



# Hair restoration in the age of MRSA

Robert H. True, MD, MPH *New York, New York*

COLUMNS

- 122 President's Message
- 123 Co-editors' Messages
- 125 Editor Emeritus
- 131 Hair Sciences
- 151 Review of the Literature
- 152 Surgeon of the Month
- 153 Cyberspace Chat
- 155 Message from the Chair of the 2008 Annual Scientific Meeting
- 155 Message from the 2008 Surgical Assistants Chair
- 156 Letters to the Editors
- 157 Surgical Assistants Co-editors' Messages
- 158 Classified Ads

FEATURE ARTICLES

- 131 Gene expression profile in frontal and beard dermal papilla cells
- 134 Eyelash transplantation using eyebrow-derived single-hair grafts: a case report
- 137 ABHRS news
- 138 Getting maximum follicular units to do a megasession through a scalp elasticity test during donor harvesting
- 141 Infection control and policy development in hair restoration
- 145 Review of the XIV Orlando Live Surgery Workshop
- 149 Management of the occipital scalp tension wound in hair transplant surgery with the Quill suture

## Introduction

The emergence of multi-drug-resistant organisms (MDROs) is a worldwide phenomenon and is changing the practice of medicine throughout all specialties. The most important MDRO for surgical settings is methicillin-resistant *Staphylococcus aureus* (MRSA). It is timely to specifically explore how the emergence of MRSA is impacting the field of hair restoration surgery and to examine what preventive and management strategies are needed by our specialty.

## Background

During the past several decades, the prevalence of MDROs in hospitals and medical centers worldwide has increased steadily. MRSA was first isolated in the United States in 1968. By the early 1990s, MRSA accounted for 20%-25% of *Staphylococcus aureus* isolates from hospitalized patients. In 1999, MRSA accounted for more than 50% of *S. aureus* isolates from patients in Intensive Care Units (ICUs) in the National Nosocomial Infection Surveillance (NNIS) system; in 2003, 59.5% of *S. aureus* isolates in NNIS ICUs were MRSA.

By the late 1990s, MRSA isolates began to become identified outside of the hospital setting, and now are widespread in many communities around the world. Thus, MRSA infections are now differentiated as hospital acquired (HA-MRSA) or community acquired (CA-MRSA), and are recognized as different strains with different behaviors.

When patients with HA-MRSA have been compared to patients with methicillin-susceptible *S. aureus* (MSSA), MRSA-colonized patients more frequently develop symptomatic infections. Furthermore, higher case fatality rates have been observed for certain MRSA infections, including bacteremia, post sternotomy mediastinitis, and surgical site infections.

CA-MRSA infection presents most commonly as relatively minor skin and soft tissue infections, such as impetigo, recurrent furuncles, and cellulitis, but severe invasive disease, including necrotizing pneumonia, necrotizing fasciitis, severe osteomyelitis, and a sepsis syndrome with increased mortality have also been described in children and adults. A very common presentation is that of a solitary boil that may be mistaken by the patient as a "spider bite" (Figure 1).

One of the major differences between HA-MRSA and CA-MRSA is their resistance patterns. HA-MRSA is responsive only to intravenous vancomycin (some vancomycin-resistant strains are now appearing), linezolid, daptomycin, or quinupristin-dalfopristin; whereas CA-MRSA is usually sensitive to clindamycin, tetracyclines, trimethoprim-sulfa, rifampin, and fluoroquinolones.

Although acquired in the hospital setting, most HA-MRSA cases occur outside of the hospital. The CDC defines HA-MRSA as an infection occurring in individuals who have been hospitalized or received surgery within the past year, who have a permanent indwelling medical device, who reside at a long-term-care facility, or who have recently received dialysis.

There is ample epidemiologic evidence to suggest that HA-MRSA is carried from one person to another via the hands of Health Care Providers (HCPs). Occasionally, HCP can become persistently colonized with MRSA, but these HCPs have a limited role in transmission, unless other factors are present. Additional factors that can facilitate transmission include chronic sinusitis, upper respiratory infection, and dermatitis.

Although estimates vary, about 1% of the general population is colonized with CA-MRSA. In high-risk groups, MRSA nasal colonization is as high as 35% of *S. aureus*-positive cultures. It is transmitted by the hands, which may be contaminated by (1) contact with colonized or infected individuals, (2)



Figure 1. MRSA commonly presents as a solitary boil that is often mistaken as a spider bite.

### Experience Montréal



ISHRS 16th Annual Scientific Meeting  
September 3-7, 2008  
Montréal, Québec, Canada