



Case Report

Distinct MRI Findings of Nipah Encephalitis: Report of Two Cases

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Abstract

Nipah virus, a zoonotic paramyxovirus transmitted by specific types of fruit bats, causes an occasional outbreak of encephalitis in Bangladesh and India. We are reporting two cases of Nipah encephalitis with distinct MRI findings.

Keywords: Nipah encephalitis, MRI findings, Bangladesh.

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Introduction

Nipah virus (NiV), a zoonotic paramyxovirus, is transmitted by specific types of fruit bats, especially *Pteropus* spp. NiV infection is associated with ingestion of raw date palm sap and half-eaten fruit contaminated with NiV-infected fruit bat body fluids in Bangladesh and India. Human to human transmission is also reported.^{1,2} Autopsy findings demonstrated that NiV affects the endothelium of medium and small-sized blood vessels, resulting in diffuse vasculitis and vasculitis-induced thrombosis of different vital organs, including brain, respiratory tract, heart, and kidneys. However, extensive thrombosis and parenchymal necrosis are most notably found in the central nervous system.³ We are reporting distinct MRI findings of two confirmed cases of Nipah encephalitis.

Case report

Our first patient, a 25-year-old female from Dhamurhut, Naogaon, was admitted to the

Department of Medicine of Rajshahi Medical College Hospital on 29th January 2019 with a history of fever & headache followed by unconsciousness for one day. She consumed raw date palm sap about a week ago. She was diagnosed as a case of NIPAH encephalitis clinically. She was isolated and supportive treatment was started. Blood and CSF samples were taken and sent to IEDCR, Bangladesh, and ICDDRDB for ELISA and RT PCR for NiV.

MRI of the brain was done the next day, which revealed multiple small, discrete, hyperintense foci without any perilesional edema or mass effect involving all lobes of both cerebral hemispheres and genu of the corpus callosum; most prominent in T2, fluid-attenuated inversion recovery (FLAIR) and diffusion-weighted imaging (DWI) with restricted diffusion on DWI. Both ELISA and RT-PCR for NiV were positive, thus confirming our diagnosis of Nipah encephalitis. She died two days later.

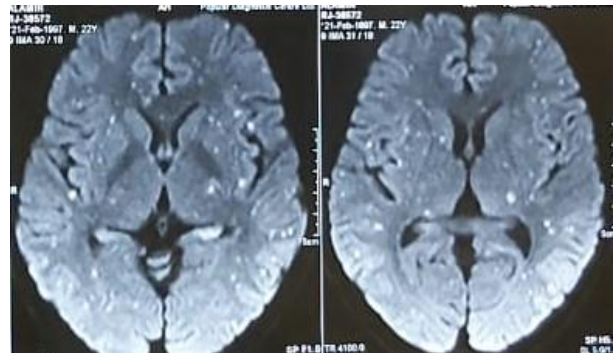
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Our second patient, a 28-year-old male, a new police recruit in Bangladesh Police Academy, Rajshahi, went to a private chamber of a specialist physician on 19th February 2019 with a history of fever, headache, and confusion for two days. He gave a history of raw date palm sap consumption before entering the police academy eight days back. He was suspected of Nipah encephalitis and was admitted to the Department of Medicine of Rajshahi Medical College Hospital. Blood and CSF samples were taken and sent to IEDCR, Bangladesh, and ICDDR, Bangladesh, for ELISA and RT-PCR for NiV. MRI was done the next day, showing extensive, small, discrete, hyperintense foci without any perilesional edema or mass effect involving the subcortical and deep white matter of bilateral cerebral and cerebellar hemispheres,

splenium of the corpus callosum; most prominent in T2, FLAIR, and DWI with restricted diffusion on DWI. Both ELISA and RT-PCR for NiV were positive, thus confirming our diagnosis of Nipah encephalitis. He was referred to a higher center in Dhaka. He was intubated, and supportive treatment was given. He died three weeks later.



Discussion:

MRI findings in both the acute and later phases of encephalitis were similar; the main feature of both phases was the presence of discrete high-signal-intensity lesions, measuring 2-7 mm, disseminated throughout the brain, mainly in the subcortical and deep white matter of the cerebral hemispheres causing neither mass effect nor cerebral edema.⁴ Similar MRI findings of Nipah encephalitis was reported by MA et al from Bangladesh in a case report in 2019.⁵

Conclusion:

MRI findings of Nipah encephalitis have a distinct pattern that may aid clinicians in differentiating it from other common encephalitides, i.e., herpes simplex and Japanese B encephalitis. Microbiological diagnosis of NiV is available in only two specialized centers in Dhaka, Bangladesh. During the Nipah season, in patients with typical clinical presentation, MRI can be a handy tool to make an early diagnosis of NiV, enabling physicians to isolate the patient and reduce the chances of person-to-person transmission of NiV.

References

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