Case Report

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Case of Pyogenic Liver Abscesses Caused by Klebsiella Pneumoniae

Sushila B Ladumor[1]* and Adham Darweesh[2]

[1]*Consultant Radiologist, Clinical Imaging Department, Hamad Medical Corporation, HGH, Doha, Qatar*

[2]*Senior Consultant Radiologist, Clinical Imaging Department, Hamad Medical Corporation, HGH, Doha, Qatar*

***Corresponding author**

Dr. Sushila B Ladumor, Consultant Radiologist, Clinical Imaging Department, Hamad Medical Corporation, HGH, Doha, Qatar, Assistant Professor in Clinical Radiology, Weil Cornel Medical College, Doha, Qatar (WCMC-Q). E-mail: drsbladumor@yahoo.com

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Abstract

Liver abscess is a serious intraabdominal infection can be due to result of bacteria, fungi, or parasites infection. Until the end of the last century, pyogenic liver abscesses were predominantly caused by mixed aerobic and anaerobic bacteria, the most frequent isolate being Escherichia coli [1]. Klebsiella pneumoniae (K.pneumoniae) is a known cause of pyogenic liver abscess (PLA) in the absence of hepatobiliary disease. In settings of hepatic infection, it has also been known to cause disseminated infections including meningitis and endopthalmitis. Patients with diabetes mellitus and the preexisting hepatobiliary disease are particularly susceptible to infection as well as those from Southeast Asia [2]. We present a case of Klebsiella liver abscess with bacteremia.

Keywords: Liver Abscess, Pleural Effusion, CT scan (Computerized Tomography), Us (Ultrasonography), Pericardial Effusion.

Case history

A 39-year-old Bangladeshi male patient presented in Emergency with 4-5 days of fever with chills and rigor, associated with vomiting, jaundice, vague abdominal pain and distention. He denied history of recent travel or sick contacts. When he came he was febrile, tachycardia and tachypneoic. Labs showed leukocytosis WBC 23, elevated CRP, high bilirubin and liver enzymes. His blood glucose was elevated. US revealed complex heterogeneous lesion in the right lobe of the liver? Abscess, findings confirmed with CT scan. A computed tomography (CT) of the abdomen showed a large complex mass in the right lobe of the liver with multiple septations. Mild right pleural effusion associated with right basal infiltrates. No vascular thrombosis. Over course of hospitalization, the patient developed acute respiratory failure and was monitored in medical intensive care unit (MICU). Follow-up CT scan after 10days showed interval increase in right pleural effusion and underlying right lung collapse/consolidation, mild pericardial effusion and moderate ascites as well as evidence of peritonitis with peritoneal enhancement. Blood cultures grew K. pneumonia. TB PCR, Ova+ Stool work up was negative. The patient was treated with intravenous Antibiotics and the abscess was drained by interventional radiology. After appropriate management, he progressed well during his hospital course and was eventually discharged from the hospital. Follow-up US demonstrated interval decrease in liver abscess, ascites and right pleural effusion. WBC came down to normal level.

Discussion

K. pneumonia had been an endemic disease in Southeast Asia before, however, now we can see all over the world due to migration of population and should be kept in mid in the differential of patients who present with symptoms of infection and solitary liver mass [2].

Klebsiella pneumoniae is a gram-negative organism that can cause pyogenic liver abscess (PLA) in the normal liver. Patients with diabetes are at more risk to develop this infection. Some patients with Klebsiella liver abscess can develop metastatic infections including endophthalmitis, meningitis, brain abscess, septic pulmonary emboli, lung abscess, splenic abscess, osteomyelitis, etc.

Pyogenic liver abscesses are caused by a wide range of bacteria. Escherichia coli were previously the most common causative pathogen of pyogenic liver abscesses. However, recently Klebsiella pneumoniae is most dominent cause of developing pyogenic liver abscesses in many Asian populations and in some Western populations [3].

Some clinical differences between K. pneumoniae liver abscesses (KLA) and non-K. Pneumoniae liver abscesses (non-KLA). Compared with other bacterial liver abscesses, KLA are associated with a higher frequency of bacteremia and the potential for metastatic infection in other parts of the body. Non-KLA occurs in patients with underlying biliary disease, whereas KLA frequently occur in normal liver or in without any predisposing medical condition [3].

