

CASE REPORT

MULTIPLE LIVER ABSCESS BY MIXED BACTERIAL ETIOLOGY: AN UNUSUAL CASE REPORT

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ABSTRACT: Pyogenic liver abscess is a serious disease, which is potentially fatal if left untreated. In developed countries, pyogenic abscesses are the most common but worldwide, amoebae are the most common cause. We report a 60-year-old diabetic woman with a 2 months history of pain abdomen, 1 month history of high fever and anorexia who had multiple liver abscess caused by anaerobic *Actinomyces* species and *Enterococcus faecalis* and was complicated by peritonitis. Treatment included prompt percutaneous drainage coupled with long-term intravenous administration of Amikacin, Metronidazole and Piperacillin/Tazobactam. The patient later died due to peritonitis.

KEY WORDS: Liver abscess, Enterococci, anaerobic *Actinomyces*

INTRODUCTION: Pyogenic liver abscess (PLA) is a serious infrequent disease caused by bacterial, parasitic or fungal organisms and is potentially fatal if left untreated. In previous years it was the disease of the young adults but recently the disease has evolved as disease of the elderly¹. Liver abscess may be solitary or multiple; they may arise from hematogenous spread of bacteria or from local spread from contiguous sites of infection within the peritoneal cavity. In the past, appendicitis with rupture and subsequent spread of infection was the most common source for a liver abscess. Currently, associated disease of the biliary tract is most common. Pylephlebitis, usually arising from infection elsewhere in the peritoneal cavity is another common source for bacterial seeding of the liver².

CASE HISTORY: A 60 year old female diabetic patient came with the history of pain abdomen in right upper quadrant since 2 months, associated with on and off fever with chills, malaise and anorexia since 1 month. Patient gave past history of epigastric pain which was treated with antacids. On examination she had marked tenderness in the right upper quadrant with hepatomegaly of 4 cm below the right costal margin. Her temperature was 39°C, pulse 96 beats/min and blood pressure 104/80 mm Hg. Laboratory data were as follows: hemoglobin 11.6 gm/dl; white blood cell count 16300/mm³; platelet count 4.80 lakh/mm³; PT 14 seconds; PCV 33%; MCV 79.7 fl; MCH 28 pg; MCHC 35.2 gm/dl; Red blood cell count 4.14 million/mm³; Differential count: Polymorphs 90%, Lymphocytes 7%, Monocytes 3%, Basophils & Eosinophils 0%; Total Protein 5.8 gm/dl; Albumin 2.5 gm/dl; Globulin 3.3 gm/dl; A/G ratio 0.8; total bilirubin 0.7 mg/dl; bilirubin direct 0.0 mg/dl; bilirubin indirect 0.7 mg/dl; Alkaline phosphatase 114 IU/L; SGOT 19 IU/L; SGPT 18 IU/L; GGT 23 U/L; Glucose (Random) 161

CASE REPORT

mg/dl; PPBS 200 mg/dl; urine analysis was normal except for presence of 8 – 10 pus cell/ hpf and traces of albumin. The test for HIV and HBsAg was found to be negative.

Ultrasonography of the abdomen revealed that there was a well defined hypo-echoic lesion with internal debris in right lobe of liver with sub-capsular collection in the right lobe, suggesting the presence of abscess with sub-capsular extension. CT scan of the abdomen confirmed the presence of multiple irregular abscesses varying in size, predominantly in the right lobe of the liver. Gram stain of the aspirated pus showed the presence of gram positive filamentous bacilli which was broken into coccoid and bacillary forms, gram positive cocci in pairs and short chains and scanty of gram negative fusiform bacilli along with plenty of pus cells. Wet mount of pus did not reveal the presence of trophozoites of *Entamoeba histolytica*. The Ziehl- Neelsen stain did not show presence of acid fast bacilli. A definitive diagnosis of mixed infection was made when an anaerobic *Actinomyces* species and *Enterococcus faecalis* was cultured from aspirated pus by conventional method. The antibiotic sensitivity testing of *Enterococcus faecalis* was done by Kirby-Bauer disc diffusion method. The isolate was found to be sensitive to ampicillin, ampicillin/sulbactam, cotrimoxazole, piperacillin/tazobactam, vancomycin, ceftriaxone, amikacin, high level gentamicin (HLG) and teicoplanin and was resistant to ciprofloxacin and linezolid. The patient was treated by percutaneous drainage and with long-term intravenous administration of amikacin, metronidazole and piperacillin/tazobactam. Later patient developed peritonitis and succumbed to death.

DISCUSSION: Pyogenic liver abscess is a serious infrequent disease caused by bacterial, parasitic or fungal organisms and is potentially fatal if left untreated ¹. The microorganisms most often recovered from pyogenic liver abscess are *Escherichia coli*, anaerobic Streptococci, gram negative bacilli, *Bacteroides fragilis*, *Staphylococcus aureus*, *Clostridium* species etc., but the incidence varied considerably among previous reports. Pyogenic liver abscesses were more commonly seen in elderly patients and in patients with diabetes mellitus. The abscesses were mostly single and located more frequently in right lobe of the liver ^{1,3}. Multiple liver abscesses are not frequently reported in the literature. The overall mortality rate of pyogenic liver abscess is 11%- 31% and the mortality rate is high in patients with multiple liver abscess. Patients with diabetes mellitus, immune deficiency, sickle cell anemia, malignancy and liver transplants are at greater risk for developing liver abscess and in the majority of the cases more than one organisms have been isolated. Without appropriate diagnosis and treatment, the pyogenic liver abscesses are almost uniformly fatal. Early diagnosis as well as treatment with appropriate antibiotics and selective drainage can subsequently reduce the mortality ⁴.

A high incidence of anaerobic microorganisms (15-46%) as the cause of liver abscess has been reported recently and because of this high incidence, antibiotics effective against anaerobes and aerobic microorganisms should be used in all patients ^{3,5}. CT scan is probably the most useful aid in diagnosing and localizing hepatic abscesses ⁶. Biliary tract disease is the etiology of the abscess in most cases, but sometimes the origin remains unidentified ⁷. In our case the cause of multiple liver abscess is probably due to extension from a small perforation and extension of pus from healed peptic ulcer, as no other aetiology was found in the patient for the presence of liver abscess. Hepatic actinomycosis should also be considered in the differential diagnosis of liver abscesses and space-occupying lesions of the liver in immunocompetent patients ⁸. The strain of *Enterococcus faecalis* isolated was resistant to linezolid, which is relatively rare and appears either due to previous treatment with linezolid or transmission from other patients ⁹. The source of linezolid resistant enterococci in our case

CASE REPORT

could not be determined. Linezolid resistant *Enterococcus faecalis* is an emerging pathogen and hence it is important to minimize the emergence of resistance by using it only if the therapeutic indications exist and keeping the duration of treatment as short as possible. In summary, multiple liver abscess due to mixed infection with *Enterococcus faecalis* and an anaerobic *Actinomyces* species is a rare entity, but a life threatening disease. Hence such cases requires timely recognition using CT scan and guided aspiration to start an early and specific therapy to prevent mortality among high risk and elderly patients.

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