



CASE REPORT

A CASE OF SPONTANEOUS KLEBSIELLA PNEUMONIA VENTRICULITIS FOLLOWING LEFT BASAL PNEUMONIA

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ABSTRACT

We report a case of 35 year old male brought with a history of fever, headache and blurring of vision since three days. On examination, he had neck rigidity and bilateral crepts on auscultation with decreased air entry on left side. His total counts were raised, CSF showed leukocytosis and yielded *Klebsiella pneumoniae* on culture, chest radiograph revealed left mid and basal pneumonia. Patient was started on ticarcillin-clavunate with tobramycin and later imipenem was added. Patient's condition improved over time and was discharged on 14th day after complete recovery.

KEY WORDS :

Klebsiella pneumoniae, ventriculitis, left basal pneumonia, alcoholic, CSF, culture, Ticarcillin, Clavunate, Tobramycin, Imipenem

INTRODUCTION:

Ventriculitis is defined as an infection/inflammation of the ventricles of the brain which is clinically manifested as altered mental status with fever and headache.¹ Nearly one percent of the hospital admission are attributable to infections of the central nervous system.² Ventricular debris is the hallmark of the ventriculitis. It is accompanied by the periventricular hyperintensity and presence of hydrocephalus in magnetic resonance imaging of the brain. It is often associated with enhanced ependymal signals in contrast enhanced MR imaging of the brain.³ It is suggested that there is reduced production of cerebrospinal fluid in response to inflammation of the ventricles by nearly half to two thirds compared to normal rate of secretion. This explains the slower rate of rising intracranial pressure in cases of ventriculitis. The pathological changes that occur during acute inflammation of the ventricles include inflammation of choroid plexus with swelling of cells and necrosis with diminished blood supply to choroid plexus.⁴ There is significant aqueductal stenosis noted in cases of ventriculitis along with above features.⁵ Ventriculitis often occurs due to an iatrogenic complication in neurological intensive care unit worldwide, often following external ventricular drainage procedure or ventriculostomy.^{6, 7, 8, 9} Few case reports have demonstrated the occurrence of ventriculitis following rupture of brain abscess.^{10, 11, 12} The occurrence of spontaneous *Klebsiella pneumoniae* ventriculitis is very rare. To our knowledge this is the second case reported in literature with spontaneous ventriculitis caused by *Klebsiella pneumoniae*

CASE HISTORY:

A 35 year old male is brought to casualty with a history of fever, headache, blurring of vision since 3 days and altered sensorium since morning. Patient was a chronic alcoholic, consumed 140 to 200 gms of alcohol per day for 6 to 8 years. On examination, his pulse rate was 64 beats per minute and blood pressure was 130/80 mmHg, patient had neck rigidity and Brudzinski's sign. He had bilateral crepitations on auscultation, with decreased air entry on left side. His fundus showed minimal changes for papilledema. Guarded

lumbar puncture was done. CSF was yellow coloured with slight turbidity. CSF analysis showed plenty of pus cells with cell count of 10,000 cells/cubic mm, CSF culture yielded *Klebsiella pneumoniae* organism sensitive to tobramycin. MRI Brain showed features of ventriculitis with debris as shown in T2 FLAIR image (Figure 1). His total leukocyte counts were raised to 29020 cell/mm³, with raised ESR of 110mm/ at the end of 1st hour. Liver function test showed raised liver enzymes. Renal function test was normal. Chest radiograph revealed left side mid and basal zone pneumonia (Figure 2). Patient was started on Ticarcillin-Clavunate empirically and Tobramycin was added after culture and sensitivity report. For next 2 days patients general condition improved significantly. Patient recovered almost completely on 4th day, but complained about occasional transient diplopia, which resolved in next 2 days. After 4 days of treatment, patient had recurrence of fever. Imipenem was added on 5th day and continued for next 7 days. Patient recovered fully on 14th day of hospital stay and was discharged and followed up later. After 2 months, patient had complete resolution of pneumonia.

