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LETTER TO THE EDITOR

Community-acquired Methicillin-resistant *Staphylococcus aureus* Bacteremia in a Young Immunocompetent Patient Complicated by Brain and Spleen Abscesses with Abdominal Pain and Obstructive Jaundice

Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) bacteremia has increasingly been found in immunocompetent hosts in the community since the late 1990s.[1] This infection may be fatal and may be complicated by distal metastatic infections if the patient does not receive prompt treatment with antibiotic drugs. MRSA bacteremia complicated by abscesses in the brain and spleen is rare in Taiwan.[2,3] We present here the case of a previously healthy young man with MRSA bacteremia complicated by brain and spleen abscesses. He was successfully treated with surgical debridement and combination treatment with daptomycin, fosfomycin, and linezolid.

An 18-year-old male patient presented himself to the emergency department with a 2-day history of fever, chills, and a productive cough. He also had weakness of his limbs, dizziness, abdominal pain, and vomiting. His blood pressure was 74/46 mmHg and his body temperature was 39°C. The results of laboratory tests showed a white blood cell count of 13,280 cells/mL and platelets 145,000 cells/mL, with a differential count of neutrophils 91.7%, and hemoglobin 14.3 g/dL. Biochemistry test results showed abnormal liver function and a C-reactive protein level of 15.7 mg/dL. Abdominal sonography was initially normal in the emergency department.

The patient was admitted to the intensive care unit with a diagnosis of septic shock. On admission, he was treated with moxifloxacin (400 mg/day intravenously) for an intra-abdominal infection. The next day, results of his blood culture showed Gram-positive cocci in clusters and he was treated with oxacillin (2 g intravenously every 4 hours). All the MRSA strains isolated were susceptible to vancomycin, daptomycin, linezolid, trimethoprim/sulfamethoxazole, clindamycin, gentamicin, and moxifloxacin *in vitro*. However, the MRSA strains were tolerant to vancomycin with a minimum inhibitory concentration >1 μg/mL. Oxacillin was therefore replaced by daptomycin (8 mg/kg/day intravenously) on Day 3 of admission to hospital. Transesophageal

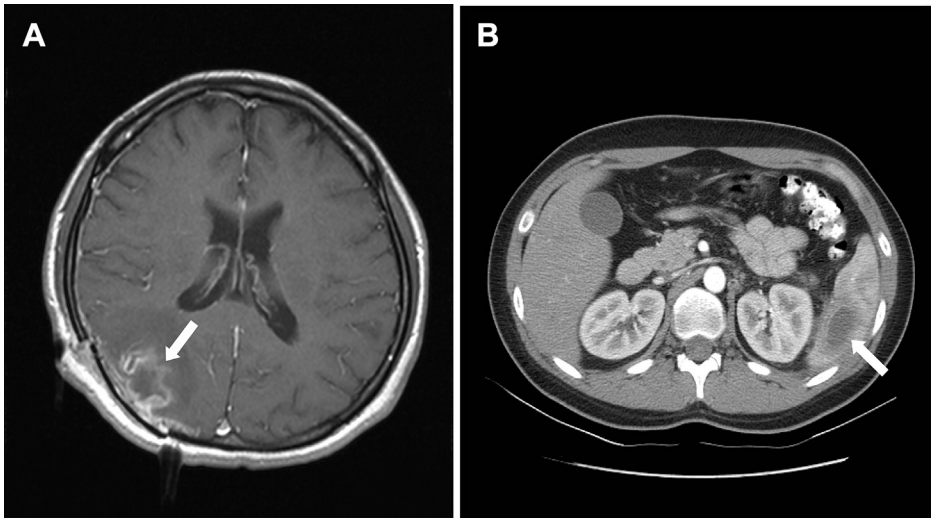

Figure 1 (A) Magnetic resonance imaging scan of the brain showing an abscess about 3.6 cm × 2.8 cm in the parietal-occipital area (white arrow). (B) Abdominal computed tomography scan showing an abscess of about 2.4 cm × 2.7 cm in the spleen (white arrow).

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echocardiography showed no infection of the cardiac valve. Serological tests for antibodies to HIV, hepatitis C virus, HBsAg, and antinuclear antibodies all yielded negative results and the patient was clinically stable after treatment with daptomycin. However, he progressively developed weakness of the left upper limb. A gallium scan showed increased uptake in the right parietal-occipital area of the brain, both shoulder joints, and the left hip joint. Computed tomography (CT) and magnetic resonance imaging (MRI) of his brain on Day 16 of admission to hospital showed a 3.6 cm × 2.8 cm brain abscess (Figure 1A). Daptomycin was changed to linezolid (1.2 g per day intravenously in 2 divided doses) combined with fosfomycin (16 g per day intravenously in 4 divided doses) to treat the brain abscess.

The patient underwent a right occipital craniotomy with removal of the brain abscess on Day 19 of admission to hospital. The MRI follow-up scan on Day 30 of admission to hospital showed partial regression. After treatment for 2 weeks with linezolid, daptomycin (8 mg/kg/day) and fosfomycin (2 g intravenously every 6 hours)[4] were added to treat a delayed onset spleen abscess, confirmed by an abdominal CT scan on Day 44 of admission to hospital (Figure 1B). The patient did not receive a splenectomy and was discharged without complications on the 86th day of admission to hospital while receiving treatment with 600 mg of linezold by mouth every 12 hours at an outpatient clinic. Imaging revealed complete resolution of the brain and spleen abscesses on Day 162 after admission to hospital. The patient had only minimal sequelae with numbness over his left finger tips.

We have found only a few case reports of CA-MRSA bacteremia complicated with a brain[3–5] or spleen abscess.[2,6] A limited choice of alternative antibiotic treatment is available for severe complicated CA-MRSA infections.[4–6] This is the first report of a young immunocompetent patient with CA-MRSA bacteremia complicated by brain and spleen abscesses. The patient was successfully treated with a combination of daptomycin, linezolid, and fosfomycin.

References

1. Huang YC, Chen CJ. Community-associated methicillin-resistant *Staphylococcus aureus* in children in Taiwan, 2000s. *Int J Antimicrob Agents* 2011;**38**:2–8.
2. Liu YH, Liu CP, Lee CM. Splenic abscesses at a tertiary medical center in Northern Taiwan. *J Microbiol Immunol Infect* 2014;**47**:104–8.
3. Kao PT, Tseng HK, Liu CP, Su SC, Lee CM. Brain abscess: clinical analysis of 53 cases. *J Microbiol Immunol Infect* 2003;**36**:129–36.
4. Teng SO, Ou TY, Yu FL, Chen FL, Liu YH, Lee WS. Combination therapy of daptomycin and fosfomycin for vancomycin tolerant methicillin-resistant *Staphylococcus aureus* endocarditis complicating with metastatic osteomyelitis. *J Exp Clin Med* 2012;**4**:290–1.
5. Gattuso G, Palvarini L, Tomasoni D, Ferri F, Scalzini A. A case of community-acquired MRSA (CA-MRSA) sepsis complicated by meningoencephalitis and cerebral abscess, successfully treated with linezolid. *Infect Med* 2009;**17**:244–8.
6. Arslan F, Batirel A, Tabak F, Mert A. Splenic abscess caused by MRSA developing in an infarcted area: case report and literature review. *J Infect Chemother* 2011;**17**:851–4.

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