

A Case Report on Bacterial Meningo-Encephalitis

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Abstract:

Background: It is a medical disorder that shares similarities with meningitis, encephalitis, and inflammation of the meninges. meningoenephalitis, often known as encephalitis, is an inflammation of the meningeal structures as well as the brain parenchyma. it is a highly serious infection with a significant risk of mortality (death) and squealing, such as disability, and is sometimes referred to as pyogenic meningoenephalitis. either a severe acute bacterial infection or a less severe viral infection can cause meningitis. encephalitis is a dangerous illness that can sometimes be fatal and is frequently accompanied by long-term morbidity. one of the most typical causes of meningoenephalitis in Switzerland is the tick-borne encephalitis virus. while in the UK, the most prevalent infectious cause of encephalitis is the herpes simplex virus (HSV).

Presentation of case: The author presented a case of a 65-year-old woman admitted to the tertiary care hospital, Wardha, with chief complaints of drowsiness, migraines, hyperthermia, neck stiffness, decreased movement, and weakness in her lower limbs, a mask-like appearance on her face, pain in both extremities, semi-consciousness and trouble doing an activity and patient had history two-time seizures before admitted in the hospital. a CSF analysis study conformed with Neisseria bacteria was presented. magnetic resonance imaging was stated to be leptomenigeal present in CSF fluid. the treatment chart includes antibacterial, antibiotics, antipyretic, antihistamine, iv fluids, and supportive care.

Conclusion: - Meningitis caused by bacteria is a fatal condition that needs to be treated right away with antibiotics. elevated cell counts in cerebrospinal fluid (CSF), a major diagnostic technique, are a key indicator of bacterial meningitis. we describe a rare instance of bacterial meningitis in which early CSF testing revealed Neisseria meningitidis growth.

Keywords: Chloramphenicol, CSF Analysis, Tick-Borne Meningo-Encephalitis, Herpes Simplex Virus, Leptomenigeal.

Introduction:

Simply put, meningoenephalitis is an infectious neurological emergency and is defined as the meninges and brain inflammation.¹ meningitis is an acute inflammatory condition that can be brought on by bacterial or viral infection. It affects the protective membrane that covers the surface of the brain.² meningoenephalitis is an infection of the meningeal membrane, whereas enephalitis is an inflammation of the brain parenchyma. The symptoms of epilepsy and focal impairments, such as aphasia and hemiparesis, include headache, fever, vomiting, photophobia, stiffness in the nuchal region, and brain parenchymal inflammation. When a patient has altered sensorium, meningoenephalitis should be suspected clinically, when the appropriate diagnosis is, quickly verified with cerebrospinal fluid (CSF) testing.³ the infecting agent enters the central nervous system (CNS) either through the direct spread of another infection site, such as sinuses or a bone that is infected as a result of trauma or through hematogenous dissemination via arterial blood. Bacteria can grow in the presence of foreign bodies in the CNS, such as ventriculus abdominal shunts (VP shunts).⁴

Neisseria meningitis with streptococcus pneumonia meningitides is the most frequent bacteria that cause meningitis in immunocompetent persons. Along with e. Coli, listeria, and streptococcus, infections are also more likely to occur in people who are at the extremes of age, such as newborns and the elderly. The most frequent organisms that cause infection in immunocompromised people are pseudomonas, listeria, and pneumococcus streptococcal. Staphylococci with resistance to staphylococcus (methicillin-resistant staph aureus) and gram-negative bacilli that are frequently drug-resistant, such as klebsiella and pseudomonas, are the most frequent causes of nosocomial meningitis. The cornerstone for enhancing outcomes in meningitis patients is the use of appropriate empirical antibiotics, which target the most prevalent pathogen for the specific patient.^{5,6}

The diagnosis and treatment of meningoenephalitis depend on CSF investigation. The diagnosis should be made using the patient's medical history and physical examination, and then the pathogen should be identified using polymerase chain reaction amplification, serology, cellular analysis, and CSF study for protein and glucose levels. Neuroimaging must be done, ideally, with a mri.⁷ lumbar puncture can be done after neuroimaging if it is quickly available, but if it cannot, it should only be postponed under very special conditions. A brain biopsy should only be carried out in the rarest and most challenging cases. Any suspected case of acute enephalitis should undergo an age. It aids in the identification of localized enephalitis. Intravenous fluids to maintain vital mineral levels and hydration, corticosteroid-based anti-inflammatory therapies to reduce swelling and pressure inside the skull, and anticonvulsant medications such phenytoin (Dilantin) to halt or prevent seizures.⁸

Presentation of Case: This was a case of a 65-year-old woman admitted to the Neuro ICU in tertiary care hospital Wardha with the chief complaint of drowsiness, migraines, hyperthermia, neck stiffness, decreased movement, and weakness in her lower limbs, a mask-like appearance on her face, pain in both extremities, semi-consciousness and trouble doing an activity and patient had history two-time seizures before admitted in a hospital. After that, physicians carried out some diagnostic evaluations such as history taking, and physical examination and the result was pain present in the upper extremities at the time of movement or activity. A cerebrospinal spinal fluid study conformed with Neisseria bacteria was presented. A CT scan is done and the size of it is not enlarged. Another routine blood investigation was carried out, that was hb:10.2%, rbc:3.4mil cells, lymphocytes:11%, platelets, Plasma glucose, lipid profiles, and serum electrolyte levels are all normal. Magnetic resonance imaging stated leptomenigeal was present in CSF fluid. Neurologists diagnose bacterial enephalitis due to Neisseria meningitis. Patients are treated symptomatically immediately with intravenous antibiotics, which are ceftriaxone, chloramphenicol, anti-inflammatory drug acetaminophen, naproxen sodium carbamazepine to reduce seizures, infection, and corticosteroids, dexamethasone, and antihypertensive tab. Amlodipine, antipyretic, along with intravenous fluid was administered to maintain electrolyte balance till 7 days after that, and the patient's prognosis was slightly improved. After that, the patient shifted to neuro wards and the patient's condition was stable and discharged from the hospital. She took regular follow-up services in the tertiary care hospital.

