

Case Report- An unusual presentation of sterile liver abscess without precipitating factors

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Summary

Hepatic abscess remains a serious and often difficult to diagnose problem⁽¹⁾. The majority of such cases are polymicrobial and frequently associated with specific co-morbidities such as diabetes mellitus, history of liver transplant, underlying hepatobiliary, or pancreatic disease. This case report discusses a case of 27-year-old male who presented to the emergency department (ED) with the complaints of fever and rigors associated with diarrhea and vomiting in the absence of significant past medical history with no risk factors known to be associated with liver abscess. Investigations revealed leukocytosis with raised inflammatory markers and deranged liver function tests. Radiological imaging showed multi-loculated liver abscess. The patient's septic workup was negative for any source of infection. The patient improved with antibiotics therapy and ultrasound-guided drainage. This case reports highlight the peculiar aspect of unusual presentation of sterile liver abscess.

Background

There are limited studies focusing on liver abscess with unusual presentation and negative microbiological cultures. This case demonstrates liver abscess, though rare in the UK, can be sterile especially in young age group without predisposing risk factors. Recognition of variable presentation of liver abscess is vital, considering the curable nature of this disease and potentially fatal outcome of untreated abscess.

Case presentation

We report a case of 27-year-old gentleman presented with 7-day history of fever and rigors associated with diarrhea and vomiting. He had no significant past medical history. There was no history of illicit drug use and no recent history of travel abroad.

On physical examination, his vital signs included a blood pressure of 105/60 mmHg, a heart rate of 120 beats per minute, and a respiratory rate of 19 breaths per minute. His temperature in the ED was 38.3°C and Oxygen (O₂) saturation was 97% on room air. His weight was 75 kg with BMI of 21.5 kg/m². The patient was alert, and appropriate with no signs of respiratory distress.

On physical examination his abdomen was soft and non-tender, chest was clear on auscultation. The remainder of the physical examination was non-contributory.

Investigations

Bloodworkup sent after initial examination returned showing white cell count(WCC) of $23.8 \times 10^9/L$, c-reactive protein (CRP) of 346mg/L, total bilirubin(TB) of 24 umol/L, alkaline phosphatase(ALP) of 266IU/L, alanine transferase (ALT) of 84 IU/Land albumin of 32g/L. The patient had anultrasound scan of abdomenwhichshowed a 7.8cm x 5.7cm, mixed echogenic lesion with liquefied necrotic tissue suggestive of a hepatic abscess (Figure 1). As a result of these abscess findings, the patient underwent a computed tomography (CT) of the abdomen showed a 6 x 5 x 4.5 cm solitary relatively thin-walled multi-loculated rounded lesion in segment 8/7 of the liversuggestive of a pyogenic liver abscess (Figure 2).

The patient underwent an ultrasound-guided drainage of the abscess which yielded sterile pus. The patient hadblood, stool and urine cultureswhich all came back as negative for any microorganisms. The enteric parasitic panel did not show any abnormality. Echocardiography showed no evidence of vegetation. The patient was given intravenous piperacillin with tazobactam initially which was switched to oral ciprofloxacin after 5 days which he took for further 6 weeks. Following the ultrasound guided procedure and antibiotic therapy led to a clinical improvement and percutaneous drain was removed. An abdominal US before the discharge revealed significant reduction in abscess size. He had a follow-up ultrasound liver after completing the course of antibiotics which showed complete resolution of the abscess(Figure 3).Patient turned to his usual state of health. However, the etiology of this culture negative abscess has never been identified.

