



## Case Report

## Liver segmentectomy surgery for delayed diagnosed hepatic TB, a case report from Syria

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## ARTICLE INFO

## Keywords:

TB  
Hepatic TB  
Liver surgery  
Syria  
Case report

## ABSTRACT

**Introduction and importance:** Mycobacterium Tuberculosis infection is still one of the most common causes of morbidity and mortality worldwide. TB usually infects the lungs, but it can affect other organs. Hepatic involvement usually occurs with disseminated disease whereas isolated hepatic involvement is extremely rare. **Case presentation:** We present a case of a female patient who had to undergo major hepatic surgery due to delayed diagnosis of hepatic TB. It suffered from recurrent abdominal abscesses and general symptoms for a period of time. **clinical Discussion:** Medical therapy is the treatment of choice and surgery is justified only in specific cases. Surgical intervention may range from less complicated procedures as local excision, abscess drainage or biliary drainage to more complicated and major surgeries such as liver segmentectomy and hemihepatectomy. **conclusion:** Although rare, physicians should suspect and diagnose early, to give the patient the best chance to benefit from medical therapy and avoid the need for surgical intervention.

## 1. Introduction

Mycobacterium Tuberculosis infection is still one of the most common causes of morbidity and mortality worldwide [1]. In the 1940s, the discovery and use of anti-TB drugs made the prevalence decrease [2]. However, the incidence of TB increased in the last few decades due to many proposed factors [2]. It is believed that the increased number of immune-compromised patients, drug abusing and resistance against medications are the major causes [2].

TB usually infects the lungs, but it can affect other organs [1,2]. Hepatic involvement usually occurs with disseminated disease whereas isolated hepatic involvement is extremely rare [2]. Low oxygen tension in liver may be not a preferred home for this mycobacterium [2]. In miliary TB, bacteria reach the liver hematogenously, while in primary form it disseminates from intestines through portal vein [3].

Many physicians have tried to classify hepatic TB, Levine divided it into miliary tuberculosis, pulmonary tuberculosis with hepatic involvement, primary liver tuberculosis, tuberculous cholangitis, and focal tuberculoma or abscess [2] While, Reed tried to make it easier and classified it into three categories only: tuberculosis of liver associated

with generalized miliary tuberculosis, primary miliary tuberculosis of the liver, and primary tuberculoma or abscess of the liver [2].

Usually, it is asymptomatic, as most granulomas are periportal [4] if any, they would be general symptoms and has no definitive imaging studies making it hard to establish diagnosis and thus misdiagnosing and delayed treatment are often unfortunately [2]. Hepatocellular carcinoma, intrahepatic cholangiocarcinoma, klatskin tumor, metastatic carcinoma and liver abscess can be sometimes mistaken with hepatic TB [2,3].

Surgical intervention is reserved for specific cases of hepatic tuberculosis in which isolated tuberculoma or liver abscess does not respond to TB medication [2]. It is also justified when obstructive jaundice, portal hypertension, biliary tract bleeding or acute abdomen happen and when malignancy cannot be ruled out [2].

Surgical intervention may range from less complicated procedures as enucleation, local excision, abscess drainage or biliary drainage to more complicated and major surgeries such as liver segmentectomy and hemihepatectomy [2]. This why care must be taken -especially by physicians in endemic areas-to suspect the disease in early stages to avoid the patient major hemihepatectomy and its high co-morbidity and

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<https://doi.org/10.1016/j.amsu.2021.102302>

Received 15 February 2021; Received in revised form 5 April 2021; Accepted 7 April 2021

