



Case report

Pyo pneumothorax revealing splenic tuberculosis abscess in a COVID-19 femmal: A case report

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ABSTRACT

Introduction: Splenic tuberculosis (ST) is an uncommon entity, especially in an immunocompetent patient. Therefore, diagnosis delays may be seen and can lead to fatal complications.

Presentation of case: We report a 37-year-old female with no medical history who presented to the emergency with a spontaneous left pyo pneumothorax. Reverse transcription-PCR analysis of COVID-19 was positive. Chest and abdominal Computed Tomography showed a ruptured splenic abscess with left pyopneumothorax. The diagnosis of splenic abscess with pleural fistulization was strongly suspected. Emergency surgery was decided for both therapeutic and diagnostic purposes. A left video thoracoscopy and splenectomy was performed. After histopathological examination, the diagnosis of ST ruptured in the pleural cavity was confirmed. The patient had a stable recovery and completed a 9-months regimen of anti-tuberculosis medications.

Discussion: ST has no characteristic symptoms and diagnosis may be delayed until life-threatening complications arise. Pyopneumoyhorax complicating ST is an exceptional evolution and rarely reported in the literature. In this case, the authors reported a ST discovered following respiratory signs related to an intrapleural splenic rupture in a young woman co-infection with COVID-19.

Conclusion: ST is extremely rare and has no characteristic symptoms. The evolution is unpredictable and can lead to splenic rupture. This rupture can be intrathoracic making the diagnosis more difficult.

1. Introduction

Splenic tuberculosis is a rare form of extrapulmonary tuberculosis (TB) [1]. This entity is usually seen in patients with immunodeficiency or the disseminated form of TB [1,2]. This disease presents no specific symptoms or typical imaging findings [3]. Therefore, diagnosis delays may be seen and can lead to the occurrence of complications and spontaneous rupture of the spleen. The majority of the cases described abdominal rupture, thoracic rupture was extremely rare.

This report describes an extremely rare case of isolated ST ruptured in the chest diagnosed by left pyo pneumothorax in a COVID 19 patient. This work has been reported in line with the SCARE 2020 criteria [4].

2. Case presentation

A 37-year-old woman, with no medical history, complained of pain in the left chest and left upper abdomen with the difficulty of breathing for three days. These symptoms were associated with productive cough. She denied any history of recent fever, weight loss, prodromal chills, and night sweats.

His respiratory rate was 28 breaths/min and his oxygenation rate was 92% on room air, improving to 96% under 6 L/min oxygen via a non-rebreathing mask. Her body temperature was 38 °C.

Reverse transcription-PCR analysis of COVID-19 was positive. Laboratory investigations were within normal limits.

Chest X-ray showed a left hydropneumothorax (Fig. 1). Computed tomography (CT) of the chest and the abdomen showed a large solitary splenic abscess measured 9 cm * 7 cm ruptured in the left pleura

Abbreviations: ST, Splenic tuberculosis; TB, Tuberculosis; CT, Computed tomography.

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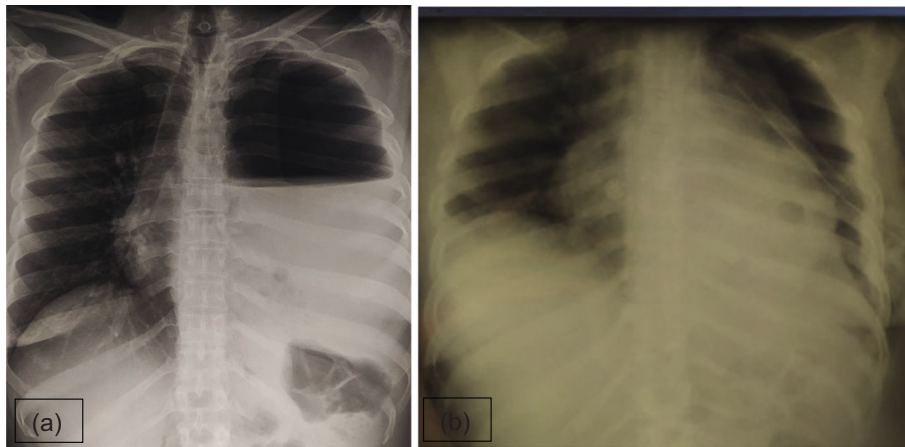


