of  $\beta$ -lactam antibiotics should be avoided.

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**PALABRAS CLAVE**

*Staphylococcus aureus* resistente a metilina;  
Comunidad;  
Absceso;  
Necrosis;  
Cotrimoxazol

## Infecciones cutáneas causadas por *Staphylococcus aureus* resistente a metilina de adquisición comunitaria: características clínico-microbiológicas en 11 pacientes

**Resumen**

**Introducción:** *Staphylococcus aureus* resistente a metilina de adquisición comunitaria (SARM-CO) constituye un patógeno emergente como agente productor de infecciones de piel y partes blandas.

**Objetivo:** Describir las características clínicas de las infecciones cutáneas causadas por SARM-CO, así como su correlación con los datos demográficos y microbiológicos disponibles.

**Material y métodos:** Se realizó un estudio descriptivo de los pacientes con diagnóstico de infección microbiológicamente confirmada por SARM-CO en el Servicio de Dermatología desde junio de 2009 a diciembre de 2011. Se recogieron los datos demográficos de los pacientes, las características clínicas de las lesiones y los tratamientos realizados.

**Resultados:** Se reclutaron 11 pacientes, 5 hombres y 6 mujeres. El 91% tenía menos de 40 años y no presentaba antecedentes médicos de interés. El absceso cutáneo (asociado o no a celulitis) fue la forma más frecuente de presentación. Tras su drenaje se observó una cantidad escasa o nula de exudado purulento junto a un componente de necrosis tisular marcado en todas estas lesiones. El 50% de los abscesos había recibido tratamiento previo con antibióticos betalactámicos y el drenaje quirúrgico, asociado en el 63% a quinolonas o cotrimoxazol, aseguró la resolución de los mismos.

**Conclusiones:** Actualmente las infecciones cutáneas causadas por SARM-CO se presentan en individuos jóvenes, sanos, deportistas, sin contacto con el ámbito sanitario. Los abscesos cutáneos, su forma más frecuente de presentación, se caracterizan por una marcada necrosis tisular, con escaso o nulo exudado purulento. Ante estos hallazgos en pacientes susceptibles debe sospecharse la implicación de SARM-CO como agente causal. El drenaje de los abscesos se realizará siempre que sea posible, y cuando resulte necesario añadir tratamiento antibiótico deberá evitarse el uso de betalactámicos de forma empírica.

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**Introduction**

The increase in infections caused by microorganisms resistant to conventional antimicrobials represents a major therapeutic limitation in the hospital setting.

Soon after the introduction of penicillin in 1941 the first strains of penicillin-resistant *Staphylococcus aureus* were isolated. Hospital strains of methicillin (oxacillin)-resistant *S aureus* appeared 2 decades later, and subsequently became one of the main bacterial causes of nosocomial infections. However, since the 1980s *S aureus* has also been detected in non-hospital-acquired infections,<sup>1</sup> and its incidence has grown exponentially in many countries, including the United States, where it is the leading cause of community-acquired skin and soft tissue infections in several states.<sup>2</sup>

Community-acquired methicillin-resistant *S aureus* (CA-MRSA) differs from its nosocomial counterpart in its clinical, epidemiological, and microbiological characteristics (Table 1),<sup>3-7</sup> and thus requires radically different therapeutic management in most cases.

Given that CA-MRSA predominantly affects skin and soft tissue, we reviewed 11 cases diagnosed in our hospital in order to describe the main clinical features of the disease and the correlation with available demographic and microbiological data. Based on our findings, we propose several specific clinical criteria to improve the initial empirical treatment of skin and soft tissue infections in outpatients.

**Materials and Methods**

This is a descriptive, observational, retrospective study of adult patients with a microbiological diagnosis of skin and soft tissue infection caused by CA-MRSA. The data were collected between June 2009 and December 2011 from the skin infection database of the dermatology department at the Hospital General Universitario Gregorio Marañón in Madrid, Spain.

All cases had been microbiologically confirmed by culture followed by antibiogram and molecular analysis.

The clinical variables studied were age, sex, clinical presentation (lesion type, presence of pus, necrosis, and location), the course of the lesions, treatments received, and the response to treatment. We analyzed the origin of the patients, the presence of recurrent skin infections in the patient's family, risk practices (contact sports or activities, shared use of personal hygiene items, membership of recruiting groups or institutions), contact with the health sector (employment, previous hospital admissions), and contact with domestic or farm animals.

**Results**

Data for the patients studied are summarized in Table 2.

Of the patients studied, 91% (10/11) were younger than 40 years, and the male to female ratio was 1:1.2. The individuals were healthy, immunocompetent patients with no

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