

Disseminated infections of meningoencephalitis caused by hypervirulent *Klebsiella pneumoniae* (hvKp)

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Introduction: Hypervirulent *Klebsiella pneumoniae* (hvKp) infections leading to liver abscesses and metastatic infections in the lung and central nervous system (CNS) are associated with rapid clinical deterioration and high mortality rates.

Case Report: A 62-year-old man with no underlying diseases was admitted to the intensive care unit (ICU) with a history of mental changes, headache, dyspnea, and fever. On admission, vital signs revealed blood pressure of 130/95 mmHg and temperature of 38.5°C. Physical examination revealed neck stiffness and disequilibrium. Laboratory findings showed elevated leukocyte (15,080 cells/mm³), C-reactive protein (191 mg/L), and procalcitonin (45.6 ng/mL). Computed tomography (CT) scans indicated the presence of septic emboli in both lungs and multiple liver abscesses. Brain magnetic resonance imaging (MRI) showed embolic infarction and brain abscesses. Percutaneous abscess drainage was performed for liver abscesses. Cerebrospinal fluid (CSF) analysis also revealed an increased leukocyte count (625,000 cells/mm³), elevated protein (1657 mg/dL), and a CSF/serum glucose ratio of 0.19, which suggested bacterial meningitis. An ophthalmologic examination confirmed the endophthalmitis. Empirical therapy with ciprofloxacin, ceftriaxone and metronidazole was initiated for the liver abscesses with CNS infection. Subsequently, hvKp was identified in blood, abscess drainage, and CSF cultures, showing susceptibility to all antibiotics except for ampicillin. Ciprofloxacin and ceftriaxone were maintained. On ICU day 2, external ventricular drain (EVD) was done to relieve intracranial pressure. On ICU day 3, a follow-up brain CT revealed a hypodense brain suggesting brain death. Despite improvements in clinical findings, and the eradication of hvKp in follow-up cultures, the patient's mental status remained unaltered. He eventually passed away on ICU day 39.

Conclusion: This case emphasizes the clinical association between the hvKp and disseminated infections including meningoencephalitis, indicating the importance of promptly evaluating CNS infections in cases of liver abscesses with mental changes to facilitate early intervention and treatment.



Figure 1 : Chest CT scan done on the admission day. Multifocal random nodules in both lungs are seen, suggestive of septic emboli



Figure 2 : Abdominopelvic CT scan done on the admission day. It shows multiple low-attenuating lesions in both hepatic lobes, presumed to be liver abscesses

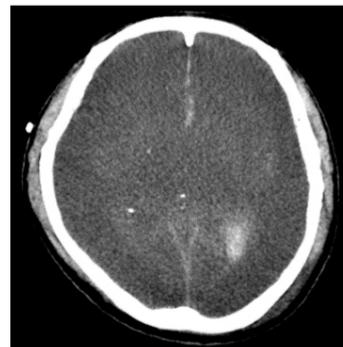


Figure 3 : Follow up brain CT done on the day 3. It shows interval progressed diffuse cerebral edema and black brain, suggesting brain death.