CASE REPORT

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Multipl MRSA Absesses Following Intramuscular Injection a Case Report

İntramüsküler Enjeksiyon Sonrası Gelişen Çoklu MRSA Apsesi Olgu Sunumu

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ABSTRACT

Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) cases are rarely reported. In this article, we present a patient who had no history of disease or risk factors for MRSA but developed multiple MRSA abscesses after receiving intramuscular injections outside the hospital. With this case report, we aimed to emphasize the importance of attention to community-acquired MRSA infections and highlight the need to maintain aseptic conditions to reduce potential complications after intramuscular injections.

Keywords: Methicillin-resistant *Staphylococcus aureus*, abscess, intramuscular injection

ÖZ

Toplumdan kazanılmış metisiline dirençli *Staphylococcus aureus* (TK-MRSA) olguları nadir de olsa karşımıza çıkmaktadır. Bu yazıda öyküsünde bilinen bir hastalığı ve MRSA için risk faktörleri olmayan, hastane dışında yaptırdığı intramüsküler enjeksiyonlar sonrası çoklu MRSA apsesi gelişen bir olgu sunulmuştur. Bu olgu örneğinde toplum kökenli MRSA enfeksiyonlarına dikkat çekmeyi ve intramüsküler enjeksiyonlar sonrası istenmeyen komplikasyonları azaltmak için asepsi koşullarına dikkat edilmesi gerekliliğini vurgulamayı amaçladık.

Anahtar Kelimeler: Metisiline-dirençli *Staphylococcus aureus*, apse, intramüsküler enjeksiyon

INTRODUCTION

Widespread and unnecessary use of antibiotics causes the emergence of resistant strains and the spread of these strains. *Staphylococcus aureus* is one of the bacteria that can develop resistance due to inappropriate antibiotic use and is one of the factors that cause mortality. While methicillin-resistant *Staphylococcus aureus* (MRSA) causes hospital-acquired infections, it has also caused community-acquired infections since the 1990s[1]. Although community-acquired-MRSA (CA-MRSA) most commonly occurs with skin and soft tissue infections, it can also cause life-threatening infections such as liver abscess, bone and joint infections, and bloodstream infections[2-4]. In this article, a case with multiple community-acquired MRSA abscesses that occurred as a complication of intramuscular injections was presented.

CASE REPORT

A thirty-eight-year-old female patient applied due to back and hip pain that had been going on for twenty days. It was learned that the patient's lower back pain started after falling to the ground twenty days ago, and during the examinations, nonsteroidal anti-inflammatory treatment was started due to soft tissue damage caused by trauma. It was learned that

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the patient had her intramuscular injections administered by non-medical personnel and was referred to us after contrast enhancement was detected in the paravertebral muscle planes and left iliac fossa in the lumbar magnetic resonance imaging (MRI) taken at the center to which she applied due to an increase in her complaints despite the treatment. The patient had no known medical history other than panic disorder. On the physical examination, there was hip movement limitation and a painful lesion approximately 10 cm in diameter was palpated in the left gluteal region. In laboratory tests performed at admission, the values were as follows: leukocyte: 11.870/µL, C-reactive protein (CRP): 218 mg/L, erythrocyte sedimentation rate (ESR): 150 mm/hour, procalcitonin (PCT): 0.167 µg/L, and 2 erythrocytes and 24 leukocytes in complete urinalysis. Blood and urine cultures were taken at the time of hospitalization. The patient, who had no previous history of antibiotic use or hospitalization, was started on ampicillin-sulbactam 4x3 g intravenously (iv) and ciprofloxacin 2x400 mg intravenously with the preliminary diagnosis of soft tissue infection-abscess. In the lumbar MRI, a lesion measuring approximately 10x6 cm in size and extending inferiorly towards the pelvis was observed in the left lumbar region. In abdominal computed tomography, a lesion that was initially thought to be an abscess, reaching 9 cm in size anterior to the iliac muscle in the left lower quadrant (Figure 1), and an abscess measuring approximately 8 cm in the gluteal area, as well as edema and fluid densities, were observed (Figure 2). Thereupon, percutaneous drainage was performed by interventional radiology for the abscess areas in both the gluteal and anterior iliac muscles. There was no growth in the blood culture taken during hospitalization. MRSA growth was detected in the abscess cultures taken with drainage (sensitive to vancomycin, teicoplanin, linezolid and trimethoprim/sulfamethoxazole). The patient's treatment was changed to vancomycin 2x1 gr iv. No pathology was detected in the echocardiography. On the 7th day of treatment, leukocyte count decreased to 5.900/µL, CRP to 13.3 mg/L, ESR to 104 mm/hour and PCT to 0.04 µg/L. In the control lumbar MRI taken on the 20th day of hospitalization, a significant decrease in the size of the abscess was detected and an appearance compatible with sacroiliitis was reported. The patient, whose intravenous antibiotic treatment was completed in 4 weeks, was discharged with trimethoprim/sulfamethoxazole 2x800/160 mg tablets to be completed for 12 weeks. The patient's pain decreased and laboratory findings returned to normal during outpatient clinic follow-ups, and her treatment was discontinued at the 12th week. Written informed consent was obtained from the patient to present this case.