Discussion:

The 65-year-old woman developed meningoenephalitis and all investigation analyses and CSF analyses showed bacteria present in the fluid. The patient took symptomatic management with antibiotics, antipyretic, and iv fluids and the patient's condition was stable.

Meningoenephalitis is diagnosed by looking at reports and clinical symptoms. Diagnosis of meningoenephalitis is based on clinical symptoms and examination of reports, according to one of the scientists. Even while a normal CT scan does not completely rule out the possibility of elevated intracranial pressure, therapy should be started right once. Experts advise trying a lumbar puncture. The patient had seizures,

abnormal sensors, headaches, and major nervous system symptoms. They have been said to account for 15% of patient seizures on average. The current patients had encephalitis and a leptomenigeal manufacturing disorder. It was presumably obscured by the involvement of other organs, and our patient's subarachnoid gap and expanding interhemispheric fissure were diagnosed by a family doctor. Imaging of the brain revealed acute ventriculitis without signs of a brain abscess. We want to underline how vital it is to take leptomenigeal into account when making a diagnosis of Japanese encephalitis. Aseptic meningitis, the rarity of acceptable diagnostic stool, early illness phases, and serological and immunological tests can all be contributing factors. Lepto meningoencephalitis must be diagnosed early to allow for effective and targeted therapy, which nonetheless results in severe morbidity and mortality. In many cases, the encephalitis starts as monolateral, but over time, the lesions extend out and become bilateral, affecting the contralateral and temporal lobes asymmetrically⁹⁻¹⁸

Clinical neurology must deal with the crucial and difficult issue of nervous system infections. When a condition is diagnosed right away, effective treatment can be started. Without a diagnosis, the patient may experience severe neurological impairment and occasionally even pass away. The cerebrospinal fluid (CSF) can aid in early diagnosis and therapy because it serves as a mirror to reflect nervous system dysfunction. Neuro-infection CSF findings. This chapter's main focus is on viral and bacterial infections. It is advised to monitor the opening pressure, protein and glucose levels, cell existence, and type of cellular reaction. Serology, culture, staining, and molecular methods like polymerase chain reaction are examples of further testing that can reveal the cause. When applicable, specific tests like pan bacterial and pan fungal investigations should be looked at. Our chapter is a how-to manual that uses CSF results and clinical presentations and courses as diagnostic aids for neuroinfectious.¹⁹⁻³⁰

Serum interleukin-6 (IL-6) concentrations and cerebral spinal fluid electrophoresis. Because meningitis patients have inflammation of the meningeal membrane, which increases the BBB's permeability and causes plasma proteins to seep into the CSF, protein electrophoresis of CSF from meningitis patients may be helpful. As a result, in these patients, the electrophoretic pattern of the CSF proteins resembles that of serum. Additionally, a larger globulin band may be seen, which is a sign that the production of CSF intrathecal immunoglobulin is increasing. The substantially increased albumin index and CSF IgG synthesis rate in this patient are compatible with markedly enhanced permeability, while the markedly elevated igloo value and CSF igg synthesis rate are consistent with increased intrathecal igg synthesis. Because il-6 is a useful marker of inflammation, measuring CSF il-6 levels may help assess meningitis patients. We have demonstrated that patients with bacterial meningitis experience higher CSF il-6 levels, but not those with viral or aseptic meningitis. Although our patient's CSF total protein level was raised, suggesting bacterial meningitis, her CSF il-6 level was not elevated, supporting the aseptic meningitis diagnosis.³¹⁻³²

This disorder has no known treatments. Patients with meningitis often receive cautious follow-up and broad-spectrum antibiotic therapy. There have been reports of this disease's symptoms being relieved by both colchicine and indomethacin.³³⁻³⁵

Conclusion:

Encephalitis is still a significant public health problem. Although there has been a tremendous increase in our knowledge of encephalitis over the past two decades, mortality has remained largely constant. The results of encephalitis are influenced by the cause, the time of diagnosis, and comorbidities. The majority of cases with an ontology are caused by viruses, although a sizable portion of cases is also brought on by other factors, primarily autoimmune ones. Despite advances in technology and pharmacology, encephalitis is challenging to diagnose and cure. The most frequent indicators of bad encephalitis outcomes include advanced age (65 and older) or immunocompromised status (such as by medications, unconsciousness, or ICU admission), particularly if the patient needs mechanical ventilation. Nearly two-thirds of individuals with encephalitis recover after being hospitalized, and the disease has a low mortality rate. Even in patients with severe presentations and negative prognostic indicators, intensive therapy should be undertaken due to the potential for a good recovery. The prognosis for bacterial encephalitis and meningitis is very bleak. Understanding the precise balance between immune protection and immunopathology will be a key future research subject. This will be essential in creating novel, more focused immunomodulatory treatments for encephalitis that have already developed.

Conflict of interest: - None

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