

Case Report :

Hemorrhagic ADEM Associated With Swine Flu.

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Abstract:

H1N1 is a seasonal viral illness and has varied clinical presentations ranging from flu like illness, bronchopneumonia, pneumonia and ARDS. Sometimes there may involvement of myocardium and brain.

ADEM is an immune mediated disorder usually seen after common viral illnesses like measles, mumps, rubella, influenza, herpes simplex and cytomegalovirus. One of the variant of ADEM is hemorrhagic ADEM. There may be very few case reports of hemorrhagic ADEM post H1N1 infection.

Here we present a 2 year old child having confirmed H1N1 infection, presenting as hemorrhagic ADEM.

Keywords: Swine Flu, Acute Disseminated Encephalomyelitis, H1N1

Introduction:

Swine flu is a seasonal viral illness having multisystem involvement with varied signs and symptoms. Common symptoms include fever, malaise, arthralgia, loose motions, breathing difficulty. Sometimes rare presentations can be encephalitis, TSS etc. ADEM is usually an immune mediated post viral demyelination disorder. Common infections causing ADEM are measles,

mumps, rubella and herpes simplex. Swine flu, rarely is documented to cause ADEM especially hemorrhagic ADEM.

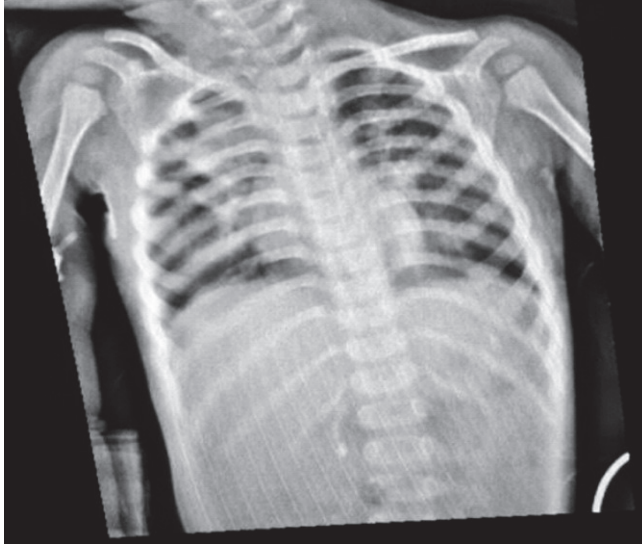
Case Report:

A 2 year old male child was brought with complaints of fever and loose stools since 2 days and lethargy since 1 day. On examination, the child was severely dehydrated. The dehydration was corrected and the child's activity improved. The child had gradually increasing respiratory distress and xray showing patchy infiltrates in the right lung. In view of current epidemic, nasal swab was sent for H1N1 which came positive and the child was started on Tamiflu.

Discussion:

In tropical countries like India phenotypes like altered pigmentation of skin and its appendages commonly seen in Kala-azar, Thalasemia, tropical splenomegaly syndrome and Protein energy malnutrition. But in this case, disorder of pigmentation is by birth with immunodeficiency prompted us for hair microscopy which revealed presence of large clumps of pigment in hair cortex signifying failure of homogenous and uniform distribution of chromatin. The gene responsible for this defect are MYO5A and RAB27A lies in chromosome number 15q21. Any mutation results in clustering of

Fig. 1 Patchy infiltrates seen in the right lung.



Child was irritable but alert. On the 3rd day, child's sensorium deteriorated and he developed episodes of decerebrate posturing. Reflexes were diminished and plantars were not elicited. CSF was done which showed proteins -163mg/dl, sugar-63mg/dl and no cells. MRI(brain) was done which showed hemorrhagic ADEM.

Fig. 2- T2 weighted image.



Fig. 3 - FLAIR image on MRI.

