

A Case Report On Post Chikungunya Associated Transverse Myelitis

Mallela Venkateswara Rao¹, R. Sireesha Rao², Pasupulate Akshitha³

ABSTRACT

Introduction: Transverse Myelitis (TM) is a neurological condition characterized inflammation of spinal cord causing damage of myelin, which is the insulating material that covers the nerves. Chikungunya virus (CHIKV) is an arbovirus endemic to South Asia with frequent outbreaks. A wide spectrum of neurological complications has been described in Chikungunya infections. In the tropics, the chikungunya fever known to cause neurological and arthritic conditions.

Case Report: We report a case of A 51-year-old male patient was recently diagnosed to have chikungunya arthritis (chikungunya-IgM-positive) presented to us with abrupt onset of paresthesia in both lower limbs, abdomen upto hypochondrial margin. Patient also had buckling of both knees since a day. cerebrospinal fluid analysis indicated a high lymphocyte count while nerve conduction studies were suspicious of demyelinating radiculomyelopathy. MRI of the dorsal spine and screening of whole spine showed Holo cord involvement with cord expansion and altered signal involving D2, D3, D4 and D5 levels of the dorsal spinal cord with diffuse heterogeneous patchy enhancement of the cord substance with intervening non-enhancing areas- suggestive of transverse myelitis. The patient received methyl prednisolone (IV) and supportive care, resulting in clinical improvement and stable discharge.

Conclusion: Chikungunya associated complications with spinal cord involvement are rare. For patients with transverse myelitis, a full spinal axis MRI is essential to rule out structural problems, and early steroid treatment which may lower the morbidity.

Keywords: Chikungunya, MRI, methyl prednisolone (IV), Transverse Myelitis.

INTRODUCTION

Transverse Myelitis (TM) is characterized as a neurological condition causing acute or subacute spinal cord injury.^[1] Idiopathic transverse myelitis (TM) accounts for majority of cases of TM where the excessive immune response directed against the spinal cord, lead to inflammation and subsequent damage to the tissue.^[2] Etiology associated with transverse myelitis could be multifactorial and broadly classified as autoimmune, paraneoplastic, viral infections, drug/toxin induced, vascular/metabolic which mimic the appearance radiologically.

linked to specific evidence of connective tissue diseases and those related to central nervous system infections including syphilis, Lyme disease and some viral infections.^[3]

Chikungunya virus is an arbovirus transmitted by *Aedes* spp. Mosquitoes. This viral illness is characterized by severe joint pains and rashes. Some people may have incapacitating, long-lasting arthritis symptoms that last for

months or even years.^[4] Symptoms associated with CHIKV infection typically manifest 2 to 7 days after exposure, and are presented by chills and fever ranging from 39°C to 40°C, accompanied by headache in 70% of cases, nausea/vomiting in 60% and persistent muscle and joint pain (myalgia/arthralgia) affecting 40% of patients often characterized by severe polyarthralgia.^[5] Additionally, maculopapular rash is observed over face, upper limbs, lower limbs, trunk in nearly 60% of patients which may last for seven to 10 days.^[6]

A range of conditions, including Meningoencephalitis, Guillain-Barré syndrome, cranial nerve palsies, encephalomyelorradiculitis and demyelinating radiculoneuropathy are among the neurological symptoms associated with chikungunya which are typically uncommon.^[7] Here we present the case of transverse myelitis associated with chikungunya infection confirmed on imaging.

CASE REPORT

A 51-years-old male recently diagnosed to have post chikungunya arthritis (chikungunya IGM positive) admitted in our hospital with the complaints of sudden onset of paresthesias of bilateral lower limbs and abdomen up to hypochondrial margin with buckling of both the knees for one day. He had no history of vomiting, seizure, blurring or double vision, dysphagia, change in voice or bowel bladder involvement. On physical examination the patient was conscious, blood pressure 110/71 mm Hg, heart rate 88 beats/minute, normal respiratory rate, temperature 98.6 °F, 99% SPO2 on room air and hyperpigmentation on nose and cheeks as shown in Figure 1. CNS examination reveals bilateral lower limbs weakness (hip flexors 4/5 power), decreased fine touch right more than left up to knee, decreased fine touch over abdomen up to right hypochondrium, deep tendon reflexes of knee and ankle jerk were exaggerated, bilateral plantars-extensor. In view of these findings advised for an Magnetic resonance imaging (MRI) of lumbosacral spine, cervical spine and dorsal spine which was suggestive of loss of lumbar lordosis, small osteophytes involving

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Figure-1: Hyperpigmentation on the nose and cheeks.

