SAS Journal of Medicine (SASJM) **ISSN 2454-5112**
Abbreviated Key Title: SAS J. Med.
©Scholars Academic and Scientific Publishers (SAS Publishers)
A Unit of Scholars Academic and Scientific Society, India

Abdominal tuberculosis: A 12-year, monocentric retrospective study of 509 cases

Sofia Oubaha[1], Karima Benjouad[2*], Imane Elhidaoui[2], Hafida Sghir[2], Yomna Dannouni[2], Amine Lkousse[2], Younes Ismail[2], Zouhour Samlani[2], Khadija Krati[2]
[1]Physiology Department, *Faculty* of *Medicine* and Pharmacy at Cadi Ayyad University, Marrakech
[2]Gastroenterology Department, Mohammed VI University Hospital, Marrakech

Original Research Article

***Corresponding author**
Karima Benjouad

Article History
Received: 13.09.2018
Accepted: 27.09.2018
Published: 30.09.2018

DOI:
10.21276/sasjm.2018.4.9.5

Abstract: Abdominal tuberculosis (TB) is still a real public health problem in Morocco. It is one of the most common forms of extra-pulmonary TB. The aim of this study is to document the epidemiologic profile, the clinical manifestations, treatment responses and outcomes of abdominal TB in our region. This was a retrospective study spread over 12 years including all abdominal tuberculosis cases admitted to the gastroenterology department of the Mohammed VI University Hospital in Marrakech. The diagnosis was made on histological or bacteriological evidence. In their absence, it was based on suggestive findings or high clinical suspicion. During the study period, 509 patients were included. The average age was 38 years old. 60.5% of our cases were female. Various forms of abdominal tuberculosis were included (peritonitis, luminal TB, solid organ TB, abdominal lymph nodes or from combination of sites). The diagnosis of tuberculosis was confirmed based on bacteriological or histological findings in 42% of cases (n: 214) and in 58% of cases (n: 295) it was presumed based on suggestive findings or high clinical suspicion. All of our patients received antituberculous therapy. The outcome was good in 93.1% of the cases. Our study is characterized by the young age of the patients, the various and nonspecific clinical features. Peritoneal TB was the most common site and the outcome was positive under antituberculous treatment in almost all cases.
Keywords: Abdominal, tuberculosis, peritoneal TB, luminal TB, solid organ TB.

INTRODUCTION

Declared as a global health problem by the World Health Organization (WHO), tuberculosis is one of the top 10 causes of death in the world [1]. Its frequency is still high in developing countries, particularly in Morocco. Abdominal TB is one of the most common sites for extra-pulmonary TB.

The United Nations Sustainable Development Goals included ending the TB epidemic by 2030 as one of their health targets [1]. To achieve this, there is nothing better than understanding our current situation hence the importance of our study which aims to document the epidemiologic profile, the clinical manifestations, treatment responses and outcomes of abdominal TB in our region

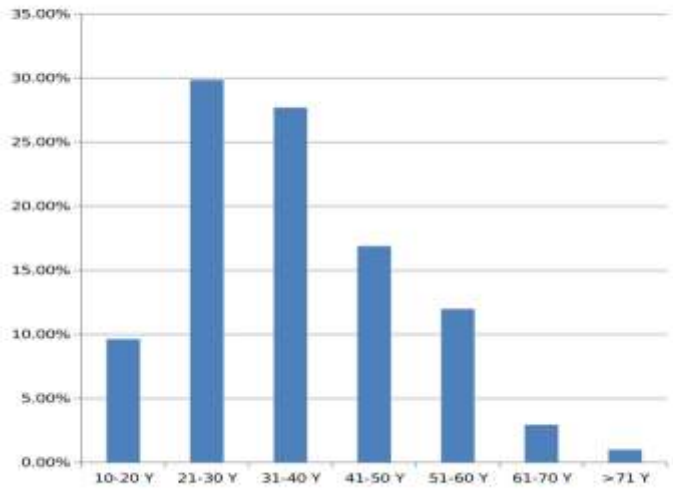
PATIENTS AND METHODS

This was a retrospective single-center study conducted in the gastroenterology department of Mohammed VI University Hospital of Marrakech over a period of 12 years (January 2005-December 2016), collecting 509 cases of abdominal tuberculosis. Our patients had benefited from a biological and radiological assessment and some cases required an endoscopic assessment, an exploratory laparotomy or a laparoscopy for a histological study. The diagnosis was confirmed on bacteriological and / or histological findings and on their absence; it was based on suggestive findings or high clinical suspicion.