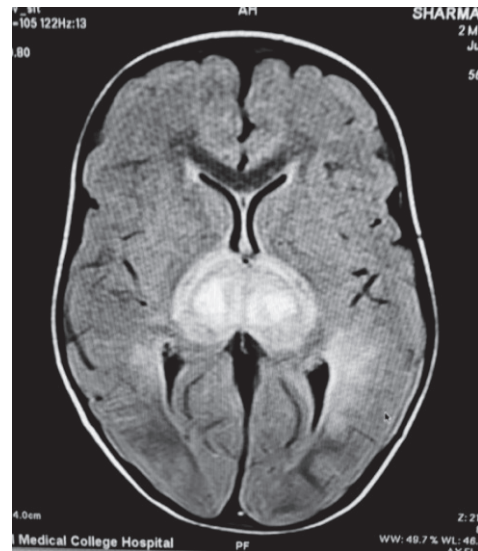
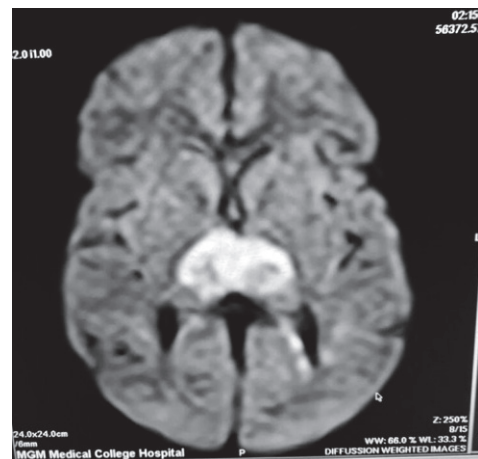


Fig. 4 Diffusion restriction image.



On the above MRI films there is presence of homogenous T2 and FLAIR hyperintense mass involving bilateral thalami and intervening massa intermedia. It is causing enlargement of both the thalami with convex bulging of the lateral borders. It shows diffusion restriction with reduced ADC values. Inj. Methylprednisolone was started. However the child developed multiorgan failure and succumbed to the illness.

Discussion:

H1N1 is a rapidly spreading viral infection through sustained human to human transmission in most of the countries. Transmission most commonly occurs by inhalation of infectious droplets. Most frequently reported symptoms are fever, cough and arthralgia. The infection rate and frequency of isolation of influenza viruses are highest in young children. The infection rate in healthy children is 10-30%(6)

Poor prognostic factors include high viral load, leucopenia, lymphopenia and longer duration of illness prior to treatment. Children with neurological and neurodevelopmental conditions are at increased risk for severe outcomes including death.(5)

ADEM and AHEM are the 2 variants of a single pathological process. ADEM is an acute, probably autoimmune demyelinating inflammatory disorder of CNS affecting multifocal patches of predominantly white matter, and to a lesser extent grey matter and spinal cord. Being usually preceded by a minor illness, it can follow H1N1 infection.(3) The most worrisome neurological sequale of H1N1 is a rare variant of H1N1 called acute necrotizing encephalopathy (ANE), or acute hemorrhagic encephalomyelitis(AHEM); which is the most morbid form of ADEM. AHEM mostly affects the white matter and patients progress rapidly in delirium and coma.(1) Long term deranged consciousness is a poor prognostic factor. Those who survive in the 1st week have varying degrees of disability.

CSF in ADEM shows pleocytosis with predominant lymphocytes with normal sugar and proteins, whereas in AHEM few granulocytes and erythrocytes can be seen along with raised proteins.(7)

MRI in ADEM shows large white matter lesions with an asymmetrical distribution and nearly all cases have spinal involvement. Sometimes spinalcord involvement is the only

feature of ADEM. The important radiological features in AHEM are the extensive white matter changes and presence of small sized haemorrhages.(2)

Only few studies are available in which hemorrhagic ADEM is seen along with swine flu. In our case the H1N1 virus has been isolated from the nasal and throat swabs and not the CSF. Occasionally ADEM behaves as a multi-phasic disease similar to multiple sclerosis. The disease might have either a chronic or a relapsing/remitting course. Very rarely H1N1 infection might cause severe recurrent ADEM.

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