

Streptococcus dysgalactiae pyomyositis

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Over the recent years, cases of *Streptococcus dysgalactiae* subsp. *equisimilis* (SDSE) infections have increasingly recognized in Japan. Patients with SDSE infections are frequently elderly. In many cases, it became severe.¹ SDSE infections often develop cellulitis or arthritis. We recently experienced and herein report a case of SDSE pyomyositis, which has been rarely reported before. A 92-year-old Japanese man was brought by ambulance to the emergency department of our hospital because of high fever and altered mental status. He had an episode of bloodstream anaerobic infection at two months prior to the current admission. (The pathogen was not determined.) Two days prior to the admission, he developed right shoulder discomfort. On the day of admission, right shoulder pain became worse and he could not eat breakfast with the right hand. After he ate it with the left hand, he had vomiting and lost the consciousness. His family denied he did not have chills, headache, abdominal pain, or joint pains other than the right shoulder. There was no trauma, injection, acupuncture, or overseas travel. The medical history included well-controlled hypertension and an episode of bloodstream anaerobic infection at two months prior to the current event. At that time, physical examination, upper and lower gastrointestinal endoscopy, urine tests, and whole body CT image with contrast enhancement did not reveal infected organ. His medications were amlodipine and aspirin. There was no contributory family history.

On physical examination, he appeared acutely ill. The temperature was 39.5°C, the blood pressure 147/62 mm Hg, pulse 86/min, respiratory rate 26/min, and pulse oximetry O₂ saturation was 96% while the patient was breathing ambient air. There was severe tenderness over the right shoulder joint with limited range of motion. He had the swelling and local heat over the right trapezius muscle without skin redness. Cardiovascular, pulmonary, and abdominal examinations were normal

with no hepatosplenomegaly. No lymphadenopathy or generalized rash was identified.

Initial laboratory tests revealed white cell count (WBC) of $11 \times 10^9/L$, neutrophils $10 \times 10^9/L$, lymphocytes $0.5 \times 10^9/L$, hemoglobin 11.5 g/dL, platelets $12.6 \times 10^9/\mu L$, creatine kinase (CK) 117 IU/L, serum protein 7.0 g/dL, albumin 4.3 g/dL, and C-reactive protein (CRP) 0.40 mg/dL. Urinalysis was normal. Nasopharyngeal swab of *influenza antigen* was negative. CT scan of the thorax, abdomen, and pelvis was performed but it showed no abnormality and there were no findings suggestive of abscess and effusion around the right shoulder joint.

As the patient had a recent history of anaerobic bloodstream infection, myositis caused by anaerobic pathogen was suspected and the treatment was initiated using intravenous cefmetazole.

On hospital day 2, physical examination of the right shoulder showed increased swelling, redness, and local heat. Follow-up laboratory tests revealed WBC $17 \times 10^9/L$, neutrophils $16 \times 10^9/L$, lymphocytes $1.0 \times 10^9/L$, CK 1712 IU/L, and CRP 17.60 mg/dL. Blood cultures during transportation to emergency outpatient grew SDSE, and cefmetazole was switched to intravenous ampicillin.

MRI scan around the right shoulder showed high signal-intensity lesion surrounded by extensive swelling involved in subcutaneous tissue, trapezius, supraspinatus, and deltoid muscles (Figures 1 and 2). A radiographic diagnosis of pyomyositis was made, and intravenous clindamycin was added to ampicillin. Since day 4, his condition and laboratory data improved gradually and he was discharged on day 15 uneventfully after receiving total 22 days of the antibiotic treatment.

Pyomyositis is a bacterial infection of skeletal muscle mostly from hematogenous spread, and its risk factors are immunodeficiency (HIV infection, diabetes, malignancy, cirrhosis, renal insufficiency, organ transplantation, or use of immunosuppressant), trauma, drug injection,



FIGURE 1 MRI (lateral view, STIR) findings showing increased signal intensity lesion of the shoulder girdle muscles indicating the presence of pyomyositis around the right shoulder



FIGURE 2 MRI (frontal view, STIR) findings showing increased signal intensity lesion of the shoulder girdle muscles indicating the presence of pyomyositis around the right shoulder

diabetes, malnutrition, and concurrent infection (toxocarriasis, varicella). *Staphylococcus aureus*, including Methicillin-resistant *S. aureus*, is the most common cause followed by Group A streptococci, nongroup A streptococci, pneumococci, and gram-negative bacilli.² The diagnosis is usually based on MRI findings and the treatment includes effective antimicrobials and surgical intervention if needed.

The unique point of our case is that SDSE was the causative pyomyositis pathogen. SDSE has group A, C, or G antigens and it has been considered as an emerging important human pathogen for various infectious diseases such as pyomyositis.³ Major underlying conditions of SDSE infection are bed sore, cerebrovascular disease, diabetes, dementia, lymphedema, chronic renal failure, cirrhosis, or malignancy.⁴ SDSE infections have been increasing in Japan over the recent years especially in elderly like the current case.¹ Although group A Streptococcus (GAS) is known as an infectious pathogen of severe infectious diseases such as streptococcal toxic shock syndrome, SDSE infections should be considered in cases of pyomyositis who could be as severe as that of GAS infection.

CONFLICT OF INTEREST

The authors have stated explicitly that there are no conflicts of interest in connection with this article.

REFERENCES

1. Study on establishment of surveillance for severe streptococcus pneumococcal infection and pathogenesis analysis, its diagnosis and treatment. Research leader Kimiko Ubukata. Available from <http://strep.umin.jp/breakingnews/SDSE.html> 2016/09/05
2. Crum NF. Bacterial pyomyositis in the United States. *Am J Med.* 2004;117:420.
3. Deng W, Farricielli L. Group G streptococcal sepsis, septic arthritis and myositis in a patient with severe oral ulcerations. *BMJ Case Rep.* 2014;2014:1–4.
4. Woo PC, Fung AM, Lau SK, Wong SS, Yuen KY. Group G beta-hemolytic streptococcal bacteremia characterized by 16S ribosomal RNA gene sequencing. *J Clin Microbiol.* 2001;39:3147–55.

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