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DENGUE ENCEPHALITIS- A RARE MANIFESTATION OF DENGUE

Internal Medicine

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ABSTRACT

We report a case of dengue fever with features of encephalitis, a14 years old female, with no comorbidities presented with history of fever for 3 days, vomiting, convulsion and altered sensorium for 1 day. The diagnosis of dengue confirmed by serum antibodies Ig-M to dengue and also NS-1 positivity. MRI showed bilateral thalamic haemorrhagic infarct which is typical for arboviral encephalitis. Acute viral encephalitis can present with varied manifestation and dengue should be considered as one of the important cause especially in countries like India after excluding other common causes.

KEYWORDS

dengue encephalitis, thalamic hyper density, arbovirus

INTRODUCTION

Dengue encephalitis as a manifestation of a dengue is a rare entity, the incidence being about 4-5 % only. Dengue encephalitis can present with different manifestations, the commonest being alteration of consciousness seen in 52.3 percent cases. Others include meningitis, seizures, acute flaccid paralysis, myositis[1].It is different from dengue encephalopathy which is secondary to multisystem involvement in dengue[1]. We present here a case of dengue encephalitis with peculiar MRI findings.

Case Report:

We presented case of 14-year female who got first time admitted in our hospital on 09-08-2022 with complains of high grade fever associated with chills for 3 days. She had multiple episodes of vomiting, headache and generalized tonic clonic convulsion, 2-3 episodes one day before admission.

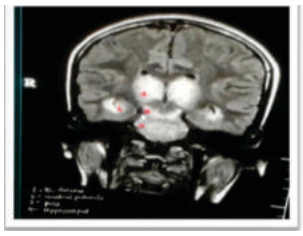
She was brought in casualty in unconscious state. On admission she was febrile, no skin rash or mucosal bleeding was present. Patient was hemodynamically stable, but minimally responding to deep painful stimulus however there was no neck stiffness. Antibiotics started in view of suspected meningitis.

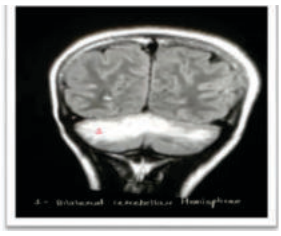
Patient baseline reports were available suggestive of throm bocytopenia (Hemoglobin-9.7, hct-30.1, Total Leukocyte Count-2410, Platelet-83000). Fever profile-Dengue IgM and NS-1 antigen Positive. Blood urea nitrogen was 09 gm/dl and serum creatinine was 0.6mg/dl. The liver enzymes SGOT-127U/L, SGPT-64 U/L. Sodium 137mEq/L and potassium 4.1 mEq/L. X-Ray chest and ultra sonography were normal. CT brain was done urgently suggestive of symmetrical hypodensity in bilateral thalamus. No papilledema was present. MRI done on day 2 of admission which showed hyperdense lesions in bilateral thalamus, midbrain ,pons, cerebellum, features suggestive of necrotizing encephalitis secondary to dengue. As no improvement in her sensorium, lumbar puncture was done. CSF sent for PCR of common organism causing encephalitis and was negative. EEG done suggestive of diffuse encephalopathy. The patient was managed conservatively with fluid support and continuous monitoring. Injection mannitol and Dexamethasone was given and antibiotics continued. Repeat CT brain was done, showed resolution of old encephalitis. Physiotherapy continued and patient sensorium improved gradually and she was discharged after 5 weeks.

Reports-

CT BRAIN PLAIN 9/08/2022- Symmetrical hypodensity in bilateral thalamus with bilateral maxillary sinusitis.

MRI BRAIN (P+C) 10/08/2022-Ill-defined T2/FLAIR hyperintense, T1 hypodense areas in bilateral thalamus, bilateral cerebral peduncle, midbrain, pons, bilateral medial temporal region and bilateral cerebellar hemisphere showing restriction diffusion with few areas showing post contrast enhancement. Above features are s/o necrotizing encephalitis with haemorrhagic transformation secondary to dengue.





CT BRAIN(P+C) :18/08/2022- Symmetrical area of hypodensity in bilateral thalami and right cerebral peduncles and midbrain, bilateral pons, bilateral temporal region and right cerebellar hemisphere with mildly bulky thalamus.

CT BRAIN :21/9/2022- subtle hyper density in bilateral thalamus suggestive of remission or resolution of old encephalitis and right maxillary sinusitis.

CSF ANALYSIS:11/08/2022
Colour- Colourless
Appearance- Clear
Total cells- 5 cells/ cubic mm
Differentials- Lymphocytes 80%, monocytes 20%, RBC occasional
Protein -88.50 mg/dl
Glucose-70.2 mg/dl
Gram stain –Occasional pus cells seen, no microorganism seen
ZN Stain –Acid fast bacilli not seen
ADA- 1.7 (WNL)
CSF BIOFIRE: 12/8/2020- common viruses like CMV, EBV, Adenovirus, HSV 1 and 2, Parvovirus 19,Varicella zoster, enterovirus, parechovirus, HHV 6 ,HHV 7 were negative.

Bacteria like streptococcus pneumoniae, Neisseria meningitidis, Haemophilus influenza, Grp. B Streptococci, Listeria monocytogenes and E coli were negative. Fungi like cryptococcus neoformans Not detected

EEG 11/8/2022-Non epileptiform activity -Continuous generalized Delta theta (2-7 Hz) slowing was seen in bilateral cerebral hemisphere. No epileptiform activity. EEG s/o moderate to severe diffuse encephalopathy

DISCUSSION:

Like dengue virus, patients with yellow fever, Japanese encephalitis, West Nile virus can also present with similar encephalitis picture[1]. The pathogenesis of dengue encephalitis has been postulated to be the transient compromise in the integrity of blood brain barrier with infiltration of dengue virus infected macrophages in CNS. Dengue is considered as non- neurotropic virus, however few patient can have direct neuronal injury due to virus. Vasculitis with resultant fluid extravasation has a role in its manifestation[2]. Reported mortality and morbidity due to dengue encephalitis is low and most patients recover

fully like our case. Imaging features alone are not diagnostic. Clinical features along with bilateral thalamic involvement and positive dengue serology is diagnostic[3], as discussed above our patient had all 3 features. However other causes must be excluded like in our patient CSF PCR was done for common bacteria ,viruses and fungi which was negative..

CONCLUSION:

Our case highlights the importance of considering Dengue encephalitis in the differential diagnosis of acute viral encephalitis especially in countries like India where dengue has assumed epidemic proportions. There can be extensive involvement of brain parenchyma in dengue both by direct injury or indirectly secondary to shock and multiorgan failure.

Footnotes:

Financial and competing interests' disclosure

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

No writing assistance was utilized in the production of this manuscript.

Ethical conduct of research:

A written informed consent was obtained from our patient to share and publish this case presentation.

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