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Watch out for Abdominal Pain in HIV-AIDS Patients: Abdominal Tuberculosis

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Abstract

Extrapulmonary Tuberculosis (EPTB) is the TB involving organs other than lungs. The diagnosis of EPTB can be difficult, as suspicion is challenging, because it presents with nonspecific clinical features and atypical presentation. Furthermore, patients with HIV may present with fever of unknown origin (FUO) as the only symptom. We present a clinical case of a 49 years old Puertorrican female with HIV-AIDS and no high-risk behavior with an abdominal pain and fever. The investigation confirmed an Abdominal Tuberculosis. This case emphasizes the need to add Abdominal tuberculosis (ATB) within the differential diagnosis and discuss the diagnostic process.

Keywords

Abdominal Pain, Abdominal Tuberculosis (ATB), Diagnosing ATB, HIV/AIDS

1. Introduction

Tuberculosis (TB) is a disease caused by *Mycobacterium tuberculosis* and non-tuberculous Mycobacteria (NTM), which are obligate aerobe acid fast bacillus (Rods). It is a slow-growing bacterium, which may take up to six weeks for visible growth. *M. tuberculosis* is characterized by forming nodule-like strictures called Granulomas, which are an area of inflammation composed of bacteria surrounded by infected macrophages and other layers of immune cells including granulocytes, dendritic cells (DCs), natural killer (NK) cells, and T and B lymphocytes [1]. Extrapulmonary TB (EPTB) is the TB involving organs other than lungs. A patient with both pulmonary and EPTB is considered a case of Pulmonary TB [2]. In HIV-positive patients, EPTB accounts for more than 50% of all Tuberculosis's cases [3]. The diagnosis of EPTB can be difficult, as suspicion is

challenging, because it presents with nonspecific clinical features and atypical presentation [4]. Also, anatomical areas are usually difficult to access and radiological features are non-specific, which adds to the difficulty of the diagnosis [5]. EPTB may manifest with constitutional symptoms such as fever, anorexia, weight loss, malaise and fatigue. Patients with HIV may present with fever of unknown origin (FUO) as the only symptom. The proportion of TB in the final diagnosis of FUO was 8% - 11% in the 2000s. In fact, in South Korea, TB is automatically within the differential diagnosis when evaluating FUO [4]. According to Sharma *et al.* (2004), the clinical presentation of Abdominal Tuberculosis (ATB) can be acute, chronic or acute on chronic. The most common clinical presentations are fever, abdominal pain, diarrhea, constipation or alternating pattern of diarrhea and constipation [6]. On Awasthi *et al.* (2015), all 48 participants with ATB reported abdominal pain, thus being the most common clinical presentation. Therefore, ATB should be within the differential diagnosis in high-risk patients presenting with vague abdominal symptoms [7].

This case in discussion highlights the importance of clinical suspicion and diagnostic methods of ATB in patients with Human Immunodeficiency Virus-Acquired Immune Deficiency Syndrome (HIV-AIDS) presenting with abdominal pain. Early recognition of signs and symptoms could prevent worsening of disease, and thus better outcomes pertaining the morbidity and mortality of these patients.

2. Case Report

This is the case of a forty-nine years old female with history of Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) (CD4: 149, Viral load: 406) non-compliant with highly active anti-retroviral therapy (HAART) of Bictegravir-Emcitrabine-Tenofovir alafenamide who developed an intermittent stabbing periumbilical and Left Lower Quadrant (LLQ) abdominal pain associated with intermittent episodes of fever, chills, night sweats and general malaisesince three weeks prior to evaluation. The patient denied someone at home with similar symptoms, personal history of Tuberculosis (TB), recent traveling, imprisonment or homelessness. Physical evaluation was pertinent for an underweight female with a Body Mass Index (BMI) < 18.5 kg/m^2 with a LLQ 10 × 6 cm non-mobile, tender to palpation violaceous mass without erythema, warmth or pus drainage (**Figure 1**). During the second day of hospitalization, patient developed aHerpetic zoster lesion in Left eye treated with topical and intravenous administration of Acyclovir for seven days (**Figure 2**). CBC showed: WBC: 6.45 with Neutrophils % = 71, Hemoglobin = 7.9 and Platelets = 219. Plain chest X-rays were normal. Abdominopelvic Computed Tomography scan (CT scan) revealed multiple hypodense masses in liver, spleen and pancreas, and one large mass with septations in left psoas muscle. Positive inguinal, aortocaval, retrocaval and para-aortic lymphadenopathy with central low attenuation (**Figure 3**). ATB was high on differential diagnosis for which Mantoux skin test was

placed and found negative with 0 mm induration. Fine-needle aspiration (FNA) biopsy of Left psoas muscles resulted in a positive Acid-Fast Bacilli (AFB) smear and culture for Non-resistant *Mycobacterium tuberculosis*. Sputum and fecal AFB smear and cultures were negative. Anti-TB treatment was started, including Rifampin, Isoniazid, Ethambutol and Pyrazinamide (RIPE). HAART was changed to Emcitrabine-Dolutegravir and Tenofovir disoproxil. Patient remained in isolation for two weeks while on Direct Observed therapy. FNA was repeated after two weeks of prior mentioned treatment and found negative. Subsequently, isolation was discontinued and patient was discharged home. She was advised to complete six months of RIPE therapy plus Pyridoxine and follow up with Primary Care Physician (PCP) preventively to monitor drugs adverse effects.

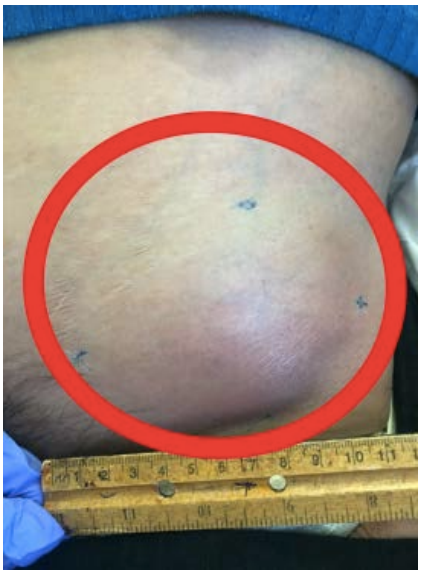

Figure 1. 10 cm × 6 cm non-mobile, violaceous mass.

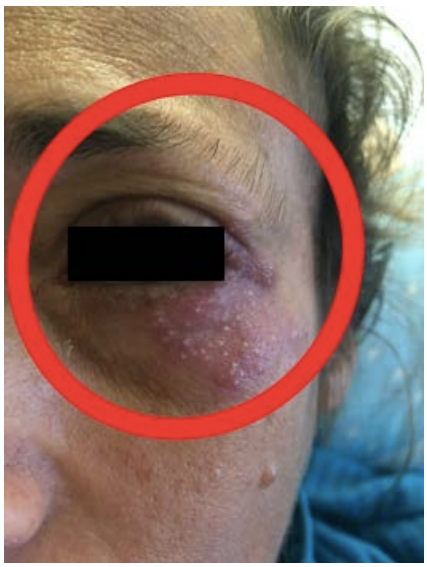

Figure 2. Left eye Herpetic zoster lesions.

3. Discussion

The abdominal tuberculosis (ATB) occurs in four forms: Tuberculous lymphadenopathy, Peritoneal tuberculosis, Gastrointestinal tuberculosis (GITB) and Visceral tuberculosis involving solid organs [5]. A combination may occur as well. Presentation depends on the mechanism of bacterial entrance. The bacteria may enter through ingestion of infected sputum, manifesting as GITB. It may cause ulceration of mucosa that can spread through peritoneum, causing Peritoneal Tuberculosis. If active or latent pulmonary TB is present, it can spread through lymph nodes subsequently manifesting as Tuberculous lymphadenopathy. If bacilli enter through portal circulation, hematogenous spread to visceral organs may occur [5]. The most common site of GITB is the ileocecal region since it has minimal digestive activity, relative increased physiological stasis, higher rates of fluid and electrolyte absorption, as well as more lymphoid tissue [8]. While among the solid organs, liver and spleen presented the highest incidence of involvement [9]. Most common complications of ATB are intestinal obstruction secondary to strictures or adhesion, as well as perforation due to reactive fibrosis of peritoneum [10] [11].

Diagnosis is made through radiological studies including CT scan, US, Barium studies or MRI. CT scan is helpful to evaluate the extent and type of ATB. There are no pathognomonic radiological findings of ATB [6]. A normal liver on CT scan does not rules out hepatic TB because a miliary pattern may not be seen on CT scan. On CT scan, necrotic lymph nodes, which results from avascular caseating granulomatous lesion, in combination with hypoattenuating nodules on solid organs is highly sensitive for ATB [12]. If high bilirubin is seen in a high-risk/immunosuppressed patient living on endemic area of TB, hepatic biopsy should be performed to evaluate for small granulomas of miliary hepatic TB [13]. Stool cultures for tubercle bacilli are not recommended as a single test for diagnosis of GITB because positive results are more likely to occur in patients with active pulmonary disease who are swallowing the sputum, rather than in all patients with ATB [14]. Additionally, immunological test, such as Tuberculin skin test (TST) and IFN-Gamma Release Assay (IGRA) cannot distinguish between latent and active infection, and negative results cannot completely exclude the disease [14].

Psoas muscle abscess usually results from continuous Tuberculous spondylitis [12]. In our patient, the culprit of the left psoas muscle abscess was likely related to latent pulmonary TB spreading to lymph nodes with subsequent rupture of the left para-aortic lymph node within the muscle's fibers (**Figure 4**). The decision to perform the biopsy on the Left psoas muscle was based on easier accessibility when compared to inguinal or retroperitoneal lymphadenopathy. Accessibility to sampling area is an issue to be taken into consideration when diagnosing EPTB. There are no preferred areas for sampling nor diagnostic algorithms, but the most accessible area to secure an adequate sample is the recommended area [15].

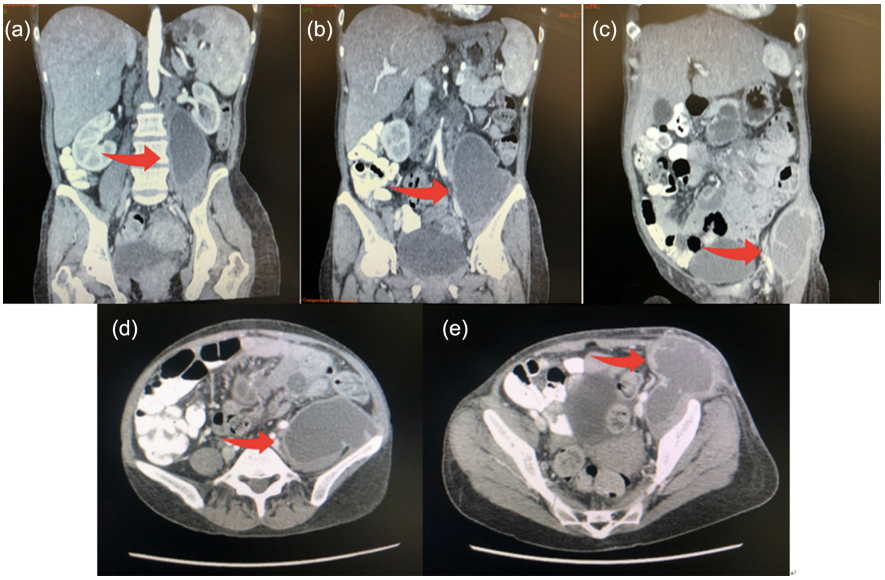

Figure 3. Abdominal CT scan coronal plane: (a)/(b): Cystic mass of the Left psoas muscle with extension to the iliacus muscle. (c) Extending below the levels of the inguinal ligament. *Abdominal CT scan axial plane*: (d) Psoas muscle mass (e) Extension to the iliacus muscle.

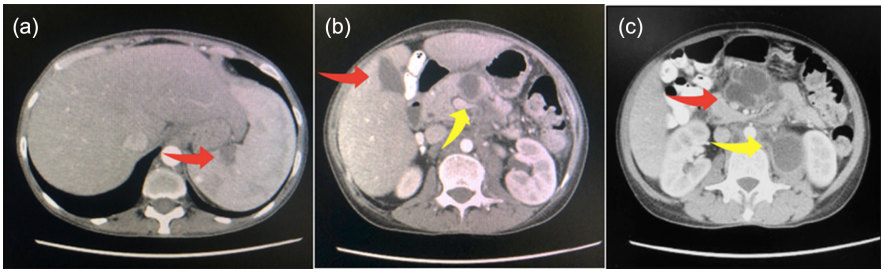

Figure 4. Abdominal CT scan Axial plane: (a) Spleen hypo-enhancing lesion in the posterior medial aspect of the pole (Red arrow). (b) Subdiaphragmatic hypodense lesion in the R hepatic lobe (Red arrow). Peripherally enhancing cystic/necrotic mass in the inferior portion of the pancreas (Yellow arrow). (c) Necrotic mesenteric lymphadenopathy (Red arrow). Left para-aortic lymphadenopathy (Yellow arrow).

New studies suggest that cases of ATB should meet the following criteria for diagnosis: Conventional positive AFB smear and culture for *M. tuberculosis*, Histopathological diagnosis with identification of caseating granulomas in biopsy and response to anti-tubercular treatment [7]. Six months of anti-tuberculous therapy for active ATB is generally considered adequate [16]. Young *et al.* (2008), reported considerable improvement in patients with intestinal TB at three months of therapy. Therefore, Korean guidelines recommend colonoscopy follow up to be performed every three months [17].

4. Conclusion

In the presented case, we emphasize that if a patient with HIV-AIDS complains of persistent abdominal pain or has FUO, ATB should be within the differential

diagnosis. ATB has a varied clinical presentation and could be easily missed. Next steps in diagnosis should include abdominal CT scan looking for enlarged lymph nodes with center hypo-attenuation, parietal intestinal thickening, and miliary vs. macronodular hepatic pattern. Diagnosis should not be limited to radiological imaging but also include immunological test (TST and IGRA) of stool and sputum, AFB smear and culture, biopsy for histopathological diagnosis, body fluid analysis—Adenosine deaminase activity (ADA)—and/or Molecular tests—NAAT by PCR.

Consent

Verbal informed consent was obtained from the patient for this report, including pictures.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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