



CHIKUNGUNYA VIRUS INFECTION PRECIPITATING MYASTHENIC CRISIS IN AN ELDERLY MALE: A CASE REPORT

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ABSTRACT **Background:** Myasthenic crisis is a life-threatening complication of myasthenia gravis (MG), often triggered by infections. While respiratory infections are well-known precipitating factors, viral arthropod-borne infections such as chikungunya, precipitating myasthenia crisis is rarely reported in the literature. **Case Summary:** A 75-year-old male with a history of MG, hypertension, and type 2 diabetes mellitus presented with fever, myalgia, and arthralgia following chikungunya infection. He rapidly deteriorated with respiratory failure, hypotension, and acute kidney injury. Clinical suspicion of myasthenic crisis was confirmed with serological testing, and he received two cycles of plasma exchange with partial improvement. **Conclusion:** Chikungunya infection may precipitate a myasthenic crisis in patients with MG. Awareness of this association can facilitate timely diagnosis and management, especially in endemic regions.

KEYWORDS : Myasthenia Gravis, Myasthenic Crisis, Chikungunya, Plasma Exchange

INTRODUCTION

Myasthenia gravis (MG) is a well-characterized antibody-mediated autoimmune disorder affecting the neuromuscular junction (NMJ). Autoantibodies against the acetylcholine receptor (AChR) or muscle-specific kinase (MuSK)—that impair synaptic transmission between motor neurons and skeletal muscle fibers are implicated in the pathogenesis. This disruption leads to fluctuating weakness in voluntary muscles, with symptoms that can vary widely in both severity and distribution among individuals (1). Myasthenic crisis, defined as respiratory failure due to worsening MG, is a neurological emergency that often requires intensive care and mechanical ventilation. Infectious triggers are among the most common precipitants of crisis, with viral etiologies being less frequently documented (2). Chikungunya, an arboviral disease transmitted by Aedes mosquitoes, typically causes fever and polyarthralgia but has been infrequently associated with neuromuscular complications (3). We report a case of myasthenic crisis precipitated by chikungunya virus infection in an elderly patient.

Case Presentation

Patient Information

A 75-year-old male, known case of MG for the past 2 years and on immunomodulatory therapy, also had a history of type 2 diabetes mellitus and systemic hypertension, both for 4 years. He presented with a 3-day history of fever, generalized myalgia, and arthralgia.

Initial Evaluation

Initial evaluation revealed a blood pressure of 120/60 mmHg, pulse rate of 86/min, temperature of 98.6°F, and oxygen saturation of 95% on room air. Neurological examination showed GCS 15/15, lower limb power of 4/5, upper limb power of 5/5, and sluggish deep tendon reflexes. Cardiovascular assessment revealed atrial fibrillation with a fast ventricular response on electrocardiogram. Respiratory examination was notable for decreased bilateral breath sounds and tachypnea. Abdomen was soft and no tenderness.

Diagnostic Assessment

Laboratory investigations revealed an elevated white blood cell count, elevated serum creatinine indicating acute kidney injury, and raised creatine phosphokinase (CPK) levels. Serological tests were positive for chikungunya IgM and Chikungunya PCR while tests for other infectious etiologies, including dengue, malaria, scrub typhus, and leptospira, were negative. Anti-acetylcholine receptor (AChR) antibodies were 1.77 nmol/L, which was positive. Blood culture showed E. Faecum growth. Serum (1-3)B D Glucan was elevated 160pg/ml (normal<60pg/ml).

Investigations	Results	Normal Range and Units
TSH	0.58	0.42-4.2 U/L
Serum Albumin	3.0	3.2-4.6 g/dL

Serum globulin	2.6	2.0-3.5 g/dL
ALT	59	<45 U/L
ALP	88	<116 U/L
AST	110	<35 U/L
Bilirubin Total	0.4	0.0-1.3 mg/dL
Bilirubin Direct	0.2	<0.0-1.2 mg/dL
Calcium	7.3	8.6-10.2 mg/dL
Serum Creatine Kinase	1786	46-171 U/L
Creatinine	4.5	<1.3 mg/dL
HbA1c	9.4%	<5.7%
LDH	1450	125-220 U/L
Sodium	136	136-145 mEq/L
Potassium	4.7	3.5-5.1
Urea	170	17-49 mg/dL
aPTT	28	24-32s
PT	15	10-14s
Hb	12.0	13-17gm/dL
WBC Count	16.12	4-10 * 10 ³ /mm ³
Platelet	172	150-350 *10 ³ /mm ³

Course in the Hospital

The patient was admitted to the intensive care unit and managed with inotropic support and mechanical ventilation due to respiratory failure and hemodynamic instability. He underwent two cycles of plasma exchange as part of the treatment for suspected myasthenic crisis.

Empirical broad-spectrum intravenous antibiotics, including Meropenem, Polymyxin B, and Teicoplanin, along with antifungal agents such as Fluconazole and Caspofungin, were administered based on infectious disease consultation. Immunomodulatory therapy included mycophenolate mofetil and pyridostigmine to address the underlying myasthenia gravis.

Supportive care involved insulin infusion for glycemic control, anticoagulation, and management of electrolytes. Despite aggressive management, the patient's GCS deteriorated (GCS 8T/15), and oxygen and inotrope requirements increased.

DISCUSSION

Myasthenic crisis can be precipitated by a variety of factors, including infections. While bacterial respiratory tract infections are commonly implicated, viral infections such as chikungunya are rare triggers. Chikungunya virus may induce a systemic inflammatory response, exacerbating underlying autoimmune conditions such as MG(4).

In our patient, the sudden worsening of muscle strength, respiratory failure, and elevated CPK in the setting of positive anti-AChR antibodies and known MG raised strong suspicion of a myasthenic crisis (5). The concurrent chikungunya infection, supported by the

positive serology, likely acted as a trigger which precipitated the crisis. The response to plasma exchange and immunosuppressive therapy was partial, likely due to multiple comorbidities, advanced age, and secondary sepsis.

This case emphasizes the need for heightened clinical awareness of viral triggers of MG exacerbation, particularly in endemic regions. Timely diagnosis and initiation of immunotherapy, along with supportive care, remain the cornerstone of management.

CONCLUSION

Chikungunya infection should be recognized as a potential precipitant of myasthenic crisis in predisposed individuals. Early identification and appropriate immunomodulatory treatment can significantly affect the outcome, although prognosis remains guarded in elderly patients with multisystem involvement.

Declaration

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Conflict of Interest: None

Ethical Approval: Not required

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