

CASE REPORT

A misleading case of encephalitis in cirrhotic diabetic patient: The importance of early diagnosis

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Abstract

We present the case of a 67 year-old cirrhotic man, referred to our hospital for disorientation, hyporexia, nausea, vomiting and hyperglycemia. At admission he was pyretic and disoriented, no neurological signs were present and laboratory examination showed mild hyperammonemia with normal inflammatory markers. Chest X-ray demonstrated a probable pneumonia and urinary infection was found, therefore systemic antibiotic therapy was initiated. After one week of antibiotic therapy, despite hyperammonemia resolution, the patient remained pyretic with progressive worsening of his mental state. Head CT scan was performed, demonstrating a large hypodense area in temporal lobe confirmed by brain MRI. Lumbar puncture was immediately performed and CSF PCR revealed HSV1-DNA positivity. Antiviral therapy with acyclovir at dosage of 10 mg/kg daily was initiated and continued for three weeks with complete defervescence, partial improvement of the state of consciousness and negativity of HSV1-DNA on CSF control. Two months later the patient was hospitalized again for urinary sepsis and developed a fatal frontal-parietal-temporal cerebral empyema. In cirrhotic encephalopathic patient with persistent hyperpyrexia and normal or slight incremented inflammatory markers, herpetic encephalitis must be suspected even without neurological signs. Diagnosis retardation could be associated with elevated morbidity and mortality.

Keywords

Encephalopathy, HSV1 encephalitis, Cirrhosis

1 Introduction

Herpes simplex encephalitis is an infection with high morbidity and mortality. Early diagnosis, leading to prompt treatment could be difficult in the presence of confounding factors, such as hepatic encephalopathy.

2 Case report

We present the case of a 67 year-old man, referred to our hospital because of disorientation, hyporexia, nausea, vomiting and hyperglycemia. He was known to have type 2 diabetes and alcoholic cirrhosis complicated by portal-systemic encephalopathy and esophageal varices.

On examination he was disoriented, pyretic (38.6°C), with normal vital signs. He presented aortic systolic heart murmur, meteoric abdomen, reduced peristalsis and flapping tremor. No jugular distension, pulmonary crackles or peripheral oedema were present. Neurological examination at admission was normal, without focal signs or neck rigidity.

The initial laboratory tests showed hyperglycemia (14.2 mmol/L), hyperammonemia (61 $\mu\text{mol/L}$), normocytic anemia (hemoglobin 11.7 g/dl, mean corpuscular volume 90.2 fl), thrombocytopenia (88000/ μL) and increased total bilirubin (27.8 $\mu\text{mol/L}$) with higher conjugated fraction. Blood levels of C-reactive protein (CRP), procalcitonin, aspartate and alanine aminotransferase and renal-function tests were normal, such as white blood cells count.

An electrocardiogram revealed normal sinus rhythm, and chest X-ray showed a small lung consolidation in left inferior lobe. An abdominal echography confirmed hepatic cirrhosis, no biliary or urinary tract dilatation and no ascites were present.

An infective pneumonia was initially suspected, and antibiotic therapy with levofloxacin was administered intravenously. Mental confusion was attributed to hyperammonemia: therefore branched-chain amino acids infusion and rifamixin medicated enemas were performed. After three days of antibiotic therapy, hyperpyrexia and mental confusion persisted despite unremarkable lung examination and hyperammonemia resolution. Meanwhile, an *Escherichia coli* urinary infection was detected by urine culture, and a dorsal cutaneous abscess, positive for *Proteus mirabilis*, was found and surgically drained. Both bacteria were sensible to ongoing antibiotic therapy. On fourth day, a chest X-ray showed no more lung consolidation, but the patient remained pyretic and had a worsening of neurological status. This was characterized by the onset of neck rigidity, delirium and left arm paresis. A brain CT (see Figure 1A) was immediately performed and it showed a large hypodense area in right temporal lobe. Head MRI (see Figure 1B) confirmed right temporal lobe swelling, a typical finding of herpetic encephalitis. Lumbar puncture was performed: biochemistry showed mononuclear cell pleocytosis (70.0/ μL) with elevated protein concentration (1.38 g/L), normal plasma/CSF glucose ratio and normal lactate. CSF PCR detected HSV1-DNA and prompt therapy with intravenous acyclovir at a dose of 10 mg/Kg every 8 hours was started. Electroencephalogram showed features of generalized encephalopathy. No papillary oedema was present at fundus oculi examination. In few days of therapy, we observed the complete defervescence and the partial improvement of the state of consciousness. CSF PCR control after 21 days of acyclovir therapy showed no more HSV1-DNA positivity, despite MRI confirmed the persistence of right temporal lobe swelling. Antiviral therapy was stopped one week later and patient was discharged 20 days after. Two months after, the patient was hospitalized again for *Escherichia coli* urinary sepsis. During hospitalization he suddenly developed a left hemiplegia and the brain CT detected a large frontal-parietal-temporal empyema (see Figure 2). He died two weeks later.



Figure 1. A) Head CT scan at diagnosis: large right insular-temporal hypodensity extending up to corpus callosum splenium. Slight right lateral ventricle compression. B) Head MRI at diagnosis, flair sequence, axial section: right temporal lobe swelling with minimum shift of brain midline structure.

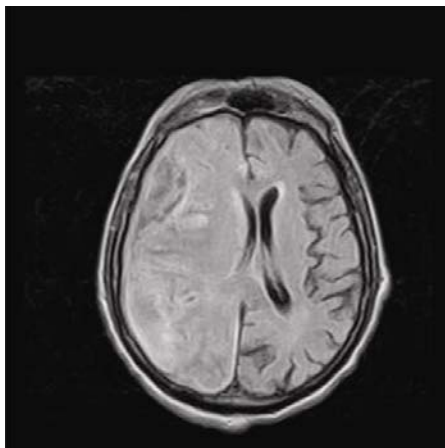


Figure 2. Head MRI four months after diagnosis, flair sequence, axial section: right frontal-parietal and temporal basal empyema with 1 cm shift of brain midline structure

3 Discussion

Herpes simplex encephalitis is the most common cause of viral sporadic encephalitis worldwide ^[1]. It usually presents as acute onset of fever, headache, focal neurological signs and impaired consciousness. Main diagnostic investigation includes brain CT scan, MRI and CSF examination with HSV DNA detection by PCR. Early diagnosis and prompt therapy with acyclovir, particularly within 48 hours after hospital admission, are of primary importance to improve prognosis, reducing morbidity and mortality ^[2, 3]. In this clinical case report, the initial absence of neurological signs was misleading. Mental deterioration was attributed to hepatic portal-systemic encephalopathy and no brain CT or MRI ^[4] were initially performed. The persistent fever could be explained by the different concomitant illness such as pneumonia, urinary and skin infections. For this reason, the correct diagnosis was only made eight days later. This delay was related with poor prognosis, confirmed by persistent right temporal lobe swelling in brain MRI control after three weeks of therapy.

4 Conclusion

In cirrhotic encephalopathic patient with persistent hyperpyrexia and normal or slightly increased inflammatory markers, herpetic encephalitis must be suspected, even without neurological signs. The delay in diagnosis is associated with poor prognosis and increased risks of short and long term neurological consequences.

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