Case Report Open Access

A Case of *Morganella morganii* Meningoencephatitis

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Abstract

Morganella morganii (M. morganii) is a Gram-negative bacillus found in the environment and among normal human LQWHVWLQDO ÀRUD ,W LV D ZHOO NQRZQ FDXVH RI XULQDU\ WUDFW LQIHFWLRQV infections. It also is considered to be an opportunistic pathogen and has been known to occur both in community and nosocomial infections. Most reported cases of severe infections with *M. morganii*

Keywords: Meningitis; Morganella morganii; Antimicrobial susceptibility; Cytokines; Nosocomial infections

Introduction

Morganella morganii (M. morganii) is a Gram-negative bacillus that is ubiquitous in the environment. It is also found in the intestinal tracts of humans as normal oral M. morganii can cause nosocomial and opportunistic infections. However, central nervous system (CNS) infection, such as meningitis due to M. morganii, is very rare. Only 10 cases [1-3] of CNS infection with the bacteria have been reported in the literature. Here, we report a case of meningoencephalitis caused by M. morganii in a 20-month-old boy who had the history of neurosurgical surgery.

Case Report

e patient is a 20-month-old Japanese boy who had no signi cant history in the perinatal period. At the age of 12-months, he developed appetite loss, vomiting, and unsteadiness. As his general condition gradually worsened, he was referred to our hospital. A cranial MRI showed ventricular dilatation and a mass on the right frontal lobe (Figure 1A and 1B). Hydrocephalus due to a brain tumor was suspected. Immediately, an extradural drainage was performed in order to reduce intracranial pressure. One week later, the tumor was successfully removed by craniotomy in the frontal lobe and the drainage tube was withdrawn. e pathological specimen analysis showed a cavernous hemangioma histologically. e postoperative MRI a er the operation showed a residual hemangioma (Figure 1C). Cefazolin was administered for 10 days a er the operation and phenobarbital was introduced to prevent seizures. His psychomotor development was within normal range, but sequelar le facial nerve palsy remained.

At the age of 20-months, he experienced a high fever (40°C) and vomiting. A generalized tonic-clonic seizure developed a er three hours from the fever onset and spontaneously ceased within ve minutes. However, the seizure recurred and he was transferred to our emergency room where the seizure only seized a er 15 minutes and midazolam administration. Nevertheless, a generalized tonic-clonic convulsion developed again and that subsided with diazepam and phenobarbital treatment (Figure 2).

Physical examination showed a respiratory rate 44 of breaths/min, heart rate of 230/min., blood pressure at 116/60 mmHg, and body temperature at 40.3°C. He was consciousness but not fully alert (Glasgow Coma Scale; E4V2M5) and nuchal rigidity was observed. ere were no signs of otitis media.

Laboratory studies revealed a slightly elevated White Blood Cell (WBC) count at 11,600 cells/mm^3 and elevation of C-reactive protein (CRP) levels at 3.3 mg/dL. e cerebrospinal uid (CSF) was cloudy with increased white blood cells 2,246/mm^3 composed of 72.9% neutrophils, low glucose 25mg/dL and increased protein 202 mg/dL. e cranial CT did not show any signs of hydrocephalus or abscess formation (Figure 1B). e CSF and blood culture grew Gram-negative rods as M. morganii. e organism was resistant to both ampicillin and cefazolin (Table 1). e identi cation of this bacterium was made by Neg Combo 6.11 panel (Siemens Healthcare Diagnostic Inc.) and antibiotic sensitivity pattern was carried out by MicroScan WalkAway plus System.

He was initially treated with intravenous meropenem (MPEM) 120 mg/kg/day and ce riaxone (CTRX) 120 mg/kg/day, and subsequently, MPEM was ceased on the third hospital day based on the antimicrobial activity. Intravenous immunoglobulin (1 g/kg/day) and dexamethasone (0.6 mg/kg/2 days) were also administered. A repeat CSF study a er 48 hours from the start of antibiotic therapy showed a negative result for the bacteria. On the 4th and 6th hospital day, seizures recurred. e administration of intravenous diazepam, midazolam and phenobarbital successfully stopped the seizures. A lumbar MRI did not show any congenital structural defects. On the EEG, a reduction in spindle

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