Early diagnosis of KLA is important, it can be difficult to differentiate between KLA and non-KLA due to similar clinical presentation and laboratory findings of patients with KLA and other pyogenic liver abscesses. Blood or pus culture is the standard method for the identification of bacterial pathogens, but these methods require

several days to produce results, thus delaying treatment [4].

Cross-sectional imaging is a reliable tool for diagnosing hepatic abscesses in the appropriate clinical setting. Ultrasonography and CT can be used as imaging modalities to diagnose liver abscesses, however many times difficult to differentiate between KLA and non-KLA from other bacterial liver abscess, but is helpful to identify possible causes and to rule out other intra-abdominal conditions that cause similar symptoms [4].

Typical findings of K pneumoniae on abdominal CT with contrast are single, thin walled, multistate, solid masses with necrotic centers [4]. A predominately solid appearance is seen under ultrasound and aspiration often yields little pus with abundant necrotic material. As with any abscess, prompt drainage with or without drain placement should be done early in the disease course.

Conclusion

The patient presenting with signs and symptom of infection showing thin-walled abscess, internal necrotic debris may be useful CT findings in normal liver is helpful in the early diagnosis of K. pneumoniae liver abscesses in Asian population and kept in mind for evaluating liver mass. Diabetes mellitus is really very important risk factor for contracting K.pneumoniae PLA. Imaging of K.pneumoniae often shows a solid, multiloculated mass. K.pneumoniae and has a propensity to metastasize to other organs and cause systemic symptoms so early diagnosis and immediate drainage along with antibiotics helpful for significantly decrease morbidity and mortality.

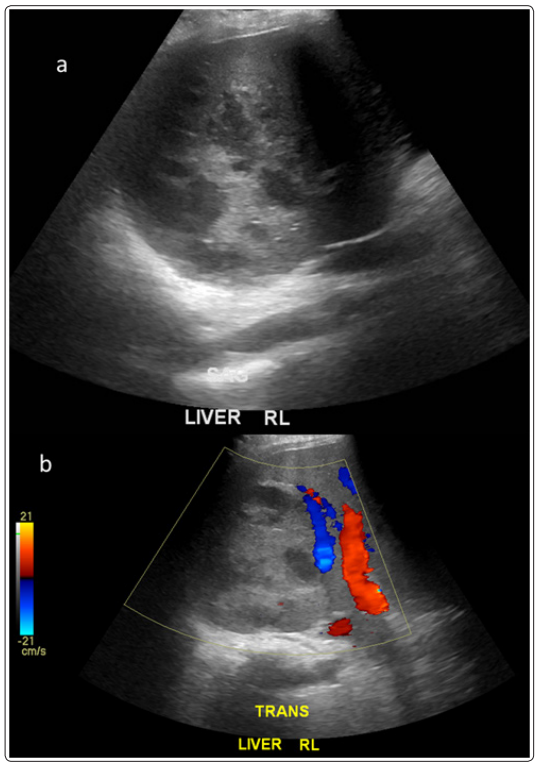

Figure 1: US done on presentation showing ill-defined heterogeneous lesion (Image a & b) with internal anechoic areas represents necrosis, color Doppler (Image b) reveals increase peripheral vascularity, likely abscess, needs further Imaging for better evaluation.

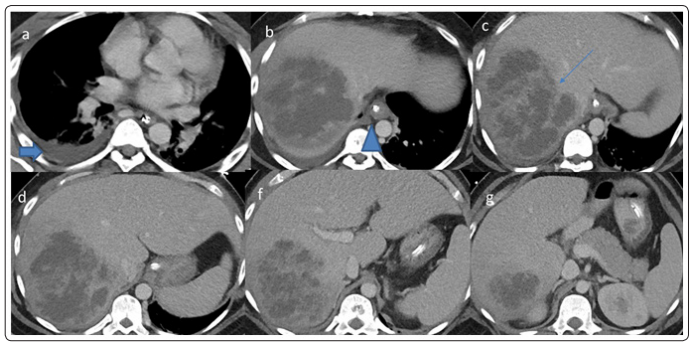

Figure 2: CT scan with intravenous contrast done after US reveals thin-walled abscess, internal necrotic debris (thin arrow in image c) in right lobe of liver. Right pleural effusion (thick arrow in image a), Feeding tube seen (Triangle in image b).

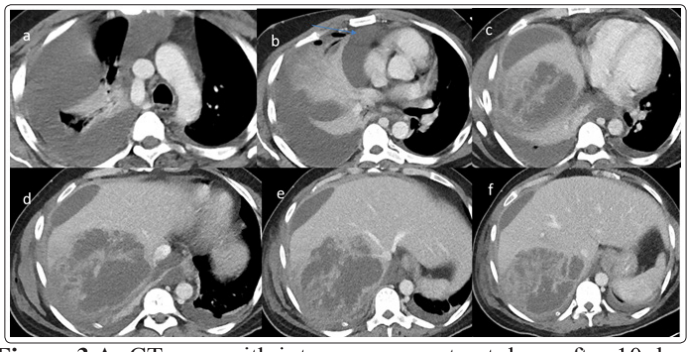

Figure 3 A: CT scan with intravenous contrast done after 10 days of first CT reveals re-demonstration of thin-walled abscess with internal necrotic debris in right lobe of liver. Increase in right pleural effusion with underlying collapse/consolidation, minimal left pleural effusion as well as pericardial effusion (arrow in image b). Sub diaphragmatic collection also seen.

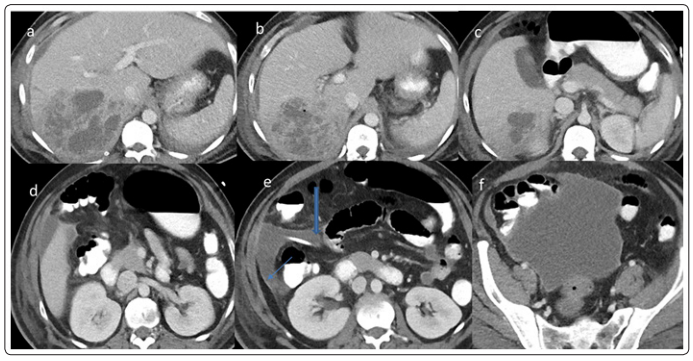

Figure 3 B: CT scan with intravenous contrast done after 10days of first CT reveals re-demonstration of thin-walled abscess with internal necrotic debris in right lobe of liver. Right pleural effusion (thick arrow in image a), Feeding tube seen (Triangle in image b).evidence of ascites with peritoneal enhancement (thick arrow in image e), Drainage tube (thin arrow in image e).

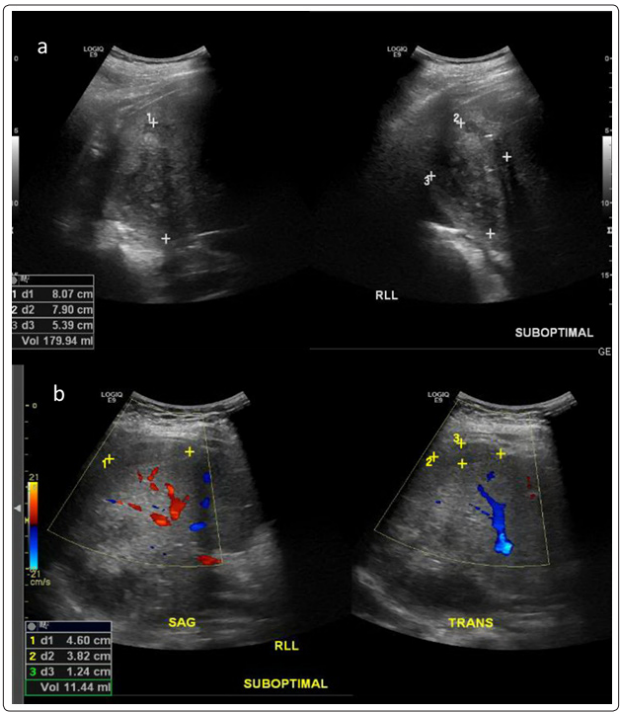

Figure 4: US after 17days of second CT demonstrates interval decrease in liver abscess size as well as improvement in sub diaphragmatic collection.

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