

Clinical and neuroimaging findings of Acute Disseminated Encephalomyelitis (ADEM) in children.

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INTRODUCTION

- Acute disseminated encephalomyelitis (ADEM) is a rare selflimited demyelinating disease of the central nervous system that involves multifocal areas of the white matter, rarely the gray matter and spinal cord; it occurs predominantly in children.
- This condition usually occurs after 1-2 weeks of viral infections (also after SARS-CoV-2) or more rarely after vaccinations. Therefore, the exact pathogenesis of ADEM remains still unclear.

This encephalomyelitis can be considered a transient autoimmune disease, that involves T cell-mediated crossactivation and response against myelin proteins, such as myelin basic protein, proteolipid protein, and myelin oligodendrocyte protein (MOG), through a mechanism of molecular mimicry.

Introduction

- Another pathogenic possibility is a non-specific self-sensitization of reactive T cells against myelin proteins secondary to infections localized in the CNS.
- Early signs of ADEM are acute clinical-neurological event by definition, encephalopathy, which usually manifests as drowsiness and confusion, also with fever, nausea and vomiting, headache and meningism.
- ADEM mostly has a monophasic course, with complete resolution after treatment with immunosuppressive drugs, with a recurrent form ("relapsing ADEM") in 1-20% of cases.

In the case of a prompt diagnosis and adequate treatment, most children with ADEM have a favorable outcome with full recovery, but in the case of diagnostic delays or inappropriate treatment some patients might display neurological sequelae and persistent deficits or even show an evolution to multiple sclerosis. The suspicion of ADEM rises on a clinical basis and derives from systemic and neurologic signs combined with magnetic resonance imaging of the central nervous system.

Case History..

13 year old

- C/o fever since 3 days associated with fatigability and myalgia. Now unable to walk and feed by himself needs support to walk.
- Patient attender gives H/o decrease response to verbal stimuli and continuous staring.
- Day 3 of fever showed 1 episode of loss of consciousness with up rolling of eyes lasted for 5minutes.
- Past history: similar episode of fever with loss of consciousness and up rolling of eyes which lasted for <5minutes. Child improved completely after symptomatic treatment.











T1





Clinical work up

- Blood culture reveals staph Aureus.
- Clinically suspicious for acute encephalitis syndrome
- CSF culture ; no growth after 48hrs of aerobic incubation.
- CSF gram stain negative.
- CSF fluid ; microprotein-10.8mg/dl.
 - glucose-72mg/dl
- MOG and NMO antibodies negative

Diagnosis

Acute disseminated encephalomyelitis (ADEM)

d/d: Multiple sclerosis.

CALLEN MS ADEM criteria: 2/3

- 1. Absence of diffuse bilateral lesion pattern
- 2. Presence of hypointense lesion on T1 WI {black hole}
- 3. 2 periventricular lesion.

Treatment

Inj. Methylprednisolone pulse theraphy (@30mg/kg/day) for 5days.

▶ Inj. Ceftriaxone 1g IV 12hrs for 10days.

Inj Vit K 5mg

*******Thank you**********