Fig. 1. (a). Chest X-ray showed an abundance left hydropneumothorax with mediastinal deviation. (b). Chest X-ray after chest tube thoracostomy.



Fig. 2. CT scan of the abdomen showing a ruptured splenic abscess (9 * 7 cm) (white arrows).

provoking a pyo pneumothorax (Fig. 2). The diagnosis of splenic abscess fistulated in the left pleural was strongly suspected.

Intravenous antibiotic prophylaxis was prescribed and left Chest tube was inserted and brought back 2500 ml of a gelatinous fluid. Pleural fluid culture analysis showed *Mycobacterium tuberculosis*, and tuberculosis workout including Xperts gene was positive.

Considering the rapid improvement in respiratory status after chest

tube insertion and the lack of risk factors, the patient was not put on special treatment for covid 19 co-infection.

Emergency surgery was decided for both therapeutic and diagnostic purposes. Intraoperatively, we found a large isolated splenic lesion, adhering to the left lobe of the liver, and pushed the pancreas downward with small diaphragmatic defect. Splenectomy was performed (Fig. 3). At the same time, a left video thoracoscopy was released and showed an extensive intrathoracic capsular fibrin (Fig. 4). A pleura biopsy was performed with pleura Wash and drainage.

The postoperative course was uneventful. Histopathology examination showed features of splenic tuberculosis abscess and an inflammatory pleura. Thus, the patient was started on quadruple anti-Tuberculosis therapy for 9 months with good results.

3. Discussion

Despite medical improvement in the diagnosis and treatment of tuberculosis, this disease continues to be a major health problem in developing countries. The spleen is the third most frequently affected organ after the lung and the liver in miliary TB. There are few case reports of ST published to date in immunocompetent patients [5]. There are no specific symptoms or typical imaging findings to establish the diagnosis [3,6]. Therefore, the diagnosis can be made late when complications occur as well as spontaneous rupture of the spleen.

This report describes a rare case of isolated ST discovered by respiratory symptoms after chest rupture.

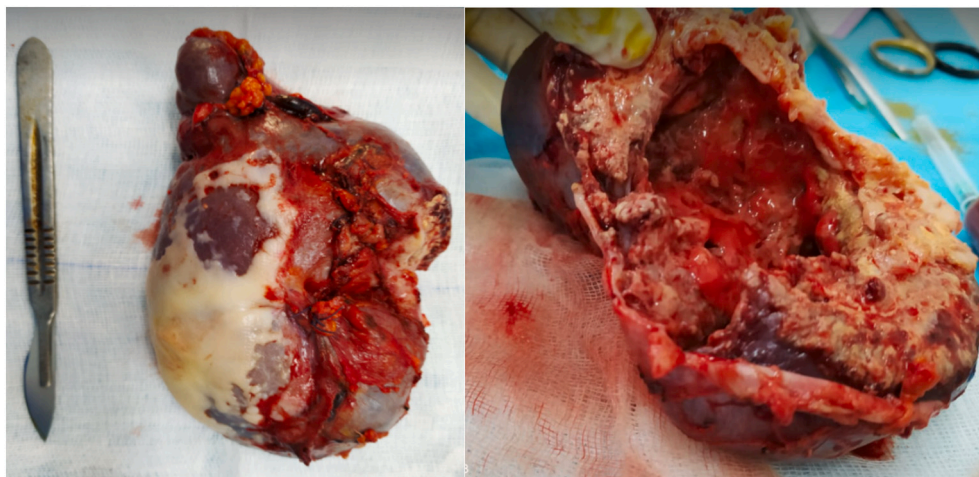


Fig. 3. Spleen specimen showing large necrosis mass (caseous necrosis) with rupture.