DISCUSSION:

Klebsiella pneumoniae belongs to the family Enterobacteriaceae and is the second common cause of Gram Negative bacteremia. Some of the risk factors for the infection with this organism include elderly age, dialysis, solid organ transplantation, cancer, diabetes and alcoholic liver disease. The mortality rate for *Klebsiella pneumoniae* bacteremia is as high as 20%, with incidence of community acquired infections being nearly 30%.^{13, 14}

Lu CH et al found that initial appropriate antibiotic therapy is important factor along with comorbid illnesses in the assessing the prognosis and neurological outcome in cases of *Klebsiella pneumoniae* meningitis.¹⁵

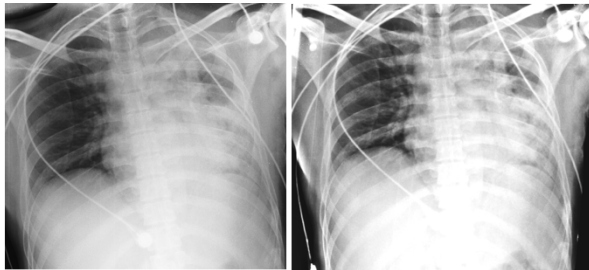
Mortality of community acquired *Klebsiella pneumoniae* meningitis is higher compared to other organisms owing to its virulent capsular serotypes.¹⁶ One of the case report has shown the spontaneous

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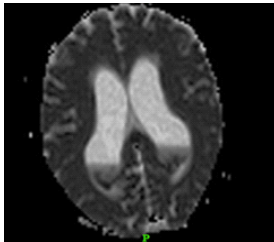
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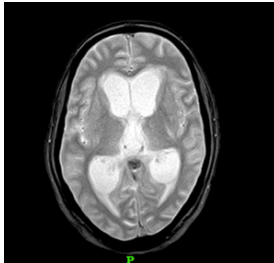
occurrence of brain abscess and meningitis by gas producing *Klebsiella pneumoniae* after endoscopic variceal ligation procedure in cirrhotic patient.¹⁷ Another interesting case of an alcoholic patient developed *Klebsiella pneumoniae* meningitis with infected pancreatic pseudocyst, described *Klebsiella pneumoniae* bacteremia dissemination contributing to central nervous system infection.¹⁸ A case report done by Honma Y et al, of a patient who developed ventriculitis with bacterial meningitis due to spread of infection from liver abscess. The findings in this case have correlated with our findings.¹⁹ A study done by Fang CT et al amongst 30 adult patients with *Klebsiella pneumoniae* meningitis has described in detail about the clinical features. Moreover, they have recommended the start of appropriate antibiotic before the deterioration of consciousness had better neurological outcome compared to others.²⁰



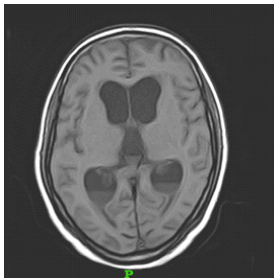
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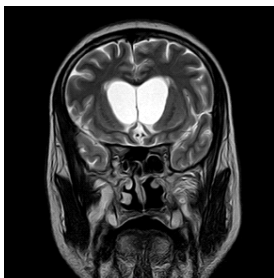
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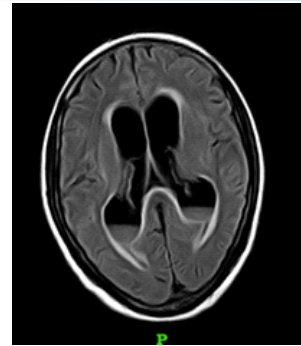
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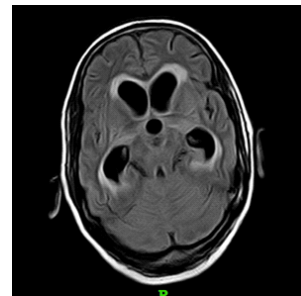
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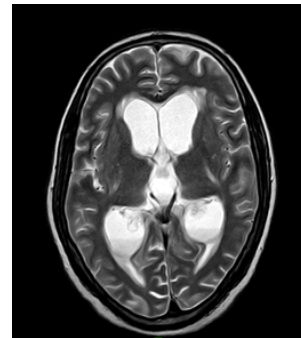
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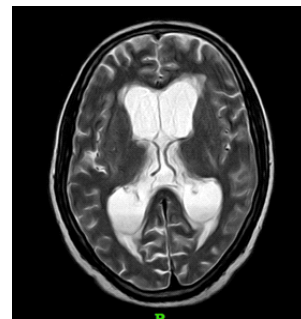
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