

CASE REPORT

HERPES ENCEPHALITIS-IMAGING: CASE REPORT

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HOW TO CITE THIS ARTICLE:

BulabalKarpagam, Prakash, Hemhnath.“Herpes Encephalitis - Imaging: Case Report”. Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 17, April28; Page: 4437-4440, DOI: 10.14260/jemds/2014/2455

ABSTRACT: Encephalitis refers to an acute, inflammatory process affecting the brain. An infection by a virus is the most common cause of encephalitis and treatable with early diagnosis. Cross sectional imaging modalities such as CT and MRI shows classic features, hence useful in establishing the diagnosis.

KEYWORDS: Encephalitis MRI, Herpes encephalitis imaging, Herpes encephalitis, differential diagnosis.

CLINICAL SUMMARY:40years old male patient attended emergency department with history of altered sensorium. Had history of fever for 5days, loose stools for 3days associated with giddiness. On examination patient was sluggish for stimuli.Initial CT done outside institute on 3rd day of illness was reported as normal. CT was done on 5th day followed by MRI in our Institute.CSF analysis as was negative for AFB,and antibody assay for HSV IgG-antibody was positive and negative for HSV2, IgM HSV1, HSV2.

Imaging Findings:

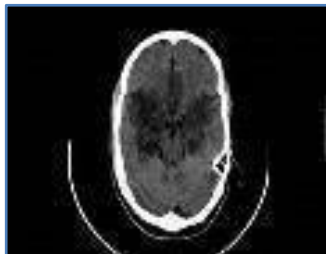


Fig. 1: CT Axial study shows bilateral symmetrical involvement of median temporal, bifrontal lobes.

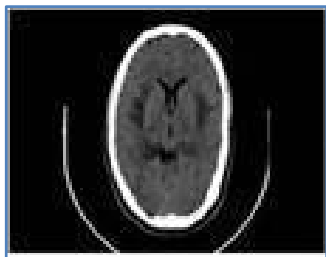


Fig. 2: CT axial study shows normal basal ganglia

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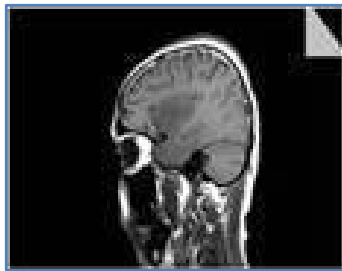


Fig. 3: Sagittal T1 MRI study shows hypointense signal involving the hippocampal and para hippocampal gyrus

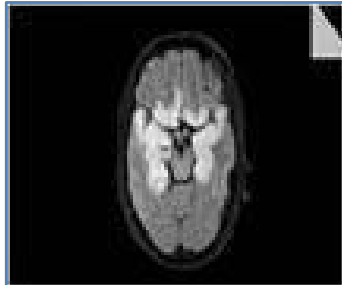


Fig. 4: Flair MRI sequence shows hyperintense signal of bilateral basi temporal and frontal lobes

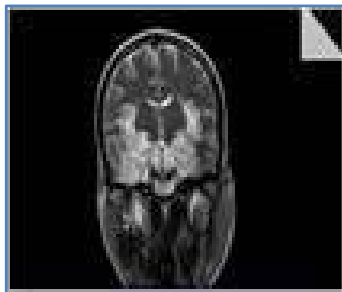


Fig. 5: T2 sequence coronal shows normal basal ganglia and the pons

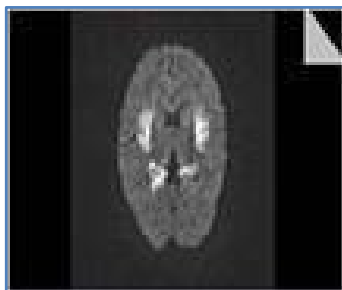


Fig. 6: there is diffusion restricted signal sparing the basal ganglia



Fig. 7: MRA shows normal study pattern of circle of willis

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Differential Diagnosis: Limbic encephalitis [LE] represents para neoplastic syndrome caused due to non-CNS primary tumors resulting in functional and imaging changes in the limbic system. Para neoplastic LE are disorders of the nervous system that are associated with cancer but are not caused by the tumor growth itself or by non-metastatic complications such as secondary infections and metabolic, ischemic, SLE or nutritional disorders reported by GultekinSH.^(1, 2)

MCA territory Infarct is the close differential diagnosis needs to be considered. Unlike Herpes encephalitis basal ganglia is involved with similar signal changes.

Final Diagnosis: Herpes Encephalitis.

DISCUSSION (Related Text): Herpes simplex (HSV) encephalitis is the most common cause of fatal sporadic viral encephalitis as noted in the study by PGE Kennedy⁽²⁾ and has characteristic imaging findings. Herpes encephalitis has been divided into neonatal versus children and adults. Neonatal HE usually presents after contracted during vaginal delivery due to HSV 2. Lesion involves the periventricular white matter unlike adult type, which is caused by HSV 1. We report an adult type of Herpes Encephalitis which shows classic features on CT and MRI lesion involving medial temporal lobe, inferior frontal and the insulae in our case and in addition to literature by SBash et al^(2, 3) Herpes Simplex Virus (HSV) encephalitis has own neuroanatomy distribution. It affects the "limbic system", the brain structures responsible for the integration of emotion, memory, and complex behavior. This disease is important to recognize early, because there is an effective drug treatment, acyclovir.

HSV1 is the commonest cause of viral meningo encephalitis with high morbidity if diagnosis is delayed. Clinical presentation is varied, however with high index of suspicion, aided with serological, CSF analysis and imaging findings are mandatory for early diagnosis and management. The pathogenesis in HSV is due to vasculitis with fulminant hemorrhagic necrosis and neurotoxicity causing necrotizing meningo encephalitis. Above pathology is depicted by diffusion restriction in acute cytotoxic edema phase of the infection, whereas delayed phase associated with vasogenic edema, necrosis noted in T2, Flair and also in CT. Early imaging with CT scanning may reveal normal findings. CT scanning may not reveal abnormalities until 3-5 days after symptom onset, by which time the patient may be stuporous and comatose. In the acute setting, even contrast-enhanced MRI may be negative, however DWI image is more sensitive than T2 and Flair series as in study by K Tsuchiya et al.⁽⁴⁾

In adults, CT scans classically reveal hypodensity in the temporal lobes either unilaterally or bilaterally, with or without frontal lobe involvement in clinically well established state of the infection as noted in our study [Fig-1]. Hemorrhage is usually not observed. A gyriform or patchy parenchymal pattern may be observed in late phase of the disease. MRI is more sensitive than CT, special emphasis over diffusion restricted signal due to cytotoxic edema is well established. Studies reveal patients with normal CT results and cerebrospinal fluid (CSF) studies in the presence of abnormal MRI findings, indicates that MRI is more sensitive. When typical findings of HSV encephalitis are observed on CT scan, they often are associated with severe brain damage and a poor prognosis, which was observed in our case. In our CT study the basal ganglia are typically spared, helping to distinguish it from a middle cerebral artery infarct [Fig-2 CT axial]. Due to hippocampus and parahippocampal gyral edema. Lesion appears hypointense on T1 MRI image [Fig-3 Sag]. If complicated by subacute hemorrhage there may be areas of hyperintense signal on T1

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series. Awareness of this condition is mandatory as MRI shows classic features, even though CSF analysis and CT are of normal limits, more over associated with variable clinical presentations.

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Date of Submission: 01/04/2014.

Date of Peer Review: 02/04/2014.

Date of Acceptance: 18/04/2014.

Date of Publishing: 22/04/2014.