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CEREBELLAR SYMPTOMS AFTER DENGUE FEVER WITH BRIGHT MIDDLE CEREBELLAR PEDUNCLE SIGN

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ABSTRACT

Dengue fever is a seasonal epidemic that effects population all across Pakistan every monsoon season and leads to thousands of cases every year. Dengue fever can be associated with neurological complications both during the acute stage and after recovery. These include encephalitis and hemorrhagic complications as well as late immune-related conditions such as Guillain-Barre syndrome and acute disseminated encephalomyelitis. Here we present case of a patient who developed new onset cerebellar symptoms two weeks after recovery from dengue fever, with a middle cerebellar peduncle sign on MRI Brain.

Keywords: Dengue Fever, Cerebellitis, Neurological

INTRODUCTION

Dengue fever is caused by an arbovirus with four different subtypes. Initial infection usually causes a self-limiting flu like illness with thrombocytopenia. A serious infection can result from a re-infection with a different type of dengue virus causing severe thrombocytopenia and capillary leak syndrome with massive amount of fluid lost in extravascular space resulting in hypotension and shock. Neurological complications can occur with dengue fever during acute stage such as dengue encephalitis, intracerebral hemorrhage, infarcts from hypoxia and reversible encephalopathy.¹ Immune-mediated complications from a deranged immune response to virus can occur days to weeks later that include Guillain-Barre syndrome, acute disseminated encephalomyelitis (ADEM) and acute transverse myelitis. Post dengue fever cerebellitis is a rare complication of dengue fever.² This case report intends to highlight this issue and improve patient care.

CASE REPORT

A 56-year-old male, previously on treatment for diabetes and hypertension, presented with symptoms of fever, myalgias and backache for two days during dengue epidemic season. At presentation he was fully conscious, alert and had no neurological signs or symptoms and no seizures were observed. His complete blood counts showed thrombocytopenia with platelet count of 60,000 microliter and his dengue fever screening showed IgM antibody and NS1 antigen positive. He was admitted and treated with dengue fever management protocol with management of intravascular volume with IV fluids and temperature control with acetaminophen. His ultrasound of

abdomen showed no evidence of free fluid or thickening of intestinal or gallbladder wall suggesting capillary leak. Two days after admission he started to improve. His fever spikes stopped, and his platelets count improved above 100,000/microliter. Two days later he was discharged home with instructions for prevention and monitoring for bleeding and skin rashes (petechiae) with follow up in OPD.

Two weeks after recovery from dengue fever patient presented to neurology OPD with new onset walking difficulty and falls. On examination the patient had marked ataxia with positive cerebellar signs including past pointing and nystagmus. Patient was admitted under care of neurology with new onset cerebellar syndrome. His plain CT scan of brain showed no evidence of infarct or bleed. An MRI of the brain with contrast and diffusion weighted images also showed no evidence of infarct or bleed, but T2-weighted images showed hyperintense signals in bilateral middle cerebral peduncles (MCP), as shown in Figure 1. No other abnormality was seen on MRI. Further workup including CSF Analysis, CSF for HSV PCR and oligoclonal bands, serum B12 levels, thyroid function tests and serum anti-aquaporin 4 antibodies were all reported as normal. With antecedent history of dengue fever and new onset cerebellar symptoms in absence of any cerebrovascular event a diagnosis of cerebellitis post dengue fever was made and patient was started on IV steroids (IV methylprednisolone one gram daily for five days). He showed marked improvement in one week and his ataxia and gait improved. At discharge he had Modified Rankin scale of 1. He was advised follow up in OPD.

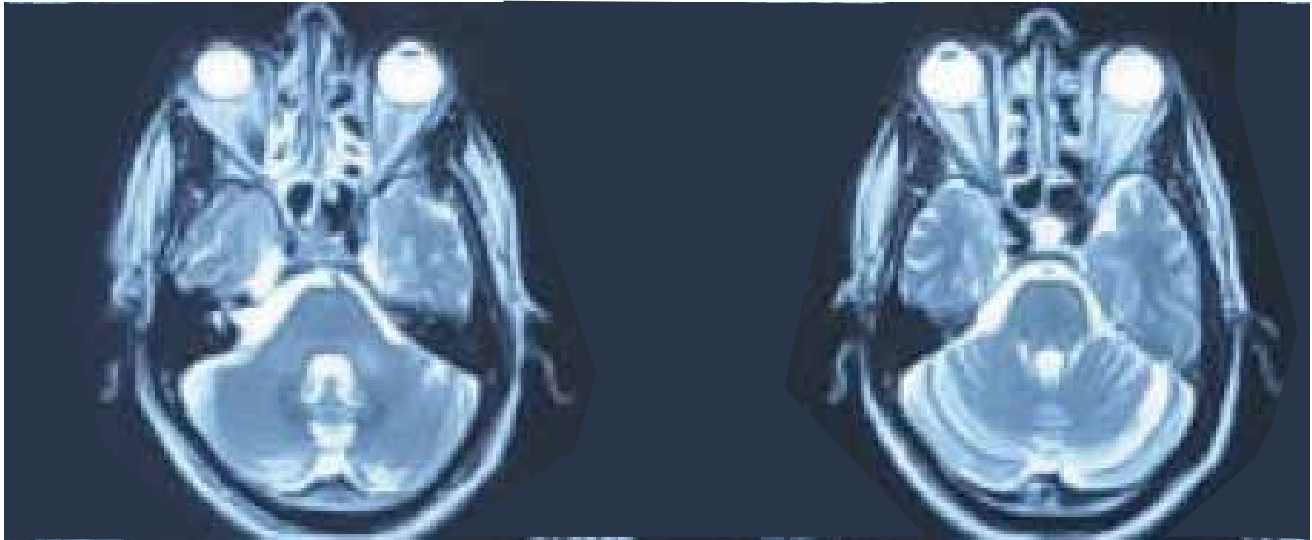


Figure 1: Hyperintense signal in middle cerebellar peduncles (more prominent on left side)

DISCUSSION

Dengue fever can have neurological manifestations in 0.5-20 % of cases.¹ Dengue fever associated cerebellitis is a rare manifestation which was reported in a total of five cases up-to 2018.²⁻⁴ All the previous cases except one had normal MRI of the brain with T2 hyperintense signal in cerebellum found in one case. The case presented in this report is the only one with bright MCP sign. Bright MCP sign is reported when there is hyperintense signal on T2-weighted images in middle cerebellar peduncle. This sign was classically described with neurodegenerative diseases, but has since been reported in various inflammatory and infective diseases.⁵ The Possible causes of bright MCP include:

- Chronic Liver Disease
- Neurodegenerative Diseases
- Leukodystrophy
- Behchet Disease
- Heroin Use
- Fragile X syndrome
- HIV
- JC virus/Zika virus/dengue virus encephalopathy

The pathology of Cerebellitis is yet unknown and can be due to direct invasion or immune-mediated reactivity. Management consists observation and use of anti-emetics /vestibular sedatives for symptom relief and can be supplemented by use of steroids when needed.

CONCLUSION

Dengue fever associated cerebellitis is a rare but recognized complication and should be kept in mind in patients who develop new onset cerebellar syndrome after dengue fever. Further studies are needed to elucidate its pathology and develop consensus on management.

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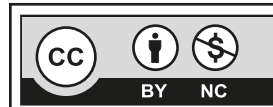
Soban Khan; concept, case management, manuscript writing

Zaid Waqar; case management, manuscript writing

Zakir Jan; case management, manuscript writing

Muhammad Tariq; case management, manuscript revision

All the authors have approved the final version of the article and agree to be accountable for all aspects of the work.



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