INTRODUCTION

Dengue viruses are members of the Flaviviridae, transmitted principally in a cycle involving humans and mosquito vectors. It is the most important arboviral infection of man, with an estimated 100 million cases per year and 2.5 billion people at risk\(^1,2\). Dengue infection can cause variety of neurological manifestations; prominent among them are convulsion, unconsciousness, myositis, spasticity and paresis. DEN-2 and DEN-3 have strong neurotropism and can cause encephalitis due to direct viral invasion of the brain. Most neurological events are seen early in the febrile phase\(^3\). There is substantial evidence in literature linked to neurological complications in severe dengue of which encephalitis, encephalopathy, mania, depression have been reported in past\(^4,5\). Post infectious sequelae of dengue as hallucinations are rare. The rarity of such an event has prompted us to report this case.

Case Report

We are reporting a 7 year old female child who presented with history of high grade fever since 2 days with no intervening afebrile period and associated with generalized body ache, anorexia and episodes of non projectile vomiting. There was no history of rash, headache, neck rigidity or photophobia. On examination she revealed temperature of 106 \(\circ\)F, pulse 114 beats per minute, respiratory rate 16 per minute and blood pressure 100/60 mmhg. Neurological examination was unremarkable.

On the second day of admission, she presented with visual hallucination. The following day, she had tactile hallucinations along with visual hallucinations. There was associated hyperactivity with reduced sleep. There was no past history of any such episode. Gradually, the hallucinations reduced in intensity but hyperactivity persisted.

Investigations revealed positive NS1 antigen, with thrombocytopenia and raised liver enzymes. She was diagnosed as dengue fever with hallucinations and was managed with fluid resuscitation and supportive treatment based on WHO guidelines for management of dengue fever. Gradually, the platelet counts increased and liver enzymes improved.

MRI brain was done to rule out underlying organic cause. Gradually her hallucinations and hyperactivity abated with complete recovery within 15 days. This unique presentation of dengue fever with visual and tactile hallucinations commencing after the onset of disease and abating during the recovery phase highlights a very firm association of neurological involvement with dengue fever and hence has prompted us to report this case.

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ABSTRACT

Dengue viruses are members of the Flaviviridae, transmitted principally in a cycle involving humans and mosquito vectors. DEN-2 and DEN-3 have strong neurotropism and can cause encephalitis due to direct viral invasion of the brain.

We are reporting a 7 year old female child who presented with history of high grade fever since 2 days and generalized body ache, anorexia and non projectile vomiting. There was no history of rash, headache, neck rigidity or photophobia. On examination she revealed temperature of 106 \(\circ\)F, pulse 114 beats per minute, respiratory rate 16 per minute and blood pressure 100/60 mmhg. Neurological examination was unremarkable.

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MRI brain was done to rule out underlying organic cause. Gradually her hallucinations and hyperactivity abated with complete recovery within 15 days. This unique presentation of dengue fever with visual and tactile hallucinations commencing after the onset of disease and abating during the recovery phase highlights a very firm association of neurological involvement with dengue fever and hence has prompted us to report this case.
The following day, she had tactile hallucinations along with visual hallucinations in the form of ants and bugs crawling on her hands. The hyperactivity increased on the third day with reduced sleep and excessive talking. These symptoms persisted even when she was not being watched. There was no history of aggression or violent behaviour, irritability or altered sensorium.

There was no past history of any such episode, personal and family history were non contributory. Gradually, the hallucinations reduced in intensity by the 5th day lasting for 10 to 15 minutes, However hyperactivity persisted till 12th day of admission.

Investigations revealed positive NS1 antigen, with platelet count of 90,000/cumm and raised liver enzyme levels; AST 1325 IU/ml and ALT 1388 IU/ml with normal electrolytes. She was diagnosed as a case of dengue fever with hallucinations. The platelet counts kept decreasing till day 3 of admission or day 5 of illness after which there was an increase in the platelet count and were normal(1,86,000/cumm) by 7th day of illness. The liver enzymes were normal by day 4 of admission. The patient was managed by fluid resuscitation and supportive treatment based on WHO guidelines for management of dengue fever.

MRI brain was done to rule out underlying organic cause and neuropsychiatric symptoms.

Gradually her hallucinations and hyperactivity abated with complete recovery within 15 days.

**DISCUSSION**

This case specially highlights a relationship between dengue fever associated with hallucinations/ behavioral disorders/ hyperactivity. Family and past history of the child was unremarkable as regards hallucinations/ behavioral disorders. There was no neurological deficit, convulsions, sensorium changes coupled with normal electrolytes and blood sugar. MRI brain was normal, hence we had a case presenting with dengue with visual and tactile hallucinations. The behavioral symptoms along with hallucinations occurred during the course of illness and revealed improvement as the patient entered the recovery phase.

No medications were initiated for these symptoms. The pathophysiology for these symptoms could have been dengue virus causing direct tissue lesion, capillary hemorrhage and metabolic disorders. It has been hypothesized that neurological involvement could be due to capillary leakage caused by the virus leading to accumulation of fluid in the extravascular space and/or cerebral edema. Recent evidences suggest that isolation of dengue virus from brain tissue indicates neurotropism, systemic infection of dengue and neuro immune mediated response.

Literature search in India revealed that 18 year old presented with hallucinations after 1 week of onset of dengue. Another adult case reported from Malaysia presented with auditory and visual hallucinations one day after the onset of dengue fever. The largest database is from Thailand which has not reported any hallucinations with dengue.

This unique presentation of dengue fever with visual and tactile hallucinations commencing after the onset of disease and abating during the recovery phase highlights a very firm association of neurological involvement with dengue fever.

**CONCLUSION**

It is pertinent to create awareness and sensitization about neurological involvement and incorporate in our history taking and daily assessment of the patient till recovery. However, baseline investigations to rule out other organic causes should be performed. No anticonvulsant/ antipsychotic therapy should be initiated unless warranted and a regular follow up after discharge would be essential.

**References**

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