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TEMPORAL LOBE INFARCTION AFTER THE INITIATION OF ACYCLOVIR IN A CASE OF HSV 1 ENCEPHALITIS

General Medicine

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ABSTRACT

A 29 years old female, homemaker with no prior co-morbidities came with chief complaints of fever since four days associated with altered sensorium for three days in the form of restlessness. General examination was normal. Vitals were stable. Central nervous system examination revealed Terminal neck stiffness and kernig's sign was positive. A provisional diagnosis of Meningo-encephalitis was made and patient was empirically started on antibiotics. Cerebrospinal spinal fluid polymerase chain reaction detected Herpes simplex - 1. Patient was continued treatment with intravenous acyclovir. After three days patient developed severe headache, urgent Computerised Tomogram brain showed a right middle cerebral infarct with mass effect. Emergency Decompressive craniotomy was done. Patient sensorium improved gradually and was discharged in clinically stable condition.

KEYWORDS

Kernig's Sign, Meningoencephalitis, Acyclovir, Decompressive Craniotomy

INTRODUCTION:

Stroke occurs as a complication of a variety of central nervous system (CNS) infections. [1] Herpes *simplex* virus (HSV) - related infarction is a rare but potentially treatable cause of stroke caused by large vessel vasculitis and usually does not clinically present as a Stroke.[2]

We are presenting this case to highlight the importance of management of HSV encephalitis. Even after the initiation of acyclovir, there are few case reports of cerebral hemorrhage with HSV-1 and infarction with HSV-2 unlike in our case where HSV-1 caused cerebral infarction.

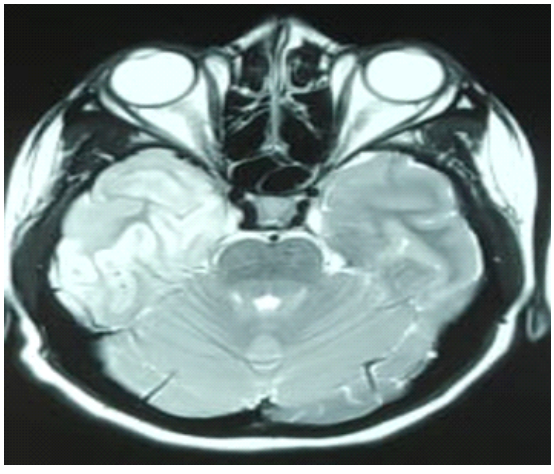
CASE REPORT:

A 29 years old female, homemaker with no prior co-morbidities came with Chief complaints of fever since four days associated with chills, not associated with myalgias, arthralgias, rash, bleeding manifestations, associated with holocephalic headache dull aching type, associated with altered sensorium for three days in the form of restlessness, not obeying commands. General examination was normal, Vitals were stable. CNS examination revealed a Glass Gow Coma score of 14 with E4V4M6. Terminal neck stiffness was present and kernig's sign was positive.

Other system examination was normal. A provisional diagnosis of Meningoencephalitis was made. Patient was empirically started on ceftriaxone, vancomycin, acyclovir, doxycycline after taking blood for culture. On evaluation, hemogram showed Hemoglobin (Hb) of 13.10 g/dl, Total leucocyte count (TLC) of **10,900** cells/mm3, platelet count of 1.5 lakh/mm3. Complete Urine Examination (CUE), Liver and Renal function tests were normal. Viral markers were negative. Smear and Strip test for malarial parasite were negative. Dengue, Scrub IgM serology were sent and were negative. Magnetic Resonance Imaging (MRI) of Brain was done which was suggestive of increased signal intensity in T2 and FLAIR Sequences in right temporal Lobe. (figure 1)

Lumbar Puncture was done. Cerebrospinal Spinal Fluid (CSF) analysis showed glucose of 50 mg/dl, protein of 192 mg/dl with white blood cells of 3 / mm3 with 100% lymphocytes. CSF Smear for Acid Fast Bacilli was negative. CSF GeneXpert for Mycobacterium *tuberculosis* was negative.

