

Images in...

MRI features of Japanese encephalitis

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DESCRIPTION

A 15-year-old man presented with high-grade fever, headache and vomiting for last 5 days. He developed recurrent convulsions and altered sensorium during course of illness. The attendant denied history of rash, arthralgia, retroorbital pain, cough, haemoptysis, jaundice and preceding vaccination. There was no history suggestive of motor deficits and tuberculosis. The general examination was negative for lymphadenopathy and thyroid enlargement. The patient was in unconscious state (E2, V1, M3). The motor system revealed cogwheel rigidity, predominantly in right upper limb. He had masked facies. The plantar response was flexor on both sides. The haematological parameters, liver function test, renal parameters, thyroid function evaluation and vasculitic study including antinuclear antibody and rheumatoid factor did not reveal abnormality. The serum and cerebrospinal fluid analysis for dengue, chikangunia, cytomegalovirus, Epstein-Barr virus, herpes simplex virus and *Mycobacterium tuberculosis* depicted negative results. The ELISA for IgM antibody for Japanese

encephalitis virus was positive in high titres 27.75 pbu (negative <9 pbu). MRI on T2 fluid attenuated inversion recovery demonstrated bilateral symmetrical hyperintense signals in thalamus, basal ganglia and mid-brain (figures 1 and 2). The patient was treated conservatively with supportive measures in intensive care unit. He received injection phenytoin initially in loading dosage (18 mg/kg body weight), followed by maintenance dose of 6 mg/kg body weight in 8 hourly injections. The clinical condition improved remarkably and at subsequent follow-up after 3 months, he regained perfect premorbid state. The CT of brain revealed bilateral hypodense lesions in thalamus, basal ganglia, midbrain, pons and medulla in more than half of the patients suffering from Japanese encephalitis.¹ The MRI has proven to be more sensitive in demonstrating hyperintense signals, bilaterally in thalamus, midbrain and cerebral hemispheres.² The typical MRI findings are useful in differentiating from other viral encephalitis including herpes simplex encephalitis which showed predominant involvement of fronto-temporal regions.³

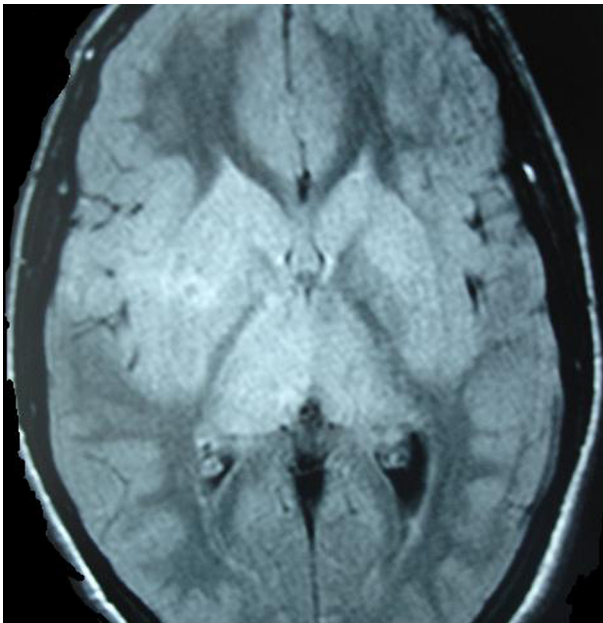


Figure 1 MRI, T2 FLAIR (fluid attenuated inversion recovery) depicting symmetrical hyperintense signals in bilateral thalamus and basal ganglia.

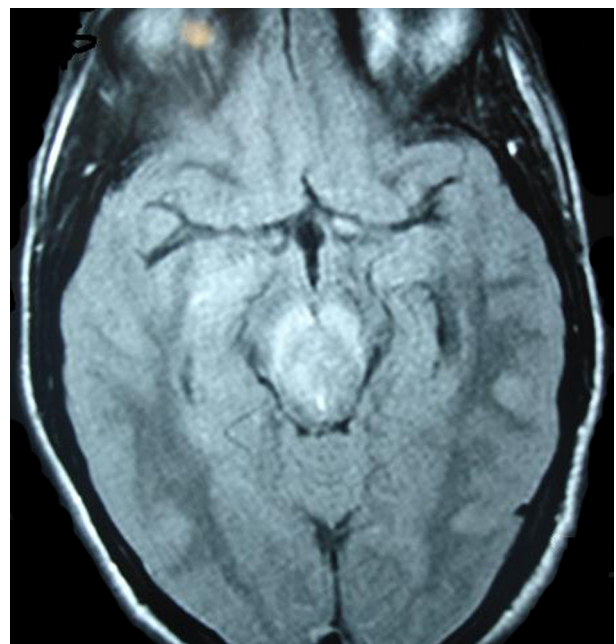


Figure 2 T2 FLAIR image demonstrated hyperintense signal changes in midbrain.

Learning points

- ▶ Japanese encephalitis still remains significant public health problem in South East Asian countries including India.
- ▶ The MRI is an important tool for establishing the diagnosis of Japanese encephalitis.
- ▶ MRI findings of Japanese encephalitis help to differentiate from other viral encephalitis, encephalopathy and acute disseminated encephalomyelitis.

Competing interests None.

Patient consent Obtained.

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