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ACUTE FLACCID MYELITIS CAUSED BY ENTEROVIRUS INFECTION- A CASE REPORT

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ABSTRACT

Enterovirus is a member of the Picornaviridae family, an enterovirus. It is suspected of causing a polio-like disorder called acute flaccid myelitis (AFM). This case report aims to present a 10-year-old boy who presented with neurological manifestations of weakness of lower limbs and urinary retention. He had reduced tone, absent reflexes, and palpable bladder. MRI spine revealed inflammation in grey matter of spinal cord. He was treated with high dose steroids and IVIG but no improvement was observed. Enterovirus was isolated from his stool sample. The patient received supportive care and physiotherapy with gradual improvement after months, having no evidence of spasticity. We report this case as a rare non polio virus related acute flaccid myelitis in our local population to highlight the importance of alternative diagnosis leading to timely recognition and early management.

KEYWORDS: acute flaccid myelitis, enterovirus, Pakistan

INTRODUCTION

Acute Flaccid myelitis (AFM) is a rare neurological condition characterized by sudden onset of limb weakness, predominantly affecting children. Its etiology can be infectious or immune mediated damage to spinal cord. Previously polio virus was the leading cause of Acute flaccid paralysis but after the eradication of poliovirus from most parts of the world, several other viruses emerged as causative agents for acute flaccid illness in children.[1] Acute flaccid myelitis has gained limelight in recent years due to its association with enterovirus. Enterovirus is a member of the Picornaviridae family, it is single stranded RNA virus group that encompasses poliovirus, coxsackie virus and echovirus. Enterovirus is suspected of causing a polio-like disorder called acute flaccid myelitis (AFM). EV-D68 is the most common virus detected in specimens from patients with AFM, usually in respiratory specimens.[2]

The incidence of Acute flaccid myelitis secondary to enterovirus infection is on rise for the past decade, most cases reported in US in 2014, without any sex predilection. To date, several cases of acute flaccid illness have been reported from Pakistan due to poliovirus, there is limited local data on non-polio AFM. We report a child with clinical features suggestive of acute flaccid myelitis secondary to enterovirus infection.

CASE PRESENTATION

A previously healthy 10-year-old boy, fully immunized according to EPI Pakistan schedule presented to emergency of The Children's Hospital Lahore in September 2023, with the complaint of sudden onset of lower limb weakness for one day and urinary retention for one day, with loss of sensations till chest. He had a history of headache for last two days along with backache.

There was history of viral illness with vomiting and abdominal pain two weeks ago that lasted for three days. There was no significant history of contact with sick individuals, insect bites, recent vaccination, toxin exposures, animal exposures, trauma, rash, visual disturbance, dysphagia. Family history was unremarkable.

On physical examination conscious and alert boy with HR 90/min, respiratory rate 25/min, afebrile with BP 100/70 mmHg, SPO2 99% at room air. On examination of lower limbs, he had reduced tone, with absent reflexes, and 0/5 power bilateral lower limbs. He had palpable bladder with loss of sensations till T4 level. Upper limbs had normal power, tone, reflexes, and sensations. No signs of meningeal irritation were observed. There were no significant respiratory or cardiovascular findings.

His complete blood counts, renal profile, serum electrolytes, coagulation profile, acute phase reactants were within normal limits. His CSF detailed report was normal with no abnormal cell count or raised proteins. His MRI Brain was normal, while MRI spine showed swollen cervico-dorsal cord with abnormal signals. MRI spine post contrast axial and sagittal showed contrast enhancement involving central part of the spinal cord. MRI T2 weighted showed hyper intense signals predominantly in the anterior part of the cord involving grey matter (Figure 1).

Anti-aquaporin antibodies and Anti-MOG were sent but were negative. Serum lactate and urine organic acids were normal. Patient was admitted in neurology ward and notified to acute flaccid paralysis team. He was given high dose intravenous steroids, followed by plasmapheresis keeping differential of transverse myelitis but there was no improvement. Later, his stool sample sent for AFP surveillance came out to be positive for Enterovirus. Patient remained admitted at hospital for one month and then discharged home with power of 2/5 in lower limbs with persistent hypotonia and areflexia. No adverse event was observed during hospital length of stay. Follow up visit done after one month showed improvement as he is currently able to sit with power 3/5 and no evidence of spasticity.

