

HEPATIC ABSCESS WITH HEPATICOCUTANEOUS FISTULA CASE REPORT

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Significance:

Liver abscesses are the most common type of visceral abscess; in a report of 540 cases of intraabdominal abscesses, pyogenic liver abscesses accounted for 48 percent of visceral abscesses and 13 percent of intraabdominal abscesses. Two most common types of liver abscess are Pyogenic Liver abscess and Amoebic Liver Abscess. There is a rare type of liver abscess called tuberculous liver abscesses that should be considered when typical pyogenic organisms are not recovered from cultures and patients not responding to conventional antibiotic therapy.

Clinical Presentation:

A case of a 23 year old male who works as a garbage collector, who complains of persistent jaundice with appearance of a fluctuant mass over the epigastric area that progressively enlarged that is accompanied by low grade fever. Patient has been diagnosed with Pulmonary Tuberculosis 2 years ago and claims to have completed treatment. 1 year prior to current admission, patient has been admitted to another institution due to jaundice and right upper quadrant and was diagnosed with pyogenic liver abscess and antibiotics were given. No aspiration was done during that time. The patient stayed for a month at the hospital because of the non resolution of the abscess. Due to limitations in resources of the hospital no intervention was done. The patient then opted to go home and was lost to follow up. The patient had no other co-morbidities.

Management:

Ultrasound showed an enlarged liver with smooth borders and an ill defined complex masses with calcification in the caudate lobe, lateral segment of the left lobe and posterior segment of the right lobe measuring about 3.3 x 3.3 x 2.6 cm, 9.2 x 7.9 x 3.5 cm and 6.5 x 4.0 x 3.9 cm (LxWxAP), respectively. CT scan was suggested because of the presence of liver mass. The Whole Abdominal Triphasic CT scan showed Multiple, Ill defined masses in segments I, II/III and VI. Arising from the mass in segment II/III is a complex predominantly cystic mass measuring approximately 14.5 x 8.5 x 5.9 cm which extends to the anterior abdominal wall. It was officially read as Liver tuberculosis with abscess formation, anterior abdominal wall. Patient was referred Interventional Radiology for aspiration of the abscess. Sample was taken and was sent for analysis. Abscess tested negative for AFB staining. The abscess was sent for Genexpert and was positive for MTB. The patient was sent home on Anti- TB meds.

Recommendations:

Diagnosis of tubercular abscess should always be part of the differential diagnosis when we are presented with a patient with liver abscess not responding to conventional treatment. Diagnostic options are ZN staining, culture, histopathology, PCR and BACTEC MGIT 960 that will help in diagnosis and will aid in providing appropriate therapy. Nucleic acid amplification tests for rapid TB diagnosis are increasingly being used. We recommend the use of Genexpert in diagnosis of Extrapulmonary Tuberculosis when culture and PCR is not available.

Keywords: case report, tubercular liver abscess with abdominal extension, genexpert, extrapulmonary TB

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Introduction:

Liver abscess is common in tropical countries like the Philippines. Most of them are pyogenic or amoebic abscesses. Diagnosis of Tubercular abscess in high prevalence country like the Philippines is delayed due to conditions like pyogenic and amoebic liver abscess which are more prevalent. A high index of suspicion is needed when there is unusual presentation of signs and symptoms and failure to respond to conventional treatment.

CASE REPORT

We report a case of a 23 year old male who works as a garbage collector, who complains of persistent jaundice with appearance of a fluctuant mass over the epigastric area that progressively enlarged that is accompanied by low grade fever. Patient has been diagnosed with Pulmonary Tuberculosis 2 years ago and claims to have completed treatment. 1 year prior to current admission, patient has been admitted to another institution due to jaundice and right upper quadrant and was diagnosed with pyogenic liver abscess and antibiotics were given. No aspiration was done during that time. The patient stayed for a month at the hospital because of the non resolution of the abscess. Due to limitations in resources of the hospital no intervention was done. The patient then opted to go home and was lost to follow up. The patient had no other co-morbidities. Patient is non smoker and also non alcoholic beverage drinker. No known familial hereditary disease, family member with tuberculosis nor hepatitis.

At the time of admission, the physical examination revealed a conscious man with a temperature of 37.3, blood pressure of 120/80 mmhg, heart rate of 98 bpm and respiratory rate of 18/min. The patient was still jaundiced and with icterisia of the sclerae. There was no note of palpable cervical and axillary lymphadenopathies. Chest and cardiac examination was unremarkable. Abdominal examination revealed a palpable fluctuant mass approximately measuring 7 x 7 cms, tender with surrounding erythema. the liver border was not enlarged and no note of splenomegaly. Ascites was also noted.

