

Dengue Fever Presents As Hypokalemic Quadriparesis

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Abstract- Dengue is the most important mosquito-borne, arbovirus infection found worldwide. Clinical presentation varies from a flu-like illness to a potentially fatal dengue hemorrhagic fever and dengue shock syndrome. Dengue virus has been regarded as a nonneurotropic virus. However, there are reports describing neurological involvements in dengue virus infection. The neurological involvement in dengue virus infection includes encephalitis, acute disseminated encephalomyelitis, transverse myelitis, and Guillain–Barre syndrome. The neurological spectrum of dengue patients has been limited because of small number of case reports, and lack of further workup such as imaging, and neurophysiologic studies. There are only a few isolated case reports and case series documenting acute pure motor quadriparesis in dengue fever. We report acute pure motor reversible quadriparesis due to hypokalemia in a dengue patient. Physicians in the endemic area should be aware of such association of acute pure motor reversible quadriparesis with dengue fever.

Index Terms- Dengue fever, flaccid paralysis, hypokalemia, quadriparesis

I. INTRODUCTION

Acute onset hypokalemic flaccid quadriparesis is rare presentation of dengue fever, not yet widely recognised. Only few cases are reported from various institutes worldwide and also from India. Awareness of this condition will enable physicians to keep a possibility of hypokalemia in patients of dengue fever presenting with paresis or quadriparesis and to manage early and effectively.

II. CASE REPORT

A 25 year old young male was admitted to our hospital with chief complaints of weakness of both lower limb and upper limbs for 3 day. He had the history of high- grade fever with generalised body ache for 5 days which responded to antipyretic. The patient reported that his weakness started first from lower limbs, and within hours it progressed to involve upper limbs also. There was no history of neck pain, sensory symptoms in limbs, recent vaccination, diarrheal illness, recent vigorous exercise or heavy carbohydrate meal. On general

examination, he was afebrile and rest of his vitals were normal. On neurological examination, he had grade 0/5 power in both upper and lower limb with absent deep tendon reflexes. There was no cranial nerve involvement, sensory deficit or any evidence of bladder, bowel, or bulbar dysfunction. His single breath count was 40. There was no past or family history of similar weakness or any episodic weakness. On admission BP-120/80 mm of Hg, Pulse rate 65/ min, Respiratory rate- 16/min, Blood investigations on admission day : [Table 1] hemoglobin was 15.7 g/dl, total leucocyte count $4.3 \times 10^3/\mu\text{l}$ with 75.7% polymorphs, 16.5% lymphocytes and MCV 88.4. The platelet count was 76,000/mm. His blood biochemistry revealed serum potassium 2.36 mmol/l, sodium 134.09 mmol/l, and a Serum creatinine 1.01. SGOT 350 U/L, SGPT 105.4 U/L, Alkaline phosphatase 54 U/L. Bilirubin Total 0.40. LDH 1261 U/L. Total protein 6.96, Serum albumin 3.76. Fever Profile, Viral Marker. On next day Dengue NS1 comes reactive . Treatment given with intravenous Fluid, antipyretics and Potassium Infusion for hypokalemia. There were no sign or symptoms of bleeding. All reports are mentioned below as per date in **Table1**.Thyroid function report was normal.

Table 1

Parameter	15/11/21	16/11/21	17/11/21	18/11/21
Hb	15.7	16.3	16.3	16
TLC	4.3	5.2	5670	4600
MCV	88.4	88.5	90.8	90.2
HCT	48.6	50.2	51.5	49.8
PLT	76000	120000	65000	61000
Urea	9.6	16	12.7	19.9
Na	134.0	140	131.3	132
K	2.36	3.8	4.62	4.3
SGOT	350	391	374	278
SGPT	105	104	108	107
T.Bil	0.40	0.3	1.05	0.8
AKP	54	59	44	54
d.Dimer	1898	873		
LDH	1261	1369		
Sr.Albumin	3.75	3.2	3.44	3.5
Sr.creat	1.01	1.2	0.94	1.03

