

PRESENTATION OF ATYPICAL AUTOIMMUNE MENINGOENCEPHALITIS IN A 15-YEAR-OLD ADOLESCENT

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Background

Autoimmune meningoencephalitis is a severe inflammatory disorder in which an aberrant immune response targets the central nervous system, including the brain parenchyma and meninges. Clinical manifestations may develop rapidly over days to weeks and can include encephalopathy, memory impairment, psychiatric or behavioral changes, seizures, headache, and other neurological symptoms. Early recognition, appropriate antibody testing, and prompt initiation of immunotherapy are essential to optimize neurological recovery and clinical outcomes. [1]

Objective

To describe an unusual and diagnostically challenging presentation of autoimmune meningoencephalitis in a 15-year-old adolescent presenting initially with predominantly gastrointestinal symptoms and subsequently developing acute neurological deterioration and generalized seizures.

Case Presentation

A 15-year-old adolescent presented to the Emergency Department at approximately 5:00 AM with a three-day history of fever, chills, and diarrhea. On the morning of admission, he developed multiple episodes of vomiting and was transported to the Emergency Department by ambulance. Following an additional episode of vomiting in the ED, he was admitted because of dehydration and an inability to tolerate oral fluids.

During the initial hours of hospitalization, the patient remained afebrile, with stable hemodynamic and respiratory parameters. He was fully conscious and had no further episodes of vomiting. However, at approximately 8:00 PM on the same day, he developed recurrent fever and chills, with a temperature of 38.5°C, followed by an acute change in mental status characterized by disorientation.

A central nervous system infection was initially suspected. Notably, meningeal signs remained negative throughout the hospitalization. A comprehensive diagnostic workup was therefore initiated. Contrast-enhanced brain computed tomography (CT) was performed and demonstrated no clinically significant abnormalities. Urine toxicology screening for morphine/opioids (MOP), phencyclidine (PCP), cocaine (COC), amphetamines (AMP), tetrahydrocannabinol (THC), and buprenorphine (BUP) was negative. Laboratory investigations revealed normal C-reactive protein, glucose, serum electrolytes, and sodium levels, as well as normal liver and kidney function. Abdominal ultrasonography showed no clinically significant abnormalities.

The patient had no focal neurological deficits, headache, or recurrent vomiting. Although he provided inappropriate or inconsistent answers to several questions, his mother reported a previous diagnosis of childhood attention-deficit/hyperactivity disorder (ADHD) and stated that similar episodes of disorientation had occurred previously, potentially obscuring the significance of his altered mental status.

The patient was subsequently prepared for lumbar puncture. Before the procedure could be performed, however, he developed a generalized tonic-clonic seizure accompanied by eye deviation. The seizure was

terminated following administration of intravenous diazepam 10 mg, with supplemental oxygen provided during the event.

During the postictal period, the pupils were bilaterally dilated but remained reactive to light. Spontaneous movement was preserved in all four extremities; however, the patient remained unconscious. Given the acute neurological deterioration and the need to definitively exclude central nervous system infection, the decision was made to transfer the patient to a specialized pediatric center of excellence for further evaluation and management.

Lumbar puncture performed at the receiving institution revealed no significant abnormalities, making an infectious etiology less likely. In view of the clinical presentation, acute encephalopathy, new-onset generalized seizures, and the absence of evidence supporting CNS infection or metabolic/toxic causes, autoimmune meningoencephalitis was suspected. The patient was treated with high-dose corticosteroid therapy, resulting in marked clinical improvement. [2;3]

Conclusion

This case illustrates a rare and diagnostically challenging presentation of autoimmune meningoencephalitis in a young adolescent. The absence of classical neurological and meningeal symptoms, combined with an initial predominance of gastrointestinal manifestations, complicated early recognition of the underlying neurological disorder. The patient's condition deteriorated rapidly, progressing from nonspecific gastrointestinal symptoms and subtle cognitive changes to generalized tonic-clonic seizures and impaired consciousness.

An increasing body of evidence suggests that autoimmune encephalitis and related inflammatory CNS disorders may occasionally present with nonspecific or gastrointestinal symptoms. Therefore, clinicians should maintain a high index of suspicion for autoimmune meningoencephalitis in patients presenting with an unexplained febrile gastrointestinal illness who subsequently develop subtle alterations in cognition, behavior, or consciousness, even in the absence of classical meningeal signs. Early recognition and timely initiation of immunotherapy may be critical in preventing severe neurological complications and improving clinical outcomes.

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