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Case Report Open Access

Dengue Cerebellitis in An Adult Male - A Case Report & Literature Review

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Abstract

Objectives: Purely cerebellar syndromes complicating dengue fever in adult patients with risk factors for stroke are rare and to date has not yet been reported in Philippine literature. Our literature review identified only 5 other similar cases. This report aims to educate physicians of this rare neurologic complication of dengue that presented as a stroke but has a relatively benign course.

Case: This is a case of an adult hypertensive and dyslipidemic male with an active dengue fever. On the fourth day of illness, he suddenly presented with cerebellar symptoms. Neuroimaging done was negative and patient was treated accordingly. All of his symptoms resolved spontaneously within 2 weeks.

Discussion: In multiple case reports, patients with dengue cerebellitis all recover spontaneously without per-manent neurological sequelae within 2 days to 2 weeks.

This was consistent with the presentation and course of our patient's illness.

Conclusion: As far as we know, this is the first reported pure cerebellar neurologic complication of dengue in our country. Physicians should be made aware of such complications as dengue is epidemic in our setting. Since dengue causes a hyper-coagulable state with a higher risk for stroke, stroke should still be ruled out by neuroimaging.

Keywords: Dengue cerebellitis; Dengue neurologic complications; Pure cerebellar symptoms of dengue

Introduction

The incidence of dengue fever has grown exponentially around the globe in recent years. In the Philippines, dengue has recently been declared as an epidemic as cases of the mosquito-borne disease continued to rise. According to the Department of Health (DOH), 622 people have died due to dengue as of July 20, 2019. These deaths came from the 146,062 dengue cases from January to July – a number 98% higher than the recorded incidence during the same period last year [1]. With the escalating trend of dengue infection, physicians should be made aware of the atypical manifestations and complications of the disease. We report a case of dengue-associated cerebellar syndrome in an adult male patient with risk factors for stroke to educate the community of this rare neurological complication and to guide them in its management. A written informed consent was signed by the patient permitting the authors to submit this report for publication in print and electronic form.

Case Report

A 36-year-old male, known hypertensive and dyslipidemic presented to the emergency department of a local hospital with a 1 day history of high-grade fever, chills, myalgia, and arthralgia but with no warning signs such as diarrhea and vomiting. Serum NS1 was positive hence a diagnosis of dengue fever was made and he was managed with intravenous fluids in the ward. A series of full blood count monitoring was also done.

On the 3rd day of his illness, while still admitted at the local hospital, he suddenly presented with slurring of speech and blood pressure as high as 160/90 mmHg. A preliminary diagnosis of acute cerebrovascular disease (CVD) infarct was entertained. A brain computed tomography (CT) scan was requested which showed normal results. He was then given anti-hypertensives and hydration and serial blood count monitoring was continued.

On the 4th day of his illness, there was persistence of the slurring of speech but was now accompanied by imbalance while walking. He was advised neurologic consult which was unavailable at the first hospital hence he opted to transfer to our institution.

On initial examination, his blood pressure was 150–160/80–90 mmHg. Other presenting vital signs including glucose level, were stable. Pertinent systemic findings include pink flushed skin and multiple petechia. Pertinent neurologic findings include scanning speech, non-latent, non-fatiguable, bilateral horizontal nystagmus, ataxic wide-based gait, and overshooting elicited by positive wrist tapping and positive for arm pulling test. There was absence of craniopathies, motor weakness, sensory deficits and long tract signs. A preliminary diagnosis of acute cerebellar infarct was entertained and neuroimaging was done. The magnetic resonance imaging (MRI) of his brain was normal. No abnormal signals were seen in his cerebellum, cerebellopontine angle, midbrain, and pons. (Figure 1A and 1B) Cranial magnetic resonance angiography (MRA) was also normal with no evidence of aneurysm, stenosis or vascular malformations (Figure 1C).

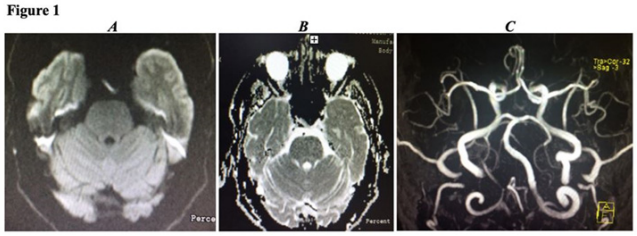

Figure 1: Figure 1A-Diffusion-rated magnetic resonance imaging (DWI) and Figure 1B- Apparent diffusion coefficient (ADC) of the plain cranial MRI of our patient taken 48 hours post onset of cerebellar symptoms and on day 4 of illness, Figure 1C- Magnetic resonance angiogram (MRA) of the patient taken at the same time as the MRI showed no evidence of aneurysms nor stenosis but showed a hypoplasic right vertebral artery and posterior communicating artery.

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Lumbar puncture with cerebro-spinal fluid (CSF) analysis as well as other tests such as Immunoglobulin M & G were no longer done due to the rapidly improving neurologic symptoms of the patient. His dyslpidemia and hypertension were managed accordingly with medications. His dengue was managed with IV fluid hydration and serial full blood count monitoring for the remainder of the hospital stay. Discharge neurologic exam revealed regression of the cerebellar symptoms of nystagmus, ataxia, wide-based gait and overshooting. Scanning speech was still present however there was marked improvement. He was discharged with a modified Rankin scale (mRS) of 1. Two weeks after discharge, during follow-up there was complete and spontaneous resolution of all cerebellar symptoms and patient now had a modified Rankin scale (mRS) of 0.

