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A Case of Sub Hepatic Perforated Appendicitis Presented as Multiple Gas Containing Subcapsular Hepatic Abscesses

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Authors' contributions

This work was carried out in collaboration between all authors. Authors WMN and MA diagnosed the case, acquire the images and wrote the first draft of the manuscript. Authors MUA and AMK managed the literature searches and edited the images. Author AA supervised the study. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Appendicitis is the most common acute surgical condition of the abdomen. The diagnosis of acute appendicitis can often be made clinically. When the appendix is situated in an abnormal position, the diagnosis of acute appendicitis becomes difficult. Delayed diagnosis or misdiagnosis of subhepatic appendicitis might lead to perforations of the appendix, which is a clinical emergency. Liver abscess as a complication of appendicitis was first described in 1898 by Dieulafoy. The majority of pyogenic liver abscesses are caused by infection originating in the biliary or intestinal tracts. Pyogenic liver abscess is a rare complication of acute appendicitis. Multiple pyogenic liver abscesses are not frequently reported in the literature, but the overall mortality is high, if left with no treatment or not treated early.

We have reported a case of subhepatic perforated appendix presented with multiple subcapsular liver abscesses.

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Keywords: Appendicitis; liver abscesses; subhepatic appendix; perforation.

1. INTRODUCTION

Appendicitis is the most common acute surgical condition of the abdomen [1]. Approximately 7 percent of the population will have appendicitis in their lifetime, [2] with the peak incidence occurring between the ages of 10 and 30 years [3]. The diagnosis of acute appendicitis can often be made clinically; however, many patients present with atypical findings [4]. When the appendix is situated in an abnormal position, the diagnosis of acute appendicitis becomes difficult. Delayed diagnosis or misdiagnosis of subhepatic appendicitis might lead to perforations of the appendix, which is a clinical emergency. One of the early cases of subhepatic appendicitis was reported by King in 1955 [5]. The percentage of complications due to delayed diagnosis is between 15 and 30%, especially in those with ruptured appendix. The most common complication is infection followed by peritonitis and abscesses in the abdominal cavity. Liver abscess as a complication of appendicitis was first described in 1898 by Dieulafoy. Usually it is a solitary liver abscess, located in the right lobe with a frequency five times higher than the location in the left lobe [6,7].

We have reported a case of subhepatic perforated appendix presented with multiple subcapsular liver abscesses.

2. CASE PRESENTATION

45 years old diabetic and hypertensive male patient came with complain of diffuse abdominal pain since 15 days. He also had fever with shivering since last 1 week. Fever started at night and subsided after antipyretic medication. Since 3 days the abdominal pain was migrated to right hypochondrium and right lumbar region radiated towards back. He also had constipation since 3 days. On general physical examination patient was tachycardiac, afebrile and lethargic. On palpation liver outline was enlarged and there was extreme tenderness in right hypochondrium. Bowel sounds were audible and chest was clear on auscultation. No tenderness noted at mc Burney's point. Rebound tenderness was negative. Provisional diagnosis of liver abscess / cholecystitis was made.

Lab analysis shows TLC of 10.1 and Hb of 13.2 mg/dl. LFT, urine DR, and rest of the hematological workup were unremarkable. CXR was also normal. Initial ultrasound reports shows two hepatic cysts with posterior acoustic enhancement and repeat ultrasound at our hospital shows diffuse fatty liver and hepatomegaly. Two hypoechoic areas with internal echoes noted in segment VI of the liver measuring 4.8x4.6 cm and 3.1x2.1 cm. Sonographic tenderness was positive. Intra hepatic ducts were normal. No evidence of cholelithiasis and cholecystitis. Finding suggested Liver abscesses. Rest of examination was unremarkable. Due to controversy in ultrasound reports and for the purpose of aspiration of liver abscess the treating physician advised CT scan abdomen and pelvis with contrast. The CT scan showed at least three subcapsular hepatic abscesses showing peripheral enhancement and central non-enhancing necrotic component. One of the abscess cavity demonstrated air density. Caecum found to be high riding from its normal position and lying in sub hepatic region. A hyperenhancing tubular dilated bowel loop showing maximum transverse dimension of 1.2 cm found originating from the caecum and its tip closely abutting segment VI sub capsular hepatic abscesses. Gross sub hepatic mesenteric densification was found. Multiple enlarged lymph nodes were also observed in ilio-colic region. Portal vein shows normal contrast opacification. Final diagnosis was acute perforated retrocaecal appendicitis resulted in gas containing sub capsular hepatic abscesses.

At laparotomy, acute perforated appendicitis was confirmed and appendectomy was performed. Sub capsular liver abscesses were drained and surgical drains were placed in them. After 3-week course of antibiotics, the patient had clinical and sonographic improvement with almost complete normalization of the laboratory tests results. He was discharged without symptoms.