Table 2 16/11/21

Parameter	Result
Dengue NS1	Reactive
HIV 1 and 2	Non Reactive
HBsAg	Negative

Table 3 CSF Study

Bio Suger	84
M. Protein	64
ADA	0.0
TLC	03
Lymphocytes	03/03

CSF Culture – No growth

FIGURE 1 Date- 15/11/2021

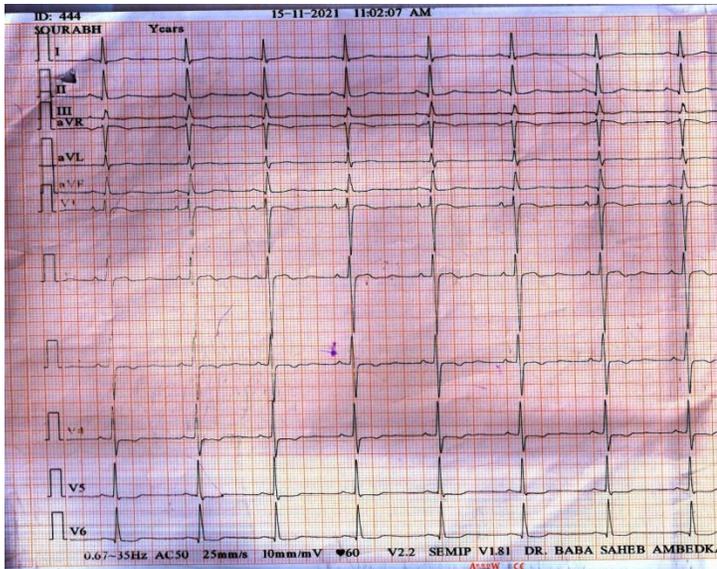


FIGURE 2 Date- 17/11/2021

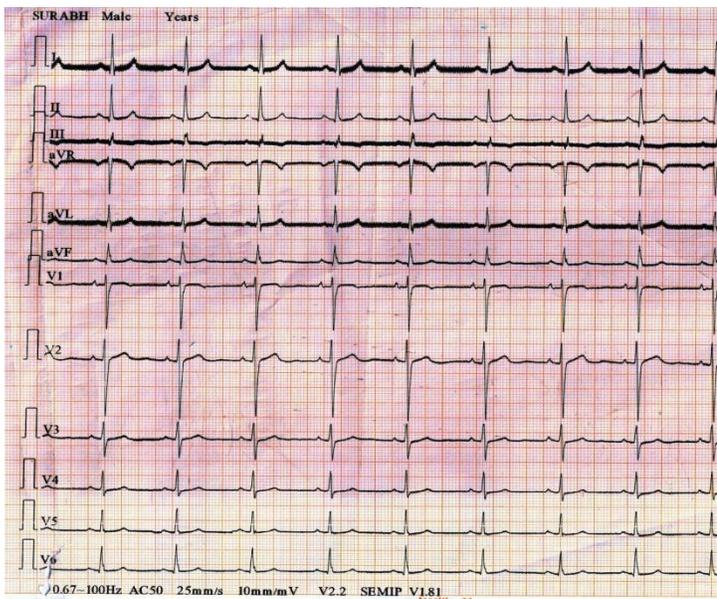


FIGURE 3

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S.NO	325	DATE	20/11/2021
NAME	MR SAURAV	AGE & SEX	25/F
REFERRED BY:	BSA HOSPITAL		
NCV ALL FOUR LIMBS			
MOTOR NERVE CONDUCTION FINDINGS: Normal CMAPs, distal latency and conduction velocities of bilateral median, common peroneal, posterior tibial and ulnar nerves. No Conduction block was noted.			
SENSORY NERVE CONDUCTION FINDINGS: Normal SNAPs and SNCVs in sural, median and ulnar nerves.			
H-reflex normal in both sides.			
E-WAVES: Normal f waves in all of the nerves tested.			
IMPRESSION: THIS NERVE CONDUCTION STUDY IS NORMAL.			
ADVISE: Please correlate results with clinical conditions.			


