

Managing community-acquired MRSA lesions: What works?

➔ MRSA is upending assumptions about skin and soft-tissue infections. Incision and drainage are key; hold antibiotics in reserve, usually.

PRACTICE RECOMMENDATIONS

- Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) abscesses are best managed surgically; postprocedure antibiotics do not substantially improve outcome. The cure rate with incision and drainage alone is at least 90%.
- If incision and drainage fail to promote healing within 7 days, oral antibiotics of choice are trimethoprim-sulfamethoxazole and tetracycline
- Eradication of nasal carriage of CA-MRSA generally does not help prevent spread of clinical MRSA infection in communities.

CASE

Tender suprapubic lesion

A previously healthy, 22-year-old law school student arrives at your office complaining of “abdominal pain.” She is previously healthy; temperature is normal.

You discover on examination that she has an erythematous, indurated, and tender 3-cm lesion on the suprapubic region. The lesion has no point, but its center is boggy.

Should you prescribe an antibiotic? And should you cover immediately for CA-MRSA? What other factors might influence your decision about treatment?

The incidence of MRSA is increasing in communities across the United States, challenging assumptions about the evaluation and management of skin and soft-tissue infections. In this article, I outline a rational approach to managing patients who have a lesion likely to be caused by CA-MRSA (TABLE, page 30).

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Have you treated a patient who had a CA-MRSA infection? What was the outcome? Let us know: E-MAIL obg@dowdenhealth.com FAX 201-391-2778

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TABLE Suspect CA-MRSA infection? Consider this treatment scheme

When a patient meets these criteria...	Provide this management...	And select from these antibiotics
Lesion nonfluctuant; patient afebrile, healthy (Class 1 infection)	If no drainable abscess, give a common first-line antibiotic for skin and soft-tissue infection; reassess for response	—Semisynthetic penicillin —Oral first- or second-generation cephalosporin —Macrolide —Clindamycin
Lesion, fluctuant or pustular, <5 cm in diameter; fever or no fever (Class 2)	Drain abscess surgically if possible; use incision and drainage presumptively for MRSA and monitor closely for response; inpatient management may be indicated	—Trimethoprim-sulfamethoxazole —Tetracycline —Clindamycin
Lesion, >5 cm in diameter, toxic appearance or at least one unstable comorbidity or a limb-threatening infection (Class 3)	Admit; consider infectious disease consult	Broad-spectrum agent, including vancomycin, for MRSA coverage
Sepsis syndrome or life-threatening infection (necrotizing fasciitis) (Class 4)	Admit; institute aggressive surgical debridement; request infectious disease consult	Broad-spectrum agent, including vancomycin, for MRSA coverage

Source: Eron et al⁶ and CDC⁷.

When to suspect MRSA skin infection

Patients who have a CA-MRSA skin infection often report a “spider bite” because the lesion appears suddenly and unexpectedly in an area where there is no history of trauma.¹ Lesions often are pustular with central necrosis; there may be purulent drainage, redness, tenderness, and palpable fluctuance (FIGURE, page 32).

CA-MRSA skin lesions can occur anywhere on the body, though they appear most often in the axillae or the groin and buttocks. Patients may or may not have a fever.

Persons at increased risk of CA-MRSA disease include users of health clubs, participants in contact sports, men who have sex with men, children younger than 2 years, users of intravenous drugs, military personnel, and prisoners.^{2,3} Absence of these risk factors in a patient with a skin or soft-tissue infection does not, however, rule out MRSA.⁴

Regardless of the lesion’s appearance or the patient’s epidemiologic history, consider CA-MRSA if its prevalence in your community has reached 10% to 15%.

CA-MRSA can cause impetigo, but the often-benign nature of this clinical infection makes management decisions less crucial. However, do hospitalize any patient who has a MRSA infection who also exhibits fever or hypothermia, tachycardia >100 bpm, or hypotension with a systolic blood pressure <90 mm Hg or 20 mm Hg below baseline. A skin lesion >5 cm in diameter also likely requires hospitalization and a parenteral antibiotic.⁵

Incision and drainage are most important

Several management schemes have been proposed to guide the appropriate level of therapy based on presenting characteristics.^{6,7} If a lesion is clearly fluctuant, incise it and drain the fluid, or refer the patient for surgical consultation. If the lesion is not clearly fluctuant, needle aspiration may help to determine the need for more extensive incision and drainage or to collect a specimen for culture. Although culture of a skin lesion may not have been routine in the past, the advent of CA-MRSA has made it so—particularly given that MRSA lesions may not be clinically distinguishable from those caused by nonresistant *S aureus*.

Periodic postprocedure follow-up is indicated to ensure resolution of the infection. At the Boston University student health service, CA-MRSA patients return every few days for an appointment with nursing staff for wound irrigation and packing change until the lesion visibly improves. Systemic effects from the infection are monitored as well.

Incision and drainage technique reported. In one study, adult patients were treated with

incision and drainage by a surgeon.⁸ The technique used a #11 blade applied in a “sawing motion” to create a wide opening. The wound cavity was explored for loculations and packed. The identical technique can be used in the office, with one caveat: This study included patients who had an abscess larger than 5 cm in diameter and some whose immune system was compromised—situations not managed routinely in the office.

Are antibiotics indicated after incision and drainage for MRSA?

In the same study,⁸ the cure rate with incision and drainage alone was just over 90%. The cure rate in the treatment arm of the study, in which patients also received an antibiotic, was 84% (the difference was statistically insignificant), and coverage was inadequate for MRSA. Treatment with cephalexin after incision and drainage resulted in one patient harmed for every 14 treated.

A pediatric study also showed that antibiotics do not affect the outcome of skin lesions following incision and drainage.⁵ When deciding whether to prescribe postprocedure antibiotics, keep in mind the need to avoid contributing further to bacterial resistance.

Generally, start the patient on trimethoprim (TMP)-sulfamethoxazole (SMX) or tetracycline if incision and drainage fail to promote healing of the MRSA lesion within 7 days. Clindamycin is an option, although resistance is increasingly common. Adjust the choice and dosage of antibiotic as needed once culture and susceptibility testing results are available.

TMP-SMX is generally well tolerated at the recommended dosage of one or two double-strength tablets (160 mg of TMP, 800 mg of SMX) twice daily for adults. If creatinine clearance is 15 to 30 mL/min, halve the dosage. The rate of sulfa allergy with TMP-SMX (3%) is similar to what is seen with other antibiotics.

Tetracycline's dosing schedule—for adults, 250 or 500 mg, four times daily—makes it difficult to use. Gastrointestinal upset, phototoxicity, and hepatotoxicity can occur. The possibility of tooth discoloration precludes its use in children.

Clindamycin carries a high rate of gastro-

intestinal-related problems—*Clostridium difficile* infection in particular (10% incidence, regardless of route). Inducible resistance to clindamycin is 50% in MRSA infections.⁹ Recent use of antibiotics may increase the likelihood of clindamycin resistance, with erythromycin in particular inducing such resistance. The dosage typically is 150 to 300 mg, every 6 hours.

Doxycycline and minocycline are not recommended. Both carry a 21% failure rate.⁹

Linezolid is costly and has many drug interactions. In particular, linezolid has the potential to cause serotonin syndrome with agents that affect the serotonergic system. Linezolid may also interact with medications that affect the adrenergic system (pressor agents). Routine use in the community without infectious disease consultation is not advised.

For lesions that are neither fluctuant nor purulent

In such cases, appropriate first-line antibiotics are a semisynthetic penicillin (e.g., dicloxacillin), a first- or second-generation oral cephalosporin, a macrolide, and clindamycin.⁹ These antibiotics are preferable for group A streptococcal infections, erysipelas (which can be aggressive), and impetigo. Adjustments can be made as culture results become available or if the clinical response is inadequate. There is no particular utility in waiting to administer oral antibiotics in cases of erysipelas or impetigo, although topical antibiotics can often be used for limited cases of impetigo.

CASE RESOLVED

Your patient, who meets criteria for a Class 2 CA-MRSA infection, undergoes incision and drainage of the lesion. No antibiotic is administered.

Two weeks of daily packing of the wound follow—again, without an antibiotic. Subsequently, the wound heals without sign of infection.

Prevention: Simple precautions are the rule

Most CA-MRSA infections result from direct contact with a patient's wound or from wound



If incision and drainage do not promote healing, the first-line choice of antibiotic is generally TMP-SMX

FIGURE Class-2 CA-MRSA lesion



This raised, red lesion contains a central eschar with dried pus. Such lesions are generally very tender and often fluctuant when palpated.

PHOTO: ©SCOTT CAMAZINE / PHOTOTAKEUSA.COM

drainage on environmental surfaces.

In the medical office. In addition to using sterile technique during incision and drainage, all staff members must wash hands with soap and water or an alcohol-based sanitizer. For the most part, MRSA remains susceptible to triclosan, a topical antiseptic in commercial hand soaps.

Clean equipment as needed with 10% sodium hypochlorite solution or another agent effective against MRSA. Surgical instruments should be disposable or sterilized after each use.

At the patient's home. Instruct patients to clean the wound, wearing fresh disposable gloves each time, and to cover it with a new, dry dressing. Tell families to avoid sharing linens and clothing unless they have been washed in hot soap and water and dried in a heated dryer. MRSA can live for weeks or months on surfaces exposed to infected wounds¹⁰; these surfaces can be disinfected with a 10% solution of bleach.

In sports environments. Athletes who have a CA-MRSA infection should not compete un-

less the wound can be completely covered with a dry dressing. Recommend to those in charge of school and commercial facilities that, in a confirmed case of MRSA infection, they routinely clean locker rooms and sports equipment with either a 10% bleach solution or commercial disinfectant. There is no evidence, however, that more widespread or vigorous cleaning—such as dismantling a training room and all its cardio-fitness equipment for disinfecting—prevents the spread of MRSA.

Encourage athletes to wash their hands properly. Communal towels should be washed in hot water (>140°F) with bleach before re-use. Personal equipment should be cleaned according to the manufacturer's instructions. Athletes should use a clean towel to provide a barrier between their skin and the surfaces of weight-room and cardio-fitness equipment. They should also clean equipment before and after use with an appropriate cleanser, such as a disinfectant hand wipe.

Avoid unproductive actions

Screening household contacts for MRSA isn't useful; attempts to eradicate colonization are generally ineffective. In a large study of military personnel, intranasal mupirocin failed to decrease nasal carriage of MRSA and the incidence of MRSA infections.¹¹ The MRSA nasal colonization rate was 3.9%; 121 persons colonized with MRSA needed to be treated with nasal mupirocin to prevent one MRSA infection in the total study population.

More complex antibiotic regimens are sometimes used in an attempt to eradicate MRSA carriage, but they also have limited effectiveness and carry the general risks of antibiotic use (e.g., gastrointestinal disturbance, allergic reaction). If your office is considering an eradication attempt, consult first with an infectious disease clinician. ☹

FAST TRACK

Don't waste time on unproductive actions against MRSA, such as screening household contacts and attempting to eradicate colonization

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Suggested Reading

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