Figure 1. 11*6 cm abscess in the iliopsoast on contrast-enhanced abdominal CT

CT: Computed tomography

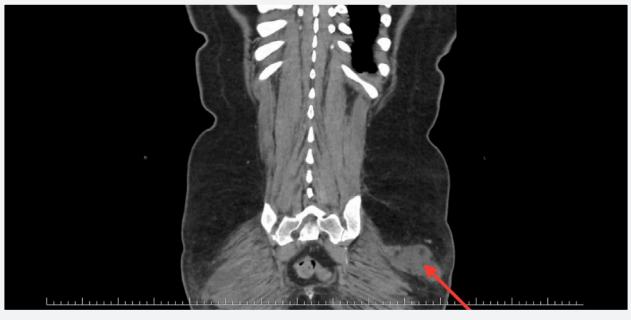

Figure 2. 8*5 cm abscess in the left gluteal area on contrast-enhanced abdominal CT

CT: Computed tomography

DISCUSSION

Intramuscular injection is used as a preferred technique in many treatment protocols to obtain a rapid and effective response in the administration of drugs. Complications of this procedure include bleeding at the injection site, hematoma, sciatic nerve damage, pain, abscess formation, and tissue necrosis. Complications such as abscess formation and sepsis after intramuscular injection were reported to be extremely rare, with a rate of 1.9% in a study[5].

For the diagnosis of community-acquired MRSA infection, there must be no previous MRSA infection, no hospitalization in the last year, no stay in a nursing home, no permanent catheter or medical device[6]. Although our patient had no known risk factors, multiple abscesses developed due to intramuscular drug injections administered outside the hospital.

It has been reported that CA-MRSA is transmitted through physical and sexual contact. At the same time, in addition to nasal colonization, colonization of the genital area was also found to be significant as a reservoir[7].

In a study conducted in the USA, the frequency of CA-MRSA was reported as 8-20%[8]. In a study conducted in France, the prevalence of MRSA was found to be 1-3%[9]. In another study conducted at the community level in the Asia Pacific region, the prevalence of CA-MRSA carriage among the population was found to be between 0% and 23.5%[10].

In a comprehensive multicenter study conducted in Turkey, CA-MRSA was found to be at a very low rate (0.7%)[11]. In a study evaluating primary and high school students in Manisa, CA-MRSA carriage was found to be at the rate of 2.6%[12]. In an epidemiological study conducted in the Turkish Cypriot community in 2019, the prevalence of nasal CA-MRSA carriage was reported as 6.98%[13]. Günal et al.[14] evaluated infections due to *S. aureus* for 5 years and found that 64.4% of CA-*S. aureus* strains developed due to MRSA. In a multicenter study conducted in the pediatric population in our country, the frequency of CA-MRSA was reported as 17.4% and the authors emphasized that this rate was higher in the refugee population[15].

A case of MRSA infection resulting in gluteal compartment syndrome after intramuscular injection has been presented in the literature. In this presentation, it was emphasized that the risk of developing soft tissue infection and gluteal compartment syndrome increased after intramuscular injection in the presence of anticoagulant use, bleeding diathesis, immune deficiency and diabetes[16]. Another case with a history of recurrent gluteal abscess, intravenous drug use, and diabetes mellitus, in which MRSA septicemia was reported to occur 2 months after the drainage and treatment of the gluteal abscess, was admitted to the emergency department with sudden onset vision loss. MRSA was detected in the blood culture of this patient and it was reported to be complicated by tricuspid valve endocarditis, multiple septic pulmonary embolism and endogenous endophthalmitis[17].

CONCLUSION

The most common cause of community-acquired skin and soft tissue infections is *Staphylococcus aureus*, but recently soft tissue infections due to MRSA strains have also started to be seen. Therefore, culture antibiogram results will guide the treatment plan in community-acquired infections. Application of intramuscular injections after appropriate technique and necessary asepsis conditions will reduce the risk of possible MRSA infection.

Ethics

Informed Consent: Written informed consent was obtained from the patient to present this case.

Authorship Contributions

Surgical and Medical Practices: Ö.G., S.S.K., B.B.Ö., Concept: Ö.G., H.Ü., Design: Ö.G., H.Ü., Data Collection or Processing: B.B.Ö., Analysis or Interpretation: S.S.K., Literature Search: B.B.Ö., H.Ü., Writing: B.B.Ö.

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