3. DISCUSSION

Pyogenic liver abscesses are found in 0.3%-1.4% of autopsies. Patients with diabetes mellitus, immune deficiency, sickle cell anemia, malignancy, and liver transplants are at a greater risk for developing liver abscess. The majority of pyogenic liver abscesses are caused by infection originating in the biliary or intestinal tracts. About 10% of pyogenic liver abscesses develop as a result of bacteria entering the liver via the hepatic artery [8]. Despite continuous improvement in image modalities, availability of potent antibiotics

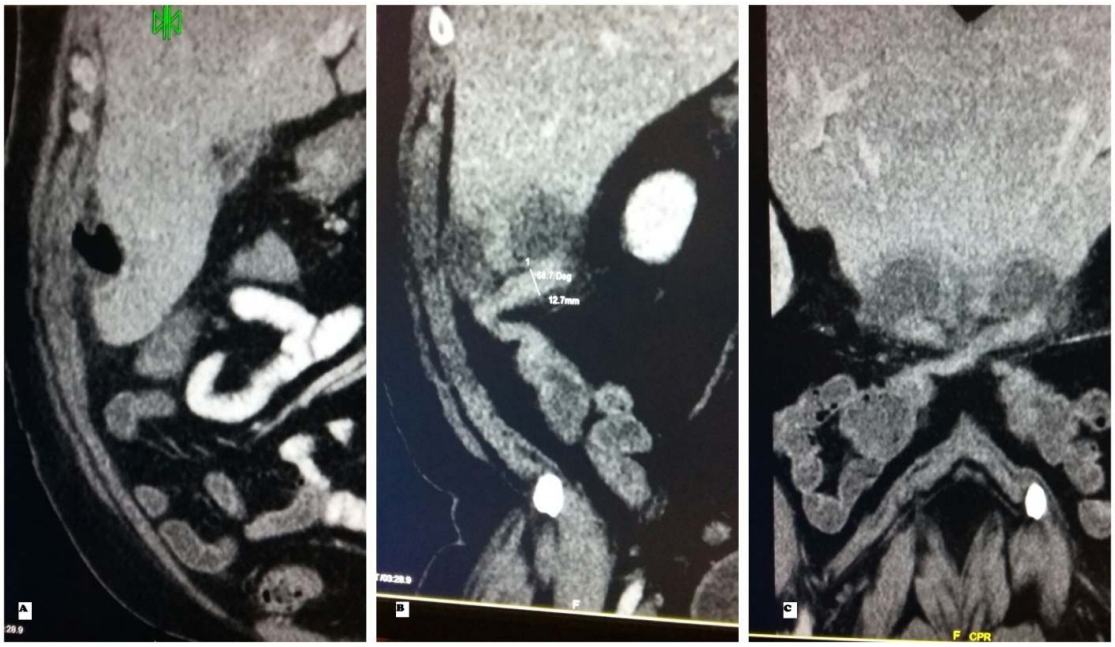

Image 1. 3 CT scan images of a patient taken after oral and IV contrast taken in portovenous phases

a) Coronal reformat image shows a small subcapsular gas containing abscess in segment VI of Right lobe of liver. b) Coronal reformat image shows a small tubular markedly enhancing bowel loop arising from caecum and it is measured by the cursor. This bowel loop is inflamed appendix which lies in subhepatic location arising from high riding cecum. Note: Non-enhancing necrotic subcapsular abcess in segment VI of liver which is in close proximity to inflamed appendix. c) Curved MPR of the same patient shows better anatomical relations and pathological processes

and advancement in the knowledge and treatment of pyogenic liver abscess, mortality remains high. There are certain clinical conditions in which patients present with liver abscess but underlying pathological process is different which has to be identified with the help of advanced imaging modalities like MDCT with sagittal and coronal reformats. Underlying cause needs prompt treatment in order to reduce the morbidity and mortality [9]. Appendicitis was the leading source of pyogenic liver abscess in the pre-antibiotic era, but it essentially has been eliminated in recent times [10]. Pyogenic liver abscess is a rare complication of acute appendicitis. Multiple pyogenic liver abscesses are not frequently reported in the literature, but the overall mortality is high, if left with no treatment or not treated early [11].

In this patient timely investigation such as CT scan reveals the underlying pathology which leads to urgent treatment and management of associated conditions that reduces the patient's morbidity. This patient undergoes uneventful recovery and discharged.

4. CONCLUSION

Liver abscess secondary to appendicitis, today very rare in Western countries, is still a possible and frightening complication in developing countries. In addition to early diagnosis and prompt treatment, making every effort to treat patients with adverse prognostic factors and systemic complications, the hospital mortality rate will be decreased significantly.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images'.

ETHICAL APPROVAL

All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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