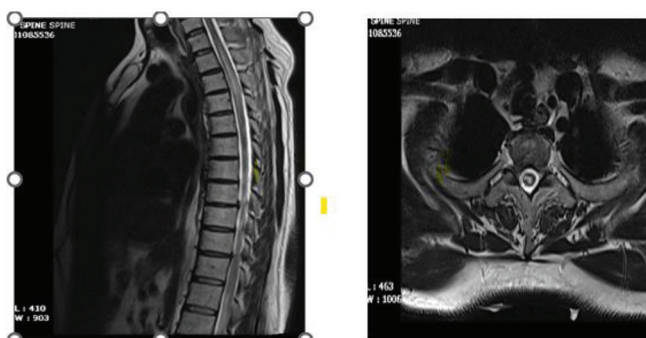


Figure-2 (A) Magnetic resonance imaging (MRI) of Dorsal spine and screening of whole spine axial section, (B) Centro medullary hyperintensities MRI spine sagittal section.

lumbar spine and disc desiccation changes at L3-L4 and L5-S1 levels with posterior annular fissures at these levels causing thecal sac indentation. Mild cervical degenerative changes with subtle disc desiccation changes noted at C5-C6, C6-C7 levels with no evidence of cord compression. MRI of dorsal spine and whole spine with contrast revealed small marginal osteophytes involving dorsal spine, subtle disc desiccation changes at D3-D4, D8-D9 levels causing thecal sac indentation, focal T2 hyperintensity in dorsal cord at D2, D3, D4 and D5 levels with the cord expansion and heterogeneous T2 hyperintensity of the cord involving the whole cord. Post-contrast images of dorsal cord reveal heterogeneous patchy multiple nodular foci of enhancement involving the parenchyma with intervening non-enhancing areas at D2 - D5 level as illustrated in Figure 2. A conclusive diagnosis of “Transverse Myelitis (TM)” was established through the radiological findings and clinical picture. Cerebrospinal fluid (CSF) analysis revealed WBC 50 cells (95% lymphocytes), sugars 59 mg/dL, proteins 87 mg/dL, ACE-4.1 (normal), gram's stain, fungal smear, AFB stain were negative, culture and sensitivity sterile, *Mycobacterium tuberculosis* not detected. NMO with MOG Antibody Profile showed negative for NMO and MOG antibodies. CSF fluid for cytology was negative for malignancy. CMV quantitative was within normal range. Nerve conduction studies were suspicious of demyelinating radiculoneuropathy involving lower limbs greater than upper limbs. Laboratory parameters namely serum creatinine phosphokinase, complete blood

picture, renal function, liver function was within normal limits. Patient was treated with Methylprednisolone IV (1 gram, 5 days), IV fluids, Mycophenolate 500mg responded well, discharged in a hemodynamically stable condition with oral steroids (Omnacortil 60mg tapering dose, Tab. Mycophenolate 500mg).

DISCUSSION

Arthritis is an often-seen symptom of chikungunya fever during the acute phase of infection, in conjunction with fever, myalgia, headache, rashes and in few cases, hyperpigmentation is a distinctive feature associated with chikungunya fever.^[8] In this case report our patient presented with hyperpigmentation on the nose and cheeks. Hyperpigmentation commonly associated with Chikungunya Fever (CF) is macular predominantly observed on the nose and cheeks emerges shortly after the resolution of the rash, indicating an acute onset.^[9]

In this case report our patient presented with onset paresthesia's of bilateral lower limbs and abdomen up to hypochondrial margin with buckling of both knees. Transverse myelitis typically manifests with a swift progression of muscle weakness or paralysis, initially affecting the lower extremities and in some cases, extending to the upper extremities, exhibiting a spectrum of severity. Back pain, discomfort in the extremities or abdominal pain are frequently experienced in few cases.^[10] Cerebrospinal fluid (CSF) testing is crucial in the assessment of Transverse Myelitis (TM). CSF cell count, differential count, protein levels, glucose concentration, oligoclonal bands (OCBs) and IgG index must be assessed for all individuals with transverse myelitis (TM).^[11] Cerebrospinal fluid (CSF) analysis of our patient showed abnormal levels of cell count, proteins, lymphocytes.

Magnetic Resonance Imaging (MRI) stands as the most effective imaging modality, typically displaying a segment characterized by a significant increase in T2 signal, occupying more than two-thirds of the cross-sectional area of the cord.^[12] In our case Transverse Myelitis (TM) was confirmed by MRI of dorsal spine and screening of whole spine was performed with the technique of T2 and STIR. The best MRI methods for finding spinal cord damage are the short-tau inversion recovery (STIR) fast spin-echo and T2-weighted fast spin-echo sequences.^[13] According to Mallula BVP et al., abnormalities were discovered in the cervical and dorsal spine regions of patients with transverse myelitis.^[14] Intravenous steroid therapy is frequently initiated for individuals diagnosed with Transverse Myelitis (TM). Furthermore, numerous studies provide evidence in favor of the administration of corticosteroids for patients diagnosed with Transverse Myelitis (TM).^[15] Our patient had shown better response after the intravenous administration of methyl prednisolone. Studies of Ashfaq et al. reported a complete recovery of Transverse Myelitis by the administration of methyl prednisolone 1 gm as intravenous infusion once daily for 5 days. The response to treatment was noted after 14 days, specifically in terms of improvements in motor power, as

well as sensory and autonomic functions, including control over the bowels and bladder.^[16]

CONCLUSION

Chikungunya associated with spinal cord complications is uncommon and infrequent. For all patients with transverse myelitis symptoms, a full spinal axis magnetic resonance imaging (MRI) is necessary to rule out structural abnormalities. Early and appropriate administration of methyl prednisolone in cases of Transverse Myelitis (TM) may prove advantageous and contribute to a reduction in morbidity.

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