

Clinical Communications: Adults



METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* LIP INFECTION MIMICKING ANGIOEDEMA

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Abstract—Background: It is rare for angioedema to be misidentified by the experienced clinician or for it to mimic another disease process. As an Emergency Physician, it is important to recognize and treat angioedema immediately. Of equal importance is the recognition and initiation of treatment of facial cellulitis. A case report follows that illustrates methicillin-resistant *Staphylococcus aureus* (MRSA) lip infection mimicking angioedema. **Case Report:** Here, we describe a case of a 21-year-old man who presented with a swollen lower lip, initially diagnosed as angioedema. Further investigation revealed the cause of his lip swelling was actually a MRSA abscess and surrounding cellulitis, an unusual presentation for lip infection, which we discuss below. **Why Should an Emergency Physician Be Aware of This?:** Misidentifying MRSA lip infection for angioedema, with a delay in proper treatment, could result in serious morbidity or mortality. © 2015 Elsevier Inc.

Keywords—MRSA; angioedema; lip abscess; facial cellulitis; lip edema

INTRODUCTION

The presentation of angioedema involving the pharynx is usually straightforward and includes lower lip edema, tongue swelling, or laryngeal swelling in the absence of urticaria and itching (1). Methicillin-resistant *Staphylococcus aureus* (MRSA) soft tissue infection also has a characteristic presentation of erythema, edema, and often, areas of fluctuance (2). Review of the current

literature reveals few cases of other disease processes mimicking angioedema. Here, we report a case of a 21-year-old man who presented with lower lip swelling initially thought to be angioedema, with the final diagnosis of MRSA lip infection. Although it is important to rapidly recognize and treat angioedema, this case illustrates the importance of including other etiologies in the differential diagnosis, including MRSA infection.

CASE REPORT

A 21-year-old African American man presented to the Emergency Department (ED) for evaluation of lower lip swelling. He stated he was in good health until 2 days prior to arrival. At that time, he began to experience lip swelling. He denied any difficulty swallowing or voice changes and was speaking in full sentences with no drooling, wheezing, or stridor. He denied taking any medications or using any new products, though he did admit to taking “energy pills” he had obtained over the counter several days ago. He denied travel or recent hospitalizations. He denied having any family history of angioedema. He denied fever or rashes, and his lungs were clear to auscultation. Other than a remarkably swollen lower lip, the patient otherwise appeared comfortable. His vital signs remained normal and stable. Intravenous diphenhydramine, dexamethasone, and famotidine, as well as intramuscular epinephrine, were administered. There was minimal response of the patient’s lower lip

swelling, so Ear, Nose and Throat (ENT) consultation was obtained (Figure 1).

Laboratory data were notable for a white blood cell count of 12,300, segmented neutrophils of 10,000 (normal range 1400–6500), and absolute neutrophils of 81.4% (normal range 42.2–75.2%). After further questioning, the patient stated that he remembered having a pimple on his chin several days prior to arrival that he had drained by manual pressure. With this information, ENT staff performed a needle aspiration of the lower lip at the bedside, which yielded 1-mL-thick purulent drainage. Cultures were sent and the patient was empirically started on vancomycin and ampicillin/sulbactam. A computed tomography scan of the facial bones with intravenous contrast was ordered to evaluate the extent of soft tissue infection and identify any remaining abscess. The computed tomography revealed diffuse soft tissue swelling of the lower lip without a discrete abscess (Figure 2).

Due to concerns of possible airway compromise, the patient was observed in the intensive care unit. The following day, ENT surgeons performed a bedside open incision and drainage, and 15 mL of purulent material was further drained. Results of the cultures revealed MRSA. The patient did well with improvement of his lip swelling and white blood cell count, and was sent home on day #2 with a course of oral antibiotics.

DISCUSSION

MRSA can be defined as a bacterial strain of *Staphylococcus aureus* that has developed resistance to a variety of penicillins through a genetic mutation that alters the penicillin-binding protein. The mutation confers resistance by preventing the antibiotic from binding to the active site, rather than causing the breakdown of beta lactamase. Therefore, beta-lactam antibiotics that are beta-lactamase stable or contain beta-lactamase inhibitors have no effect against MRSA strains (3).



Figure 1. Photograph of patient upon initial presentation.



Figure 2. Computed tomography scan with intravenous contrast of facial bones (sagittal section) illustrating diffuse soft tissue swelling of the lower lip without a discrete abscess.

Few cases of facial MRSA were documented prior to 2005 (4). However, it has been shown that the point prevalence of hospitalized patients with MRSA isolates, either with colonization or infection, has grown from 4.6% in 2006 to 6.6% in 2010 (5,6). The increasing prevalence of MRSA in the hospital setting is also reflected in the general population. As community-acquired MRSA (CA-MRSA) is becoming more prevalent, so are reports of MRSA facial infections (7). MRSA prevalence in pediatric head and neck infections has increased nationally by 16.3% between 2001 and 2006, with a concomitant increase in the adult population (8–10).

Due to the increasing prevalence of CA-MRSA, clinicians are becoming increasingly adept at its identification. MRSA infections of the head and neck include sinusitis, otitis, periorbital cellulitis, cervical lymphadenitis, tonsillitis, thyroiditis, retropharyngeal abscess, and abscesses (7). Symptoms of typical MRSA head and neck infections include pain, erythema, edema, and sometimes the report of a skin lesion, all of which are easily identifiable to the trained eye.

Review of the current literature reveals few cases of facial or lip MRSA infection mimicking angioedema. A case was reported by Bruno et al. of a 31-year-old patient seen in an ED with lower lip swelling and initially diagnosed with an allergic reaction (11). He was treated with steroids, monitored in the ED, and discharged. Several days later he presented to the hospital with increased lip swelling, fever, chills, and cough. This patient ultimately died from necrotizing MRSA pneumonia, likely stemming from his MRSA lip abscess (11).

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