Multiple Pustular Lesions

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A 24-year-old man with no past medical history has developed multiple pustular lesions during the past two weeks. A month ago, he had a skimboard accident, causing a deep abrasion over his right leg that healed well over the next two weeks. He also shaved his legs during this period of time. Two weeks after the accident, he developed pustular skin lesions on the same right leg. He went to a walk-in clinic where a doctor took a swab culture from one pustular lesion, and he received a trial of cephalexin for seven days. The lesions improved after drainage, but one week after, pustular lesions recurred on the same leg (one seems like an abscess over the right patella). He had another swab in a different clinic and was prescribed fucidin ointment only. He had two episodes of fever during the subsequent weekend and felt more tired than usual.

He is very active; he often bikes and swims in a lake nearby. He has a dog, without lesions around the mouth. He lives with two roommates who are both lesion free.

Physical exam

- Vitals: BP 115/68; Non-tachycardic temperature normal
- Heart/lungs/abdomen normal
- ENT normal
- Pustular lesions over the right leg (Figure 1)

Labs

- Creat/lytes/urea normal
- CBC: WBC 15 (neutrophils 13); RBC and platelets normal

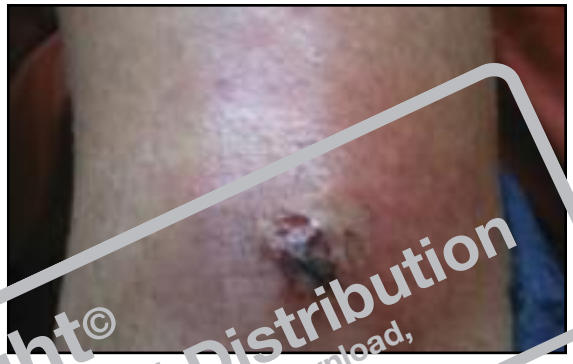

Figure 1: Pustular Skin Lesion on the Right Leg

- Blood culture negative
- Culture of pus coming from one of the pustular lesions: see Table 1

What is your diagnosis?

a. *Pseudomonas aeruginosa* cellulitis and abscess
b. Swimmer's dermatitis
c. *Capnocytophaga* species skin abscess
d. Community-acquired methicillin-resistant *Staphylococcus aureus*

Answer: Community-acquired methicillin-resistant Staphylococcus aureus (CA-MRSA)

About CA-MRSA

Staphylococcus aureus is a bacterium that commonly lives on the skin or in the noses of healthy

people. MRSA refers to *S. aureus* bacteria that have become resistant to semi-synthetic penicillins such as cloxacillin and methicillin.

MRSA infections can be difficult to treat, and drugs commonly used to treat other strains of *S. aureus* are not always effective.

Traditionally, MRSA is seen in people taking antibiotics and individuals receiving hospital care (referred to as hospital-acquired MRSA [HA-MRSA]). More recently, MRSA has been found in people who have had no recent contact with the health care system. This is referred to as community-acquired MRSA (CA-MRSA). CA-MRSA strains are genetically different from HA-MRSA, and this can be seen in bacterial cultures of wound drainage.

In the community, MRSA most commonly causes skin and soft tissue infections (*e.g.*, boils or abscesses on arms, legs or elsewhere). These are treatable with drainage, and sometimes antibiotics. Rarely, MRSA can cause severe invasive infections such as pneumonia and bloodstream infections; these require urgent medical treatment.

In Canada, approximately 8% of all MRSA is CA-MRSA.

MRSA bacteria are spread through direct contact with an infected person; they can be transmitted to any person, object or surface that is touched. Bacteria can be removed by washing hands thoroughly or rubbing with alcohol-based hand products.

The five "Cs" represent risk factors for CA-MRSA infections: crowded conditions, close contact, lack of cleanliness, sharing common personal items, and compromised or broken skin.

High-risk groups include: athletes, sports teams, daycares, military personnel, homeless shelters, IV drug users, men who have sex with men (MSM), correctional facility inmates, and dorm residents.

Table 1
Lab Result of Pus Culture

Antibiotic Susceptibility	Organism 1
Penicillin	R
Cloxacillin	R
Cephalothin/Cephalexin	R
Erythromycin	R
Clindamycin	S
Trimethoprim-Sulfa	S
Ciprofloxacin	R
Tetracycline	S
Vancomycin	S
Methicillin-resistant *Staphylococcus aureus* confirmed by PCR	

Treatment

Treatment is guided by the type of skin and soft tissue infection, and the severity of clinical presentation. Empiric antibiotic therapy should include MRSA coverage, if it is suspected based upon local epidemiology.

Patients with fluctuant or purulent skin and soft tissue infections should undergo incision and drainage; debrided material should be sent for culture and susceptibility testing. Incision and drainage alone may be sufficient for abscesses smaller than 5 cm. Patients with larger abscesses and/or systemic signs of infection should be managed with incision and drainage plus antimicrobial therapy.

The optimal oral antibiotic therapy for empiric treatment of skin and soft tissue infection when MRSA is known or suspected is unclear. Reasonable antibiotics for treatment of MRSA include older agents (clindamycin,

trimethoprim-sulfamethoxazole, and tetracyclines such as doxycycline or minocycline) and a newer agent, linezolid.

Fluoroquinolones should not be used to treat skin and soft tissue infected with MRSA; resistance to ciprofloxacin has been observed to develop readily during therapy, and widespread MRSA fluoroquinolone resistance is already prevalent in many regions.

Parenteral therapy should be considered in patients with extensive soft tissue involvement, fever or other signs of systemic illness, or patients with diabetes or other immunodeficiency. Such patients should also be evaluated for evidence of invasive disease. Vancomycin remains the antibiotic of choice for treatment of invasive MRSA infection, although there is increasing concern regarding the rise in *S. aureus* MICs in response to this antibiotic.

After healing of the lesions, decolonization with a seven day course of the following topical agents could be done: chlorhexidine gluconate daily washes (2 or 4% solution), or mupirocin ointment (2%) applied to nares with a cotton-tipped applicator three times daily. Dx

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