Discussion

Dengue is an acute viral illness spread by Aedes mosquitoes. Presenting features vary from non-specific flu-like symptoms to hemorrhagic fever and shock. Acute onset fever, muscle and joint pain, myalgia, cutaneous rash, hemorrhagic episodes, and circulatory shock are among the commonly seen symptoms [2]. Atypical symptoms such as neurological manifestations, myocarditis, acute kidney injury and cholecystitis are hardly recognized [3].

Dengue fever can manifest with neurological features ranging from 0.5% to 21% of in-hospital cases. Neurological manifestations associated with dengue fever can broadly be classified into encephalopathy, encephalitis, neuromuscular, and neuro-ocular complications. Among these manifestations, encephalopathy, encephalitis, Guillain-Barré syndrome, myositis, and maculopathy are commonly reported [4].

In multiple case reports, [5-7] patients with dengue cerebellar syndrome all recover spontaneously without permanent neurological sequelae and the onset of symptoms ranged from 2 days to 2 weeks. Ataxia and bilateral nystagmus were present in all cases, and the cerebellar signs resolved from 1 week to 2 months [7]. This was consistent with the presentation and course of our patient's illness. Five out of the six known cases, including that of our patient had unremarkable neuroimaging findings. A summary of the cases of dengue cerebellar syndromes are illustrated in (Figure 2).

	Age	Sex	Phase of Presentation	Cerebellar Sign	Dengue Serology	Cranial MRI	Duration of Complete Recovery
Weeratunga et al.[5]	40	Female	Critical	Dysarthria, bilateral nystagmus, bilateral limb and gait ataxia	IgM positive	Normal	2 weeks
Weeratunga et al.[5]	28	Male	Post Recovery	Bilateral vertical and horizontal nystagmus, gait ataxia	IgM positive	Normal	1 week
Weeratunga et al.[5]	25	Male	Febrile	Bilateral nystagmus, dysmetria, severe ataxia	IgM positive	Bilateral and symmetrical T2 hyperintense lesions in the cerebellum	2 weeks
Withana et al.[6]	45	Female	Febrile	Scanning dysarthria, horizontal nystagmus, bilateral dysmetria, dysdiadochokinesia more prominent on the right, ataxia, tendency to fall to the right	NS1 positive and IgM positive	Normal	17 days
Khoo[7]	60	Male	Recovery	Nystagmus in all directions, bilateral dysmetria more prominent on the left, ataxia	IgM positive	Hyperintense signals in the right corona radiate and left frontal lobe suggestive of his previous stroke	34 days
Apostol et al.	36	Male	Febrile	Scanning speech, bilateral horizontal nystagmus, ataxia, positive for wrist tapping and positive for arm pull test	NS1 positive	Normal	2 weeks

Figure 2: Summary of the 6 cases of dengue cerebellar syndrome.

The exact pathology of neurological syndromes in dengue fever is yet to be established. However, due to the positive serum Immunoglobulin M (IgM) of the subjects, we can conclude that this may be immune-mediated. Another possible pathology is the direct invasion of the virus. However, the predilection for the cerebellum is not yet known.

As far as we know, this is the first reported pure cerebellar neurologic complication of dengue in the country. We therefore conclude that physicians should be made aware of such complications as dengue is epidemic in our setting. Since dengue causes a hyper-coagulable state with the risk of stroke 2.49 times higher compared to patients who did not have dengue, [8] stroke should still be ruled out by neuroimaging in dengue patients who had sudden onset of neurologic symptoms.

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Disclosure

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References

1. Agrupis, Ylade, Aldaba, Lopez AL, Deen J (2019) Trends in dengue research in the Philippines: A systematic review. PLOS Neglected Tropical Dis 13: e0007280.
2. New ed. Geneva, Switzerland: World Health Organization (2009). World Health Organization (WHO). Dengue- Guidelines for Diagnosis, Treatment, Prevention and Control.
3. Gulati S, Maheshwari A (2007) A typical manifestations of dengue. Trop Med Int Health 12:1087-1095.
4. Carod-Artal FJ, Wichmann O, Farrar J, Gascon J (2013) Neurological complications of dengue virus infection. Lancet Neurol 12:906-919.
5. Weeratunga PN, Caldera HP, Gooneratne IK (2014) Spontaneously resolving cerebellar syndrome as a sequelae of dengue viral infection: A case series from Sri Lanka. Pract Neurol 14: 176-178.
6. Withana M, Rodrigo C, Chang T (2014) Dengue fever presenting with acute cerebellitis: A case report. BMC Res Notes 7:125.
7. Khoo, Soong C (2018) "Dengue cerebellitis: A case report and literature review." The American J case reports 19: 864-86.
8. Hao-Ming Li, Ying-Kai Huang, Yuan-Chih Su, Chia-Hung Kao (2018) Risk of stroke in patients with dengue fever: a population-based cohort study. Canadian Medical Association J 10: E285.