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His nerve conduction velocity (NCV) was completely normal [Figure 3 date 21/11/2021]. ECG [Figure 1 date 15/11/2021] showed prominent U waves. CSF Study was normal [Table 3]. Viral Markers were Non Reactive [Table 2]. His dengue NS1 antigen ELISA Reactive. A diagnosis of dengue fever with thrombocytopenia with hypokalemic motor paralysis was made. His motor power improved rapidly and on second day his power was completely normal. On the second day of treatment, his repeat serum potassium was 3.8 meq/l. latter on serum potassium become 4.3 on 3rd day. ECG [Figure 2 Date 17/11/2021] was normal. Patient was kept under observation as no signs of bleeding diathesis were present. At the end of first week, his platelet count became normal. The patient was discharged in stable condition without any neurological deficit on 7th day of admission with advice for follow-up.

III. DISCUSSION

Madi, Deepak et al mentioned that Dengue is a nonneurotropic virus. There are however recent reports on neurotropism or neuroinvasion of dengue virus infection¹.

The clinical picture in our patient simulated Guillain–Barre (GB) syndrome. The presence of fever at the time of weakness, normal nerve conduction studies and the absence of albumin cytological dissociation and response with potassium supplement excluded the possibility of GB syndrome. Familial periodic paralysis was unlikely because there was no family history of episodic motor weakness and this being their first episode

J.M.K.Murthy et al states Dengue fever can lead various neurological complications such as Guillain Baree syndrome, encephalitis, meningitis, hypokalemic paralysis and even stroke both ischemic and hemorrhagic.²

Munish Gutch et al report a case of dengue fever with hypokalemic quadriparesis which resolve with potassium supplementation and discharge on fifth day.³

J kalika et al found dengue virus infection may results in acute pure motor quadriplegia due to myositis

Jha and Ansari reported three confirmed cases of dengue infection causing acute reversible-hypokalemic pure motor quadriparesis⁵.

Ravindra kumar Garg et al found that 15 (51.7%) patients had secondary causes of hypokalemic paralysis and 14 patients (42.3%) had idiopathic hypokalemic paralysis. Thyrotoxicosis

was present in six patients (20.6%), dengue infection in four patients (13.7%), distal renal tubular acidosis in three patients (10.3%), Gitelman syndrome in one patient (3.4%), and Conn's syndrome in one patient (3.4%). Preceding history of fever and rapid recovery was seen in dengue infection-induced hypokalemic paralysis. All patients had recovered completely following potassium supplementation.⁶

In our case a young male presented with quadriparesis on work up we found he had dengue fever related hypokalemic quadriparesis and excude other causes as explained earlier. So we recommend to keep possibility of dengue fever with hypokalemia, in patients presenting with acute onset quadriparesis especially in dengue endemic region.

ACKNOWLEDGMENT

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REFERENCES

- [1] Madi, Deepak et al. "Dengue encephalitis-A rare manifestation of dengue fever." Asian Pacific journal of tropical biomedicine vol. 4, Suppl 1 (2014): S70-2. doi:10.12980/APJTB.4.2014C1006
- [2] Murthy J. Neurological complications of dengue infection. *Neurol India* [serial online] 2010 [cited 2021 Dec 8];58:581-4. Available from: <https://www.neurologyindia.com/text.asp?2010/58/4/581/68654>
- [3] Gutch M, Agarwal A, Amar A. Hypokalemic quadriparesis: An unusual manifestation of dengue fever. *J Nat Sci Biol Med.* 2012;3(1):81-83. doi:10.4103/0976-9668.95976
- [4] Kalita J, Misra UK, Mahadevan A, Shankar SK. Acute pure motor quadriplegia: is it dengue myositis? *Electromyogr Clin Neurophysiol.* 2005 Sep-Oct;45(6):357-61. PMID: 16315973
- [5] Jha S, Ansari MK. Dengue infection causing acute hypokalemic quadriparesis. *Neurol India* 2010;58:592-4.
- [6] Garg RK, Malhotra HS, Verma R, Sharma P, Singh MK. Etiological spectrum of hypokalemic paralysis: A retrospective analysis of 29 patients. *Ann Indian Acad Neurol.* 2013;16:365–70. [PMC free article] [PubMed] [Google Scholar]

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