Figure 1



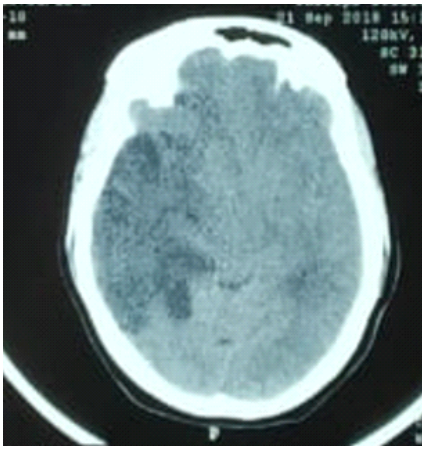
Magnetic Resonance Axial Image T2 Sequence showing Hyperintensities in right temporal lobe.

CSF Adenosine Deaminase was 9 U/L. CSF culture was Sterile. CSF IgM antibodies for HSV 1 & 2 were negative. CSF Pan-neurotropic virus panel was sent and it detected HSV-1. Patient was continued on acyclovir 10 mg/kg 8th hourly and rest other antibiotics were discontinued. Patient sensorium improved gradually over three days of therapy. On fourth day, patient developed severe holocephalic headache, and became Stuporous, was localizing pain, with normal size and reactivity of pupils. There was no focal neurological deficit. Urgent Computerized Tomogram of brain was done which revealed hypodensity in right temporal lobe, parietal lobe extending to Occipital lobe with effacement of right lateral ventricle and obliteration of mesencephalic cistern with left peri-ventricular hypodensity. (figure 2)

Intravenous fluids were with held, patient was started on Injection Mannitol 100 ml Intravenous TID. Neurosurgery consultation was taken and patient was planned for emergency surgery in view of Midline Shift. Right Fronto-Temporo-Pareital Decompressive Craniotomy was done with placement of bony flap in abdomen.

Intraoperative findings were suggestive of Right Middle Cerebral artery (MCA) territory infarct.

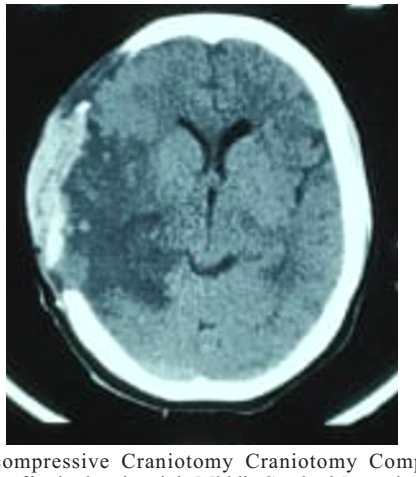
Figure – 2



Computerised Tomogram obtained on fourth day showing large hypodense area in Right temporal lobe.

A final diagnosis of HSV1 Meningo-encephalitis with Mass Effect Secondary to HSV Vasculitic Infarct was made. Patient was monitored regularly in Intensive Care Unit, treated with Acyclovir for a total of 14 days. Patient sensorium improved . She was discharged and advised to follow up in neurosurgery for cranioplasty.

Figure 3



Post Decompressive Craniotomy Craniotomy Computerised Tomogram of brain showing right Middle Cerebral Artery infarct.

DISCUSSION:

In a Systematic literature review from January 2000 to July 2018, HSV-1 caused predominantly Hemorrhagic complications, whereas HSV-2 caused predominantly Ischemic manifestations, [2] unlike in our case where HSV 1 caused infarction.

The most common cause of sporadic fatal encephalitis is HSV-1. Clinically it presents with abrupt onset of fever, headache, seizures, focal neurologic deficits, altered sensorium and behaviour.[3]

The spectrum of clinical manifestations in HSV encephalitis include altered mentation and decrease in level of consciousness, hemiparesis, focal seizures along with fever. [4] The characteristic imaging findings include altered signal intensities in temporal lobes on MRI. Lesions tend to be unilateral and may have associated mass effect.[4] CSF analysis reveals lymphocytic pleocytosis, raised protein level and increased number of erythrocytes.[5]

The diagnosis is established by the detection of HSV DNA in CSF by Polymerase Chain Reaction which has a sensitivity of 98% and specificity of 94 to 100%. [6]

CONCLUSION -

Even after initiating acyclovir, daily neurological assessment is mandatory, as there are rare reports of patients deteriorating after treatment. [3]

In our patient, the sudden drop in sensorium with severe headache was suggestive of some acute intracranial event, which made us to do a CT brain which revealed a large right MCA territory infarct with mass effect and prompted us to go for a emergency decompression.

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