Available online 14 April 2021

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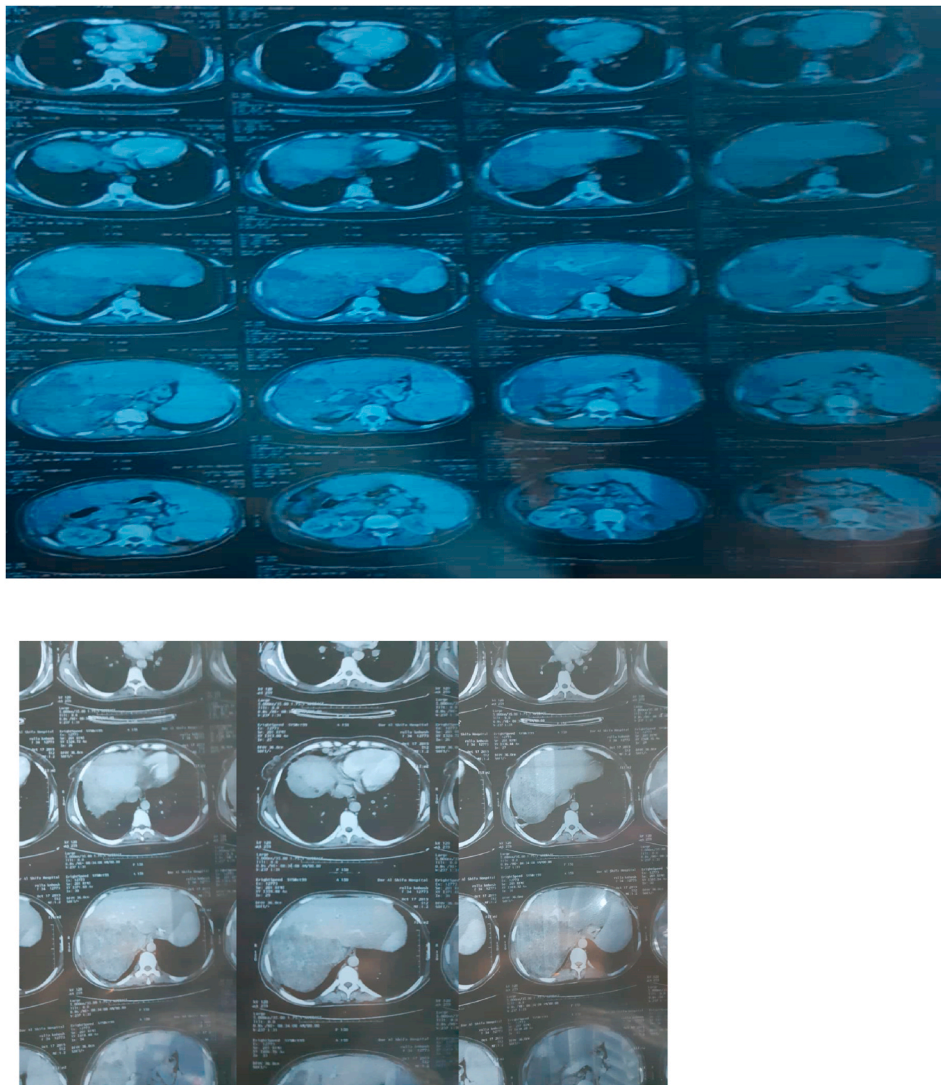


Fig. 1. Abdominal CT before admission.

Table 1  
Labs on admission.

Test	Result	Reference range
White Blood Cells	9400/ $\mu$ L	4400–11 000/ $\mu$ L
Neutrophils percent	80%	40–70%
CRP	9	Up to 0.5
Hemoglobin	7.8g/dL	13–16 g/dL
Hematocrit	25%	38–53%
Platelets	$320 \times 10^3$ / $\mu$ L	$150\text{--}450 \times 10^3$ / $\mu$ L
TP	8.3	
ALB	3.3	
ALT	13 IU/L	8–20 IU/L
AST	9 IU/L	8–20 IU/L
INR	1.34	1–1.5
Anti HAV	negative	
HBsAg	Negative	
Anti HCV	negative	
CEA	Normal range	
CA19_9	Normal range	
AFP	Normal range	
TB	0.49	
DB	0.17	
ALP	141	
Amylase	20	

mortality [5,6].

We present a case of 33-year old female patient who had to undergo major hepatic surgery due to delayed diagnosis of hepatic TB. The case has been reported in line with the SCARE 2020 criteria [7].

## 2. Presentation

A 33-year-old female patient with no previous medical or familial history walked into our tertiary university hospital with fatigue, abdominal pain, fever and continuous purulent leak from skin. She had surgeries for cholecystectomy 11 years before, Sleeve gastrectomy 3 years before and she had a history of recurrent abdominal abscesses formation needed to be CT guided drained for 2 times, one of them was before the Sleeve surgery. Month before admission, she had continuous purulent leak from the site of the previous drainage at her back. She underwent CT scan that showed Hypo-dense area involves almost the whole right lobe, with vessels in it, inflammatory changes and some fluids around the liver. Fig. 1 She was put on antibiotics by her physicians at her place of accommodation with no progress. The repeated abdominal abscesses for years and the delayed decision to refer her to a tertiary university hospital for other options of treatment made her quality of life poor.

