Klebsiella Pneumoniae Invasive Syndrome: Two Cases Occurring in Northern America

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Introduction

Klebsiella pneumoniae invasive syndrome (KPIS) is a rare infectious etiology involving a primary liver abscess with metastatic infection and rarely observed in Northern America. We present two cases of KPIS with a liver abscess and concomitant bacteremia occurring in California.

Case # 1

- 46-year- old man with hemoglobin E/Beta-thalassemia, mitral valve prolapse who presented with two-day history of abdominal pain and night sweats
- He was febrile to 39.5°Celsius with heart rate 111 bpm, and blood pressure 90/60 mmHg.
- Pertinent labs: (WBC) of 32.3 x 103 uL, total bilirubin 5.9mg/dL, indirect bilirubin 5 mg/dL, alanine aminotransferase (ALT) 27 U/L, aspartate aminotransferase (AST) 30 U/L.
- Computerized tomography (CT) showed an ill-defined cystic mass measuring 2x2.7x2.6cm. (Figure 1)
- Diagnosed with septic shock and treated with piperacillin/tazobactam.
- Underwent CT guided drainage of the abscess.
- Cultures from serum and abscess both grew pan-sensitive klebsiella pneumoniae.
- He improved clinically and was discharged on a 4-week regimen of amoxicillin/clavulanic acid.
- Two weeks following discharge patient presented back with minimal abdominal pain with imaging showing improved hepatic abscesses.

Case #2

- 47-year- old man with history of polysubstance abuse presented with three days of diffuse abdominal pain.
- He had a stable blood pressure with sinus tachycardia.
- Pertinent labs: WBC 13.9 x 103uL, alkaline phosphatase 194 U/L, total bilirubin 1 mg/dL, ALT 91 U/L, AST 51 U/L.

Case #2 cont.

- CT of the abdomen with contrast showed an area of decreased attenuation within the hepatic parenchyma measuring 3x4.3x5.1cm, stated to be possible fatty infiltration.(Figure 2)
- Initially treated for alcohol withdrawal and sepsis with piperacillin/ tazobactam but required ICU transfer for septic shock and delirium tremens.

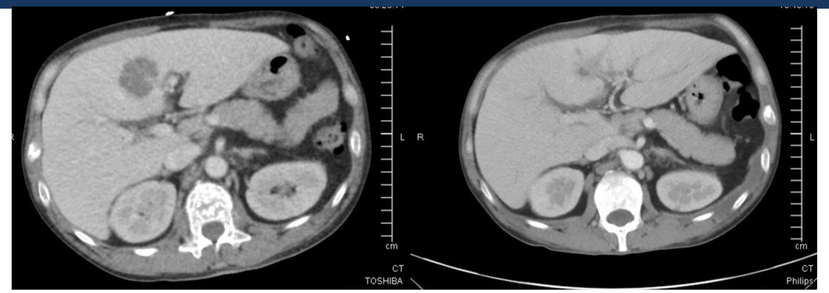

Figure 1. Initial CT of the abdomen with IV contrast demonstrating the ill-defined cystic mass in the right lobe of the liver measuring 2x2.7x2.6cm (left). Repeat CT following two weeks after discharge showing decrease in size of liver abscess(Right).

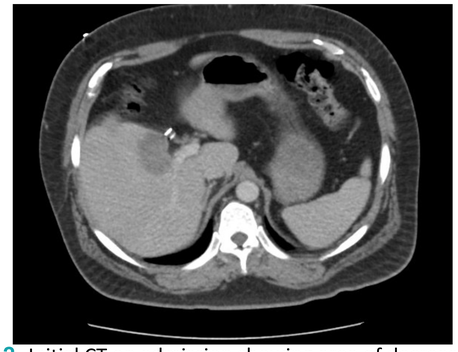

Figure 2. Initial CT on admission showing area of decreased attenuation within the hepatic parenchyma measuring 3x4.3x5.1cm, stated to be possible fatty infiltration.

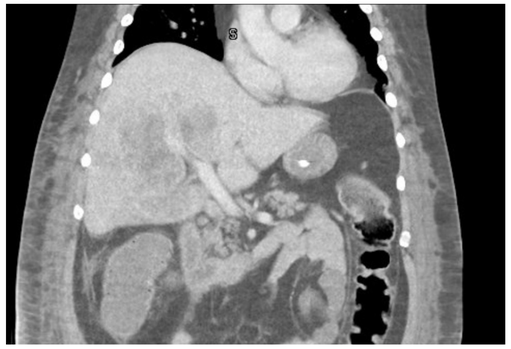

Figure 3. Repeat CT showing 15 x 9.6 cm multi-septated hypodense lesion in the right hepatic lobe

Case # 2 Cont.

- Blood cultures grew pan-sensitive Klebsiella pneumoniae.
- Repeat CT on hospital day 7 showed a 15 x 9.6 cm multi-septated hypodense lesion in the right hepatic lobe. CT- guided drainage was done. (Figure 3)
- He improved clinically and was discharged home with 2 weeks of ceftriaxone and metronidazole.
- Patient was admitted again 12 months later with new liver abscesses and klebsiella pneumoniae bacteremia. CT showed multiple areas of decreased attenuation measuring up to 5.2cm.
- A CT-guided drainage was done. Patient completed a 6 - week course of ceftriaxone.
- Imaging one month following discharge, the liver abscess was noted to be significantly decreased in size

Conclusion

KPIS is rare condition involving formation of a liver abscess with associated metastatic findings such as bacteremia and meningitis. The condition when present is normally witnessed in Southeast Asia and rarely reported in Northern America. Our two cases highlight how this invasive infection can be difficult to diagnose in non-endemic regions and the challenges in treatment In our second case it was important to have a high index of suspicion to have repeated liver imaging to direct to the appropriate diagnosis with appropriate source control.