Upon admission, laboratory work ups were done to rule out jaundice from other etiologies. The patient was negative for viral hepatitis. Ultrasound was done which showed an enlarged liver with smooth borders and an ill defined complex masses with calcification in the caudate lobe, lateral segment of the left lobe and posterior segment of the right lobe measuring about 3.3 x 3.3 x 2.6 cm, 9.2 x 7.9 x 3.5 cm and 6.5 x 4.0 x 3.9 cm (LxWxAP), respectively. CT scan was suggested because of the presence of Liver Mass. A Whole Abdominal Triphasic CT scan was done which showed Multiple, Ill defined masses in segments I, II/III and VI **[Figure 1A]**.

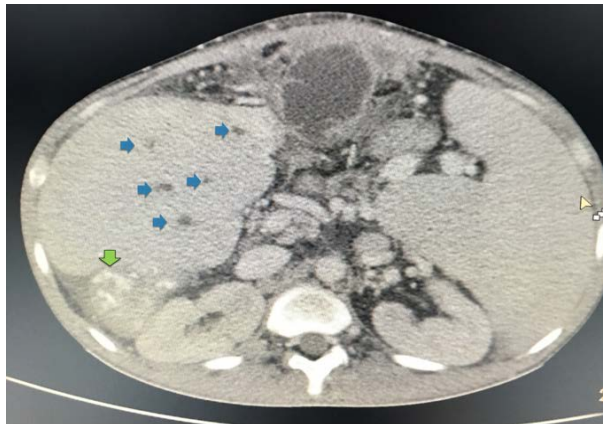


Figure 1A. Multiple Ill Defined Masses Segment I,II,III and VI (blue arrows) and presence of calcifications over the caudate lobe (green arrow)

Arising from the mass in segment II/III is a complex predominantly cystic mass measuring approximately 14.5 x 8.5 x 5.9 cm which extends to the anterior abdominal wall [Figure 2A-B]. It was officially read as Liver tuberculosis with abscess formation, anterior abdominal wall.



Figure 2. Complex predominantly cystic mass (blue arrow) measuring approximately 14.5 x 8.5 x 5.9 cm which extends to the anterior abdominal wall (blue arrow)



Figure 2B: Peripherally enhancing hypo dense lesions scattered in the liver with cutaneous extension in the periumbilical area.

Chest X-ray was also done which showed fibrohazy infiltrates on both upper lung fields which is suggestive of Tuberculosis. On the 7th Hospital Day, the fluctuant mass ruptured and drained around 50-100 cc greenish yellow fluid. The patient was referred to Interventional Radiology for UTZ guided aspiration of the abscess. Aspiration was done and sample was collected and sent for Gram Staining, AFB and Culture. Results showed negative for AFB and showed growth Enterobacter Cloacae on culture studies after 2 days of examination. Ideally, the sample should have been sent for Culture using Lowenstein Jensen Medium to check for growth of tuberculosis but due to financial constraint and limitation of resources of our institution, it was not done. Due to a high suspicion of TB abscess in our patient, we sent specimen for Gene Xpert for which the patient tested positive. According to the study done by zeku et al that was published by Journal of Clinical Microbiology, compared to culture results, the sensitivity of the MTB/RIF(Genexpert) test was **79.7%** (71/89), the specificity was **98.2%** (334/340), NPV was **94.8%** (334/352), and PPV **92.2%**(71/77) as compared to culture results. The sensitivity of the MTB/RIF test was **100%** (27/27) for smear-positive pulmonary specimens and **74.2%** (23/31) for smear-negative pulmonary specimens. Patient was started on CAT I Anti Tubercular Drugs under DOTS to which the patient responded well.

DISCUSSION

Hepatic Tuberculosis is one of the rare forms of extrapulmonary tuberculosis. An estimated two billion people have latent TB, with an estimated 7–8 million new cases being detected worldwide every year. Despite the availability of effective therapy, two million affected individuals succumb to this infection annually, particularly in underdeveloped nations. ¹

TB infection can involve any organ. Extrapulmonary TB can involve multiple organs such as CNS, Bones, Lymph nodes, Pericardium, Pleura, Liver, Gastrointestinal organs, Peritoneum, Kidney and GUT. ² One study showed that among those with abdominal TB, the small bowel was the most commonly affected site (33.8%), followed by the peritoneum (30.7%), large bowel (22.3%), liver (14.6%) and the upper gastrointestinal tract (8.5%). ³ Majority of the tubercular liver abscess are associated with miliary TB or infective foci in the lungs or gastrointestinal tract. ⁴ Location of primary liver abscess are located either in the intra-parenchyma or subcapsular location. These abscesses can rupture in the anterior abdominal wall and can cause extension of the abscess. Granulomas are found in liver biopsy specimens in approximately 25% of persons with pulmonary TB and 80% of those with extrapulmonary TB.

