

MRSA sepsis and coxitis in a tetraplegic, immunocompromised patient: a case report

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Introduction

We report a rare case of coxitis caused by methicillin-resistant *Staphylococcus aureus* (MRSA) in a patient with severe comorbidities. The clinical course posed significant diagnostic and therapeutic challenges, but eventually resulted in a favorable outcome. To the best of our knowledge, reports on MRSA-induced purulent coxitis in patients with both HIV infection and tetraplegia are extremely limited, which makes this case particularly valuable for expanding the understanding of such complex bone and joint infections.

Case presentation

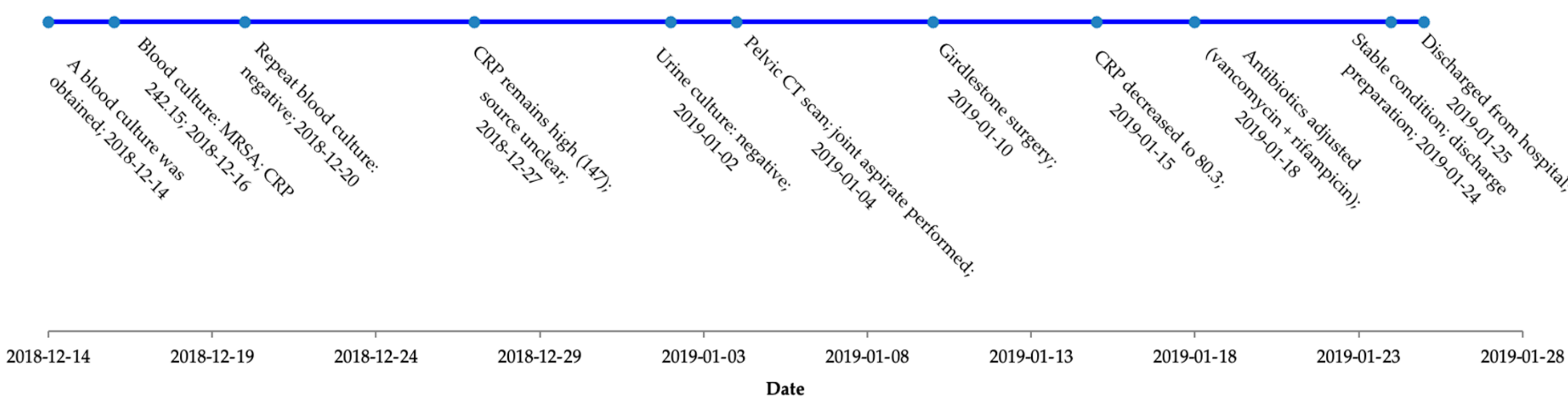
A 38-year-old man was admitted to hospital with fever and a suppurating wound on the left elbow. His past medical history included a spinal cord injury with tetraplegia following trauma and a stable HIV infection treated with antiretroviral therapy. Blood cultures confirmed MRSA sepsis, and intravenous vancomycin was initiated. During a repeat physical examination, as the fever persisted, crepitus was noted in the right hip, although the patient reported no pain due to neurological deficits. Radiological evaluation with X-ray, ultrasound and computed tomography demonstrated destruction of the femoral head and multiple fluid collections within the joint and surrounding soft tissues. Joint aspiration revealed neutrophilic infiltration, supporting the diagnosis of septic coxitis. Surgical treatment was performed, consisting of femoral neck resection (Girdlestone procedure), removal of necrotic tissue and sequestra, extensive debridement and irrigation with antiseptic solutions. Following surgery, the patient’s condition improved considerably (Figure 1). Fever subsided, renal function stabilized, and the wounds healed without signs of persistent infection. Inflammatory markers decreased markedly, with C-reactive protein (CRP) falling from 201 mg/L to 44 mg/L. Hematological and biochemical parameters demonstrated gradual recovery, as summarized in Table 1. The treatment course included initial empiric broad-spectrum therapy, followed by targeted vancomycin for MRSA, later supplemented with rifampicin and tetracycline after surgical intervention, reflecting the complexity of management in this case. The susceptibility profile of the MRSA isolate (Table 2) was crucial in planning treatment. The preserved sensitivity to tetracycline and rifampicin enabled effective combination therapy, while resistance to several common antibiotics highlighted the clinical importance of timely and precise microbiological testing.

MIC = minimum inhibitory concentration

Antibacterial agent	<i>Staphylococcus aureus</i>	MIC (µg/mL)
Penicillin	R	≥2
Oxacillin	R	≥4
Gentamicin	S	≤4
Tetracycline	S	≤0.5–1
Fusidic acid	S	0.03–1
Erythromycin	R	≥8
Clindamycin	R	≥2
Vancomycin	S	0.5–2
Trimethoprim/sulfamethoxazole	S	≤0.5/9.5
Rifampicin	S	≤0.5
Linezolid	S	0.5–2

Note. S = susceptible; R = resistant; and MIC = minimum inhibitory concentration

Table 2. Blood and wound culture results.



	Dec 14, 2018	Dec 20, 2018	Dec 27, 2018	Jan 7, 2019	Jan 10, 2019	Jan 10, 2019	Jan 15, 2019	Jan 18, 2019	Jan 24, 2019	Jan 25, 2019
Leucocytes (x10 ⁹ /L)	7.94	7.9		5.5	3.8	6.7		5.3	4.9	
Hemoglobin (g/L)	99	97		86	79	82		74	85	
Platelets (x10 ⁹ /L)	439	413		452	163	331		83	167	
Neutrophils (%)	75.3	70		58.3	59.7	77.6		67.4	65.9	
Potassium (mmol/L)	4.4	4.1	3.9	4		3.77	3.88		2.8	3.4
Sodium (mmol/L)	128									
Creatinine (µmol/L)	43	41	47			44.3	295.14	201	111	
AST (U/L)	79							25	19	
ALT (U/L)	89							17	12	
SPA (%)	68			65						
INR	1.2			1.2						
CRP (mg/L)	242.1	91	147	201		110	80.3		44.1	
ESR (mm/h)				>170					168	

Table 1. Blood results.

Figure 1. Clinical timeline summarizing key diagnostic findings, treatment interventions, and patient progress.

Conclusion

This case highlights the diagnostic and therapeutic complexity of MRSA-induced coxitis in a patient with HIV and tetraplegia. The absence of classical symptoms, such as hip pain, delayed recognition and emphasized the importance of careful physical examination, repeated imaging and microbiological testing in immunocompromised patients with persistent fever. Successful management required a combination of long-term targeted antimicrobial therapy, radical surgical intervention and multidisciplinary care involving infectious disease specialists, orthopedic surgeons, radiologists and rehabilitation experts. The favorable outcome illustrates that, even in complicated cases, early recognition and coordinated treatment strategies can prevent systemic complications and improve patient prognosis. More broadly, this case underlines the need to consider septic arthritis in atypical presentations, especially among neurologically impaired and immunocompromised populations, where classical clinical signs may be absent. Raising awareness and sharing similar experiences may contribute to faster diagnosis and more effective treatment strategies in rare but life-threatening infections such as MRSA coxitis.