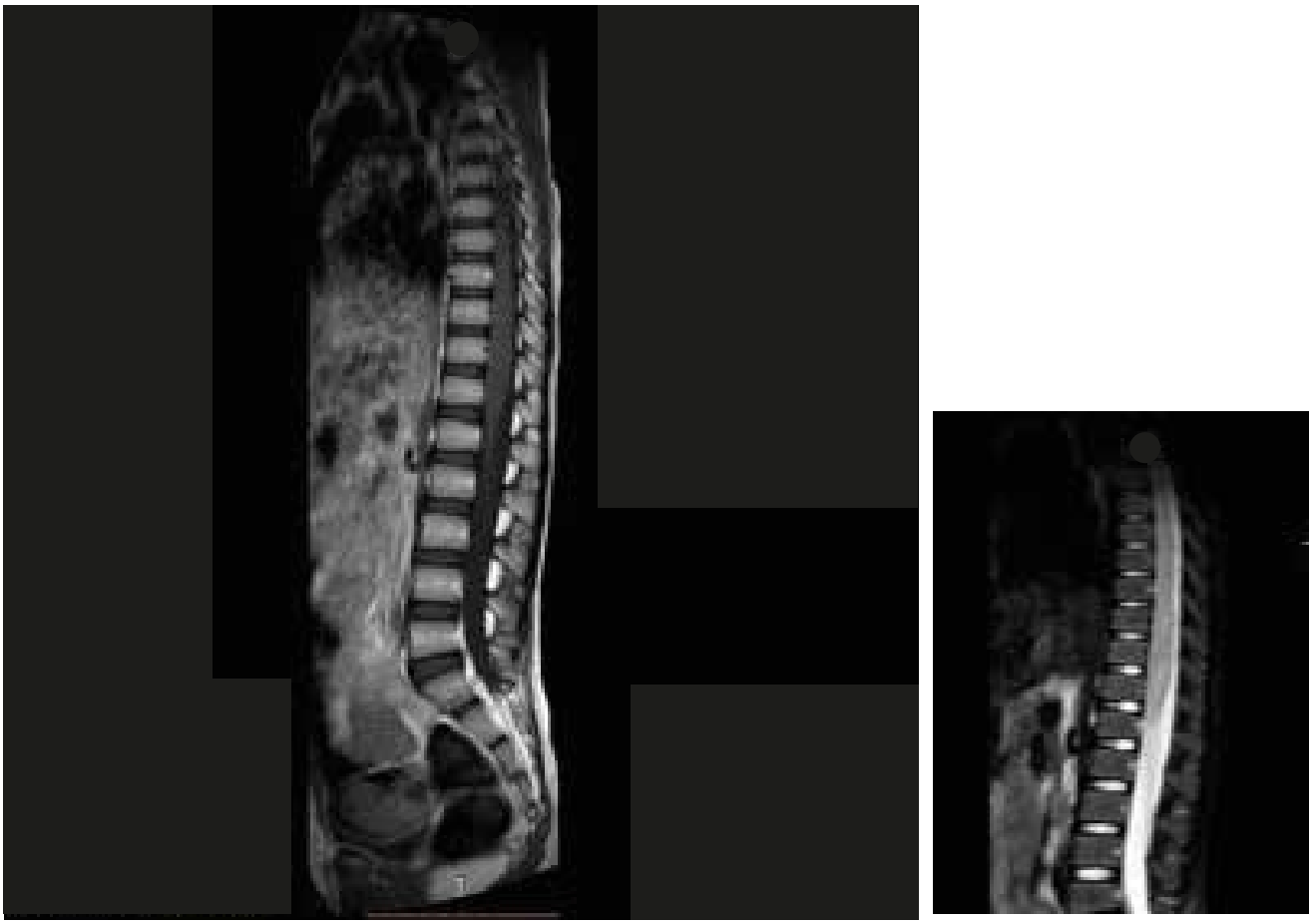

Figure 1: MRI of the cervicodorsal spine T2 and contrast-enhanced images showing involvement of central cord

DISCUSSION

AFM is an uncommon yet serious condition. It affects the nervous system, specifically the area of spinal cord called gray matter, which causes the muscles and reflexes in the body to become weak. Most AFM causes (90%) are in young children.

AFM can be caused by viruses including Enteroviruses. A variety of factors such as environmental toxins, genetic disorders and viruses including poliovirus, non-polio enteroviruses, West Nile Virus, and adenoviruses have been suggested as possible causes of AFM since 2018.[3] Although it is possible to detect pathogens in stool culture or respiratory secretions, this does not prove a pathogenic relationship

The US Centers for Disease Control and Prevention (CDC) recommends testing for poliovirus in all cases of AFP of unknown cause or suspected viral origin. For highest yield, CDC guidelines recommend collecting specimens within 14 days of symptom onset.[4]

Intravenous immunoglobulins (IVIG), and plasmapheresis are the two main immunotherapy treatments for AFP but there is no clear indication for efficacy of IVIG, plasmapheresis, corticosteroids or antiviral medications in the treatment of AFM.[5,6] More case reports and studies may point towards the ideal approach to treat these patents.

CONCLUSION

Acute flaccid myelitis has resurfaced in the past decade. Case reports of this condition can help doctors with timely and more accurate differential diagnosis of the disease, and to develop targeted interventions for affected individuals.

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Ahmad Bilal; concept, case management, manuscript writing
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Arshad Mehmood: case management, manuscript writing
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All the authors have approved the final version of the article and agree to be accountable for all aspects of the work.