Pandya et al reported a primary tubercular abscess invading the abdominal wall. Tubercular origin of the abscess was confirmed with culture using Lowenstein Jensen Medium. Other tests have emerged as new diagnostic options which are highly sensitive for tuberculosis that can give accurate results in less time. TB PCR (sensitivity 9-100% and specificity 5-100%) and BACTEC MGIT 960 (sensitivity 62% and specificity 100%) are diagnostic test for tuberculosis that can be alternatives to culture. ⁶

Another case was reported by Katsumi Et Al a primary tubercular abscess invading the abdominal wall. Liver abscess of tubercular origin was suspected due to failure of symptom to improve despite antibiotic treatment for Pyogenic abscess. Tubercular origin of the abscess was confirmed through histology and Culture. ⁷ In our patient, a high suspicion of having a liver abscess of tubercular origin was entertained due to the history

of a previous liver abscess that did not resolve on antibiotics on his previous admission. The patient also has a history of Pulmonary TB which he claims to have not completed treatment. In our country, which is known to be highly endemic with Tuberculosis infection, a tubercular origin was considered. As stated on previous case reports, ideally diagnosis of Tuberculosis is aspiration of abscess and sent for Culture. Due to limitation of facilities in our institution, confirmation with Culture was not done. Gene Xpert was the only test available in our institution which can detect Mycobacterium Tuberculosis and check for sensitivity to Rifampicin.

Several molecular methods have been developed in recent years for the diagnosis of tuberculosis and rapid detection of drug resistance in clinical specimens, including line probe assays (GenoType MTBDRplus [Hain Lifescience GmbH, Nehren, Germany], INNO LIPA Rif.TB [Innogenetics, Ghent, Belgium]) and real-time PCR (GeneXpert MTB/RIF; Cepheid, Sunnyvale, CA). In this study, the sensitivity of the test with smear and culture positive pulmonary specimens was 100%, and the specificity was 98.3% (61/62), compatible with results presented in previous medical papers. For smear-negative pulmonary specimens, the sensitivity of the test was 74.2%.⁸

It is also observed that tubercular liver abscess is associated with normal white blood cell count, WBC count was 9000/cc unlike amoebic or pyogenic liver abscess which usually present with raised white blood cell counts. Diagnosis of tubercular origin of liver abscess relies on demonstration of AFB on ZN staining or growth of MTB on culture. However, ZN staining is positive only in 0-35% cases and culture may not be always available.⁷

The Genexpert test is a molecular test for TB which diagnoses TB by detecting the presence of TB bacteria, as well as testing for resistance to the drug Rifampicin. Some organizations have claimed that the Genexpert test is going to revolutionize the diagnosis and care of people with TB.⁹ The Xpert® MTB/RIF assay has been marked for rapid molecular diagnosis of TB in Europe and has been endorsed by the WHO as a replacement for sputum smear microscopy for diagnosis of pulmonary TB in low- and middle-income countries. However, few data are available to inform recommendations for use of the assay for testing nonsputum clinical samples when investigating suspected extrapulmonary TB (EPTB). The study by Lawn and Zumla et al which collected samples from 1068 patients with extrapulmonary TB showed that sensitivity and specificity of Xpert MTB/RIF were 79.0% and 97.3%, respectively as compared to culture. The clinical samples that were used were tissue biopsies or fine-needle aspirates (35%), gastric aspirates (23%), pus (21%), urine (6%), cerebrospinal fluid (5%) and other body fluids (peritoneal, synovial and pericardial: 4%).¹⁰

Upon diagnosis, patients usually respond to antituberculosis treatment. However, some authors suggest percutaneous drainage or even instillation of anti-tuberculosis drugs into the abscess cavity.¹¹

Conclusion:

One of the differentials to be considered in liver abscess not responding to treatment is tuberculosis. Diagnostic options include ZN staining, culture, histopathology, PCR and BACTEC MGIT 960 helps in diagnosing and aids in start of appropriate therapy.

Nucleic acid amplification tests for rapid TB diagnosis are increasingly being used. The US CDC recommends that nucleic acid amplification tests be performed on at least one respiratory specimen from each patient with signs and symptoms of pulmonary TB. However, no recommendation exists for their use in the investigation of patients suspected of having EPTB as the evidence base is limited. According to the study done by Lawn and Zumla et al regarding detection of Tuberculosis in Extrapulmonary TB samples, sensitivity exceeded 75% for tissue biopsies and fine-needle aspirates (88.3%; 95% CI: 82–95), gastric aspirates (78.7%; 95% CI: 68–89), pus samples (87.3%; 95% CI: 67–100), cerebrospinal fluid (85.7%; 95% CI: 67–100) and urine (87.5%; 95% CI: 71–100). Lower sensitivity was observed for pleural fluid samples (44.4%; 95% CI: 21–67) and other body fluids including pericardial, peritoneal and synovial fluids (50%; 95% CI: 19–81).

GeneXpert should be an option in the diagnostic protocol for tubercular abscess specially in institutions with limited resources. One of the advantages of Genexpert is that you can get the result in as early as less than 2 hours as compared to culture which is within weeks.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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