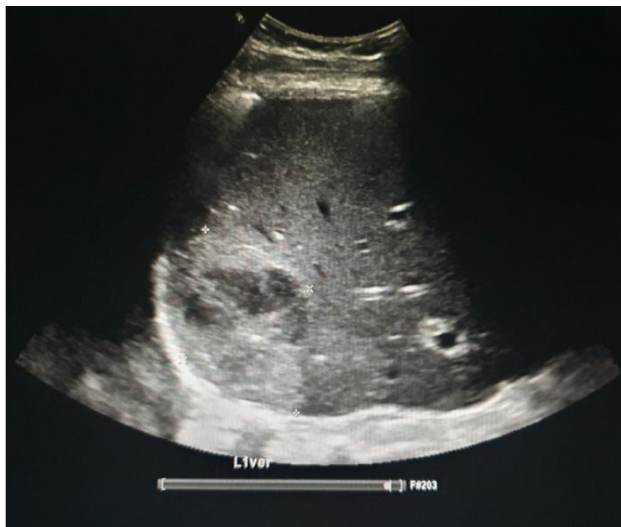


Figure 1: Ultrasound scan of the liver shows a 7.8cm x 5.7cm abscess

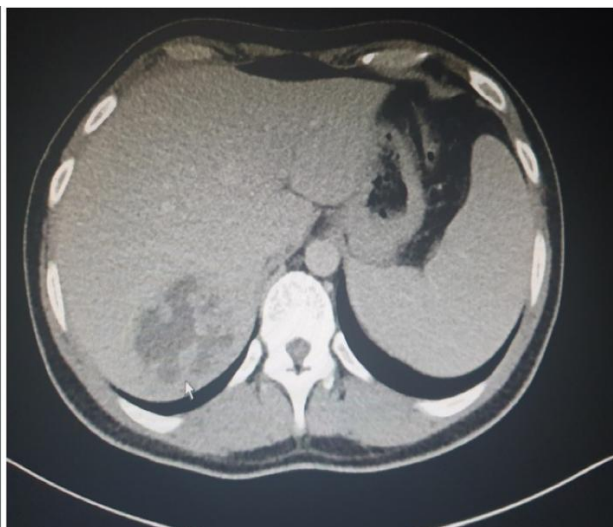


Figure 2: CT scan shows 6 x 5 x 4.5 cm solitary relatively thin-walled multi-loculated abscess



Figure 3: Follow up ultrasound scan of the liver shows complete resolution of abscess

Discussion

Liver abscess is an uncommon cause of hospitalization in the United Kingdom⁽²⁾. It is a potentially life-threatening disease that may be caused by bacterial or fungal organisms⁽³⁾. Certain risk factors including diabetes, underlying hepatobiliary or pancreatic disease, history of liver transplant, and chronic use of proton-pump inhibitors (PPIs) are typically present in patients with pyogenic hepatic abscesses⁽⁴⁾.

Fever and chills are the most frequent presenting symptoms in almost 92–99% cases, followed by abdominal pain (67%) in adults⁽⁵⁾. Herein we describe a case of sterile liver abscess in an otherwise healthy male with no risk factors and no abdominal pain.

Bloodwork in patients with hepatic abscesses can also vary, although certain features predominate. The most common laboratory abnormalities are elevated liver enzyme levels, and leukocytosis and hypoalbuminemia.⁽⁶⁾ Unfortunately no one sign, symptom or laboratory value is specific and the physician must always keep the possibility of hepatic abscess in the differential diagnosis. Definitive diagnosis is made with an ultrasound scan or CT abdomen. Treatment of hepatic abscess should include a multi-disciplinary team approach, ideally involving interventional radiology, surgery, and infectious disease specialists. Monotherapy with an extended spectrum penicillins, such as piperacillin-tazobactam, or the third generation cephalosporin (ceftriaxone) in combination with metronidazole are first line therapies⁷. Main treatment goals include drainage of the abscess and antibiotic eradication of the pathogen involved⁸

The presenting complaints, physical findings and laboratory markers can be entirely variable as illustrated in our patient. Our patient had no evidence of bacteremia and also had no co-

morbidity known to be associated with pyogenic liver abscess. This case underlines the importance in keeping hepatic abscesses on the differential diagnosis, especially in those patients without the risk factors described. However, he was successfully managed with antibiotics and percutaneous drainage.

Conflicts of Interest

The authors declare that they have no conflicts of interest

References

1. Mavilia MG, Molina M, Wu GY. The evolving nature of hepatic abscess: a review. *Journal of clinical and translational hepatology*. 2016 Jun 28;4(2):158.
2. Krige JE, Beckingham IJ. Liver abscesses and hydatid disease. *Bmj*. 2001 Mar 3;322(7285):537-40.
3. Casella F, Finazzi L, Repetti V, Rubin G, DiMarco M, Mauro T, Furlan R. Liver abscess caused by *Klebsiella pneumoniae*: two case reports. *Cases Journal*. 2009 Dec 1;2(1):6879.
4. Chadwick M, Shamban L, Neumann M. Pyogenic Liver Abscess with No Predisposing Risk Factors. *Case reports in gastrointestinal medicine*. 2018 Jan 1;2018.
5. Rajagopalan S, Langer V. Hepatic abscesses. *Med J Armed Forces India*. 2012 Jul;68(3):271-5. doi: 10.1016/j.mjafi.2012.04.006. PMID: 24532886; PMCID: PMC3862548.
6. Kaplan GG, Gregson DB, Laupland KB. Population-based study of the epidemiology of and the risk factors for pyogenic liver abscess. *Clinical Gastroenterology and Hepatology*. 2004 Nov 1;2(11):1032-8.
7. Li J, Fu Y, Wang JY, Tu CT, Shen XZ, Li L, Jiang W. Early diagnosis and therapeutic choice of *Klebsiella pneumoniae* liver abscess. *Frontiers of medicine in China*. 2010 Sep 1;4(3):308-16.
8. Mentel DA, Cameron DB, Gregg SC, Cholewczynski W, Savetamal A, Crombie RE, Possenti PP, Atweh NA. A case of pyogenic liver abscesses in a previously healthy adolescent man. *Journal of surgery*.

