

Abstract

Objectives: To compare the incidence of community acquired staphylococcus aureus (CA-MRSA) abscesses of the head and neck between two distinct geographic and socioeconomic populations within the same city; to determine the anatomic site variation of CA-MRSA abscesses between the two groups.

Study Design: Retrospective chart review.

Methods: ICD-9 codes were used to search the electronic medical records at a, Lincoln Medical Center (LMC), a community hospital from 2007-2012 and a Weill Cornell Medical College (WCMC), a tertiary hospital from 2007-2015. Inclusion required abscess of the head or neck and documented culture result. Comorbidities including diabetes mellitus and the human immunodeficiency virus were recorded. Site categories included: scalp, forehead, periorbital, face, ear, nose, lip, chin and neck. Sites were also classified as hair bearing (scalp, face, nose, chin, neck) and non-hair bearing (forehead, ear, periorbital, lip).

Results: Of 4,761 charts reviewed, 415 (130 women and 285 men) were included. Mean age was 33 years (range 0-93). There was a statistically significant increase in the ratio of MRSA to MSSA at LMC (P=0.02) but not at WCMC (P=0.20). Hair bearing sites were more likely MRSA than MSSA (p=0.02 at LH, p=0.34 at WCMC and p=0.01 overall). The chin had significantly more MRSA than MSSA when compared to any other site (p=0.002 to 0.042) and when compared to all other sites combined (p=0.004). MRSA:MSSA in the chin was 23:6.

Conclusions: The incidence of abscesses due to CA-MRSA in both cohorts increased over time, though more at LMC. Hair bearing sites, specifically the chin, were predictive of CA-MRSA independent of all other factors. No difference was exhibited concerning gender, age, or comorbidities.

Results

Of 4,761 charts reviewed, 415 (130 women and 285 men) were included. Mean age was 33 years (range 0-93). There was a statistically significant increase in the ratio of MRSA to MSSA at LMC (P=0.02) but not at WCMC (P=0.20). (see chart 1) Hair bearing sites were more likely MRSA than MSSA (p=0.02 at LH, p=0.34 at WCMC and p=0.01 overall). (see table 1) The chin had significantly more MRSA than MSSA when compared to any other site (p=0.002 to 0.042) and when compared to all other sites combined (p=0.004). (see table 2) MRSA:MSSA in the chin was 23:6.