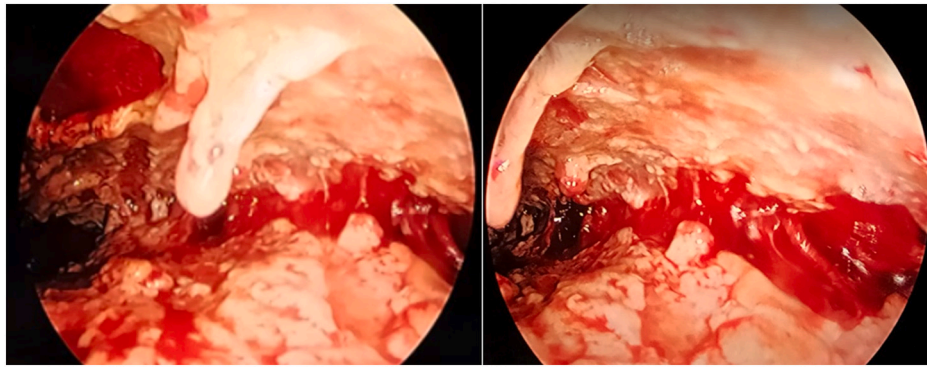


Fig. 4. Per-operative view of left video thoracoscopy showed an extensive intrathoracic capsular fibrin deposition.

The most common abdominal causes of pleural effusion are chronic or recurrent pancreatitis and complicated liver hydatid cyst. Intra-abdominal fluid may migrate readily into the pleural space through the diaphragmatic defect [7]. Until today no case of pyopneumothorax revealing a ST fistulated in the pleural has been published.

Abdominal Ultrasound is the initial imaging exam to detect the presence of splenic lesions. Computed tomography scan can show hypo- or hyperdensities in splenic TB, but in most of the instances it is misdiagnosed as fungal abscess or lymphoma [8]. CT scan can be used also to detect concurrent lesions in the other parts of the chest or the abdomen [9].

Histopathological examination is the only way to confirm the diagnosis, by spleen biopsy, culture of splenic abscess aspirates or after examination of a splenectomy specimen [10].

Treatment strategies can either involve a splenectomy in cases with enlarged spleens with abdominal or chest rupture. Conservative approach as percutaneous drainage can also be used in some cases associated to appropriate anti-tuberculosis therapy [10,11]. If splenectomy is carried out, standard anti-tuberculosis therapy should be taken pre- and postoperatively [10].

Though the information about COVID-19 and active TB co-infection reported so far is sparse but it can be assumed that people with tuberculosis are not more likely to get COVID-19, but pre-existing TB has a higher chance of developing serious complications from COVID-19 [12,13]. This case describes ST and co-infection with COVID-19 in a young woman who had no covid-19 specific complications.

4. Conclusion

The diagnosis of ST should be evocated in case of isolated splenic abscesses in patients from endemic areas. Imaging is imperative for faster diagnosis and treatment to defer impending rupture and the need for surgical intervention. Although rare, rupture of splenic abscess, should be in mind as a diagnosis of patients presenting with spontaneous left pyopneumothorax.

Declaration of competing interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

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Ethical approval

The Ethical Committee of Abderrahmen Mami Hospital approved the study.

Consent

The patient granted written informed consent for publication of this manuscript and the accompanying images.

Author contribution

Mariem Hadj Dahmane and Imen Bouassida: writing, and reviewing of the manuscript.

Hazem Zribi, Adel Marghli: review, provided expertise and feedback.

Amina Abdelkbir, Chaker Jaber: contributed for the treatment.

All authors drafted the article, revised it critically for important intellectual content and approved the final version to be submitted.

Registration of research studies

N/A.

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