On admission, she had fever, abdominal pain, fatigue and she still had the leak from her Back. Her laboratory tests are showed in Table 1.

Her viral and tumor markers were negative. she was prepared for surgery, Blood transfusion, cardiac and anesthetic consultations were done. During surgery, right subcostal incision was made, adhesions were freed, by checking the right lobe of liver, necrotizing materials were found damaging all the 6 and 7 segments of liver, frozen section biopsy was taken with the result suggesting TB. All the granulomatous materials were removed and 6–7 segmentectomy was done. The surgery was done by professor Mohamad Ahmad experienced in Hepato-biliary surgery She was referred to ICU for one night only, had good recovery clinically and by Labs and discharged at the sixth day in well status. Final pathology was necrotizing gramatous inflammation consistent with tuberculosis. The patient then took full course of anti-TB medication and recovered well. The patient was followed for 15 months with no recurrence or any related medical problems.

### 3. Discussion

Dr. John Syer Bristowe reported the first recorded case of hepatic TB in 1858 [4]. Disseminated tuberculosis is seen in up to 50–80% cases while primary TB is rare [4,8]. It is believed that hepatic TB disseminates to liver by portal system from a gastrointestinal infection origin and settle near portal triad [8]. in opposite to milliary hepatic Tb where the infection origin is in lungs and reaches liver hematogenously and settle in the lobules of liver [8].

It has no specific symptoms or radiological manifestations and mimics a wide range of other liver pathologies [2,3]. Hepatocellular carcinoma, intrahepatic cholangiocarcinoma, klatskin tumor, metastatic carcinoma and liver abscess can be sometimes mistaken with hepatic TB [2,3].

Levine divided Hepatic TB into miliary tuberculosis, pulmonary tuberculosis with hepatic involvement, primary liver tuberculosis, tuberculous cholangitis, and focal tuberculoma or abscess [2] Reed classified it into three categories only: tuberculosis of liver associated with generalized miliary tuberculosis, primary miliary tuberculosis of the liver, and primary tuberculoma or abscess of the liver [2].

Medical therapy is the treatment of choice and surgery is justified only in specific cases when malignancy cannot be ruled out, isolated tuberculoma or abscess which do not respond to anti-TB drugs or when obstructive jaundice, portal hypertension, biliary tract bleeding or acute abdomen happen [2].

In our case, the late referral and diagnosis led to repeated formation of liver abscesses and failure of CT-guided drainage due to not using anti-TB drugs. In consequence, large hepatic abscess was formed that damaged almost the right lobe of the liver applying the patient to a major surgery hepatic segmentectomy.

Pang et al. reported a case of hepatic hilar tuberculosis which was first thought to be a Klatskin tumor in 2019 [9]. Niyogi et al. reported in 2019 five patients whose clinical symptoms and radiological study mimicked primary liver malignancy or metastases. However, hepatic tuberculosis was the final diagnosis. 3 of them had to undergo surgery [4]. Jeong-Ik Park reported a case of 2 patients of hepatic TB thought to have mass-forming intrahepatic cholangiocarcinoma [3].

### 4. Conclusion

Although rare, hepatic TB still occurs with no specific symptoms or imaging study making it a challenging scenario to physicians to suspect and diagnose early, to give the patient the best chance to benefit from medical therapy and avoid the need for surgical intervention with its comorbidity and mortality.

### Consent of patient

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this

journal on request.

### Sources of funding

There is no funding.

### Ethical approval

This is a case report and there is no need for ethical committee approval.

Nevertheless, informed consent is taken from patient.

### Author contribution

Basel Ahmad: gathering information, literature review, writing manuscript, review manuscript Tareq Ahmad: gathering information, literature review, writing manuscript Aya Ahmad: gathering information, literature review, writing manuscript Mohamad Ahmad: performing procedure, writing manuscript, review manuscript, supervise whole work.

### Research registration

N/A.

### Guarantor

The correspondence author: Basel Ahmad.

### Declaration of competing interest

There is no conflict of interest.

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