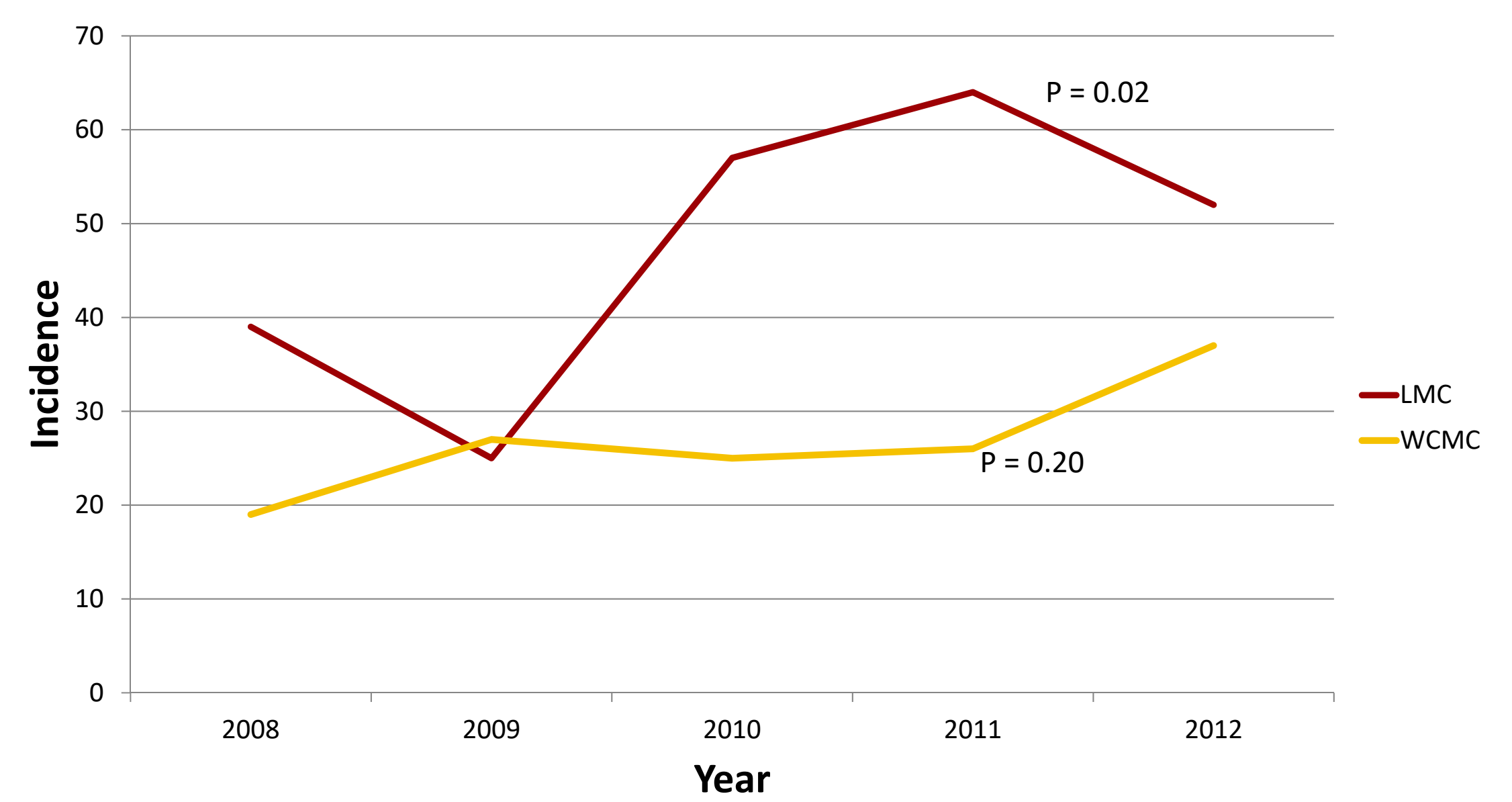


Chart 1. Annual incidence of abscesses overall

Location	Hair Bearing vs. Non-Hair Bearing
LMC	P = 0.02
WMC	P = 0.34
Total	P = 0.01

Table 1. Hair bearing status

Population Overall	
Hair bearing location	P = 0.09
Lip location	P = 0.13
Gender	P = 0.14
Chin location	P = 0.004

Table 2. Logistic regression data

Introduction

Methicillin-resistant Staphylococcus aureus (MRSA) has been recognized as a cause of nosocomial infection since its identification in 1968.¹⁻³ Initially, Community acquired MRSA was limited to high-risk groups, such as intravenous drug users and individuals with frequent contact with the health care system.⁴ But In the early 1990s, MRSA infections were reported in patients presenting from the community with no identifiable risk factors.⁵ Community-acquired MRSA (CA-MRSA) is now the leading cause of skin and soft tissue infections at all anatomic sites. CA-MRSA is now identified as a common cause of head and neck infections, with reports ranging from 21-65% of otolaryngologic infections.⁶⁻⁸ While culture data remain the most commonly relied upon method for confirming an infection due to CA-MRSA, these data generally are not immediately available. As a result, clinicians must consider other factors to assess the likelihood of CA-MRSA infection and thereby guide antibiotic treatment.

Methods and Materials

ICD-9 codes were used to search the electronic medical records at a, Lincoln Medical Center (LMC), a community hospital from 2007-2012 and a Weill Cornell Medical College (WCMC), a tertiary hospital from 2007-2015. Inclusion required abscess of the head or neck and documented culture result. Comorbidities including diabetes mellitus and the human immunodeficiency virus were recorded. Site categories included: scalp, forehead, periorbital, face, ear, nose, lip, chin and neck. (see figure 1) Sites were also classified as hair bearing (scalp, face, nose, chin, neck) and non-hair bearing (forehead, ear, periorbital, lip).

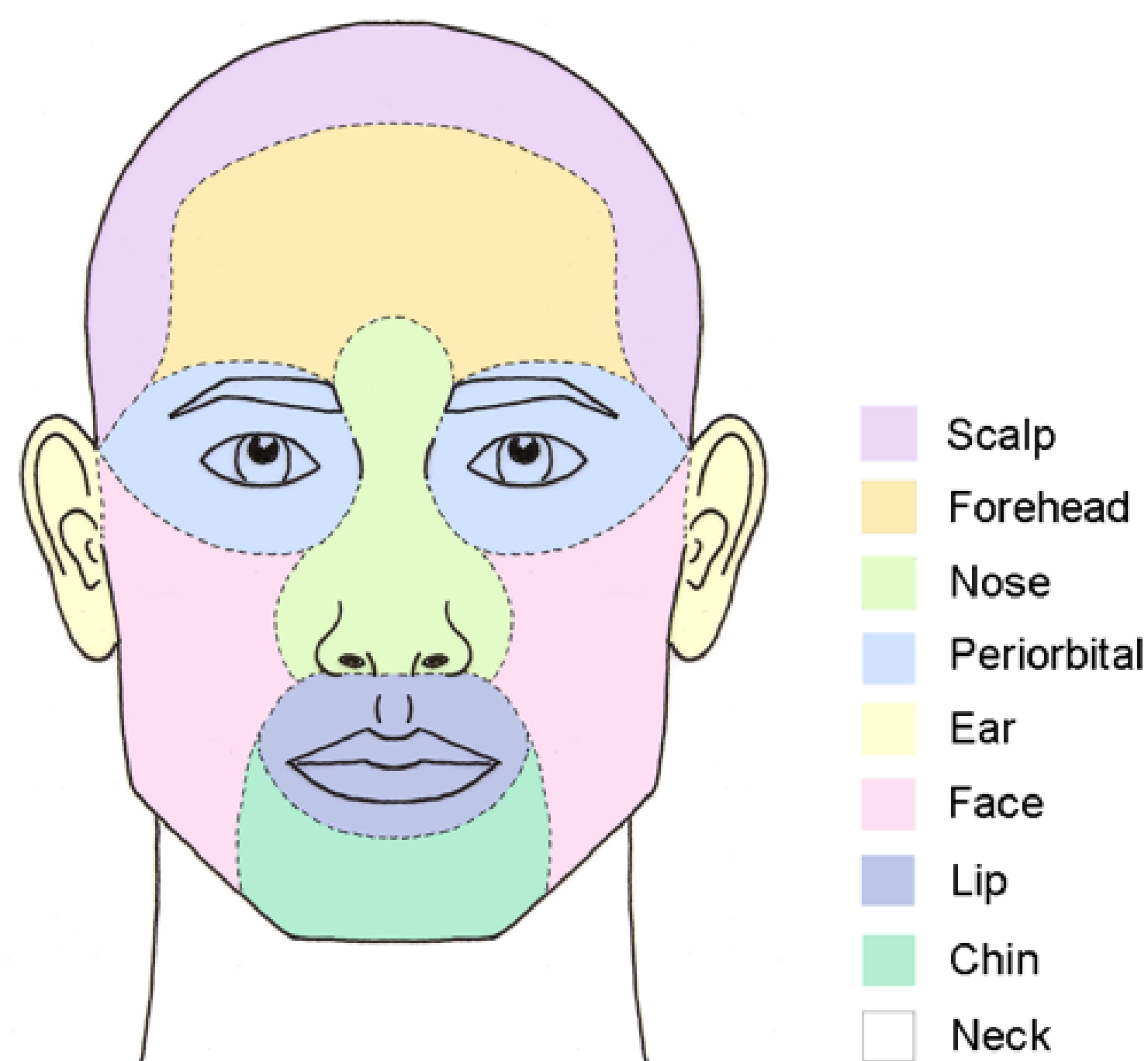


Figure 1. Anatomic subsite for abscess characterization.

Discussion

We present data from 415 patients with abscesses of the head and neck treated over a 8-year period (2007 to 2015). Our primary objective was to determine which anatomic site and which hospital setting predict CA-MRSA infection. Our motivation for performing this study was our own experience of treatment failures in which patients with otolaryngologic skin and soft tissue infections were not initially covered for MRSA infection,⁹ as well as literature indicating the risk of treatment failures associated with CA-MRSA infection.^{10,11} Among our patient population, abscesses in hair-bearing locations were significantly associated with CA-MRSA. The hair follicle is known to be a nidus for infection, and the association between hair-bearing skin and MRSA infection has been recognized.¹² Abscesses of the chin had the greatest percentage of cultures positive for CA-MRSA (79%). Chin abscesses were significantly associated with CA-MRSA infection in pair-wise comparisons with various sites individually, and when compared with all other sites combined. Abscesses of the chin were found to independently predict for the presence of CA-MRSA when compared with all other factors using logistic regression. In order to explain these findings, we considered the fact that the chin is a hair-bearing location. However, evaluation of chin location and hair-bearing status by logistic regression indicated that the chin location was nearly significantly predictive of CA-MRSA infection, independent of hair-bearing status (p=0.05). This suggests that chin abscesses, independent of gender (proxy for hair bearing status), age or comorbidity should be treated as CA-MRSA infection.

Conclusions

The incidence of abscesses due to CA-MRSA in both cohorts increased over time, though more at LMC. Hair bearing sites, specifically the chin, were predictive of CA-MRSA independent of all other factors. No difference was exhibited concerning gender, age, or comorbidities. For patients presenting with abscesses of hair-bearing locations, and particularly of the nose and the chin, clinicians should strongly consider antibiotic coverage for CA-MRSA following incision and drainage.

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