RESULTS

There were 308 females and 201 males (sex ratio: 0.65) with a mean age of 38.3 years (12-90 years: figure 1).

Figure 1: percentage of different age groups



56% of our patients were of urban origin, 74.4% belonged to poor families. A personal past history of tuberculosis was found in 4.3% of patients and in 16.3%; a family history of tuberculosis was reported. 7% of our patients were immunocompromised.

The mode of presentation was chronic in 76.2% of cases. The median elapsed time between onset of symptoms to diagnosis of abdominal TB was three months. Table I summarizes the various clinical manifestations reported by our patients. Abdominal pain (79%) was the most common clinical presentation, followed by ascites (78%), fever (76%), disturbed bowel habits (52.9%), anorexia and body weight loss (41%). A pseudo-surgical presentation was the revealing mode in 3.7% of the cases: 6 cases of acute appendicitis and 13 cases of acute intestinal obstruction related to iléocoecale tuberculosis.

Table-I: main symptoms found in our study

Main symptoms	Number of cases	Percentage
Fever	389	76.42%.
Important weight loss	207	40.66%
Abdominal pain	403	79.17%.
Ascites	397	78%
Bowel disorders	249	48.9%
Amenorrhea	291	51.3%
Abdominal mass	47	9.23%

Peritoneal tuberculosis was the most common site (77.6%) followed by luminal TB in 47 cases, solid organ TB in 10 (2%) and a combination of sites in 51 (10%) (Table II).

Table-II: different sites found in our study

Site	Number of cases	Percentage
peritoneal	395	77.60%
Luminal	47	9.23%
Peritoneal and luminal	31	6.1%
Luminal and lymph nodes	10	1.96%
Peritoneal and lymph nodes	10	1.96%
Lymph nodes	6	1.18%
hepatic	6	1.18%
splenic	3	0.58%
pancreatic	1	0.2%

The diagnosis was confirmed based on bacteriological or histological evidence in 42.04% of cases (n = 214) and presumptive in 57.96% of cases (n = 295). Laparoscopic biopsy was necessary in 23% of

our peritoneal TB cases. An antituberculous therapy was administered to all our patients according to the national tuberculosis control programme. The outcome was positive and without complications in 474 cases (93.1%).

DISCUSSION

Abdominal TB is the third most common extra-pulmonary site of tuberculosis [1]. In Morocco, it represents 3.7% of all extra-pulmonary tuberculosis and is still a public health problem [2]. Although it remains low in developed countries, its incidence has increased, which can be explained by migratory movements and the spread of HIV.

Abdominal TB causes often a diagnostic dilemma. Its clinical presentation mimics various gastrointestinal disorders which may delay accurate diagnosis. Our series shows these characteristics well: the symptoms are not suggestive, often including fever, ascites, and abdominal pain and bowel disorders (Table 1).

The most common site of abdominal TB is peritoneal. It accounts for 86% of abdominal tuberculosis in Tunisia [4], 60% in Taiwan [3]. Our results were similar to these series: 77.6% of our patients had an isolated peritoneal involvement and in 10% it was associated to other forms. The clinical presentation usually encountered in our series is that of ascites and fever (78%). This ascitic form is found in 80% of cases according to Abdallah et al. [4] and 50% of cases according to Ming-Luen Hu *et al*. [3].

The diagnosis of peritoneal TB became relatively easy thanks to the adenosine deaminase and laparoscopic biopsy. Several studies demonstrated the value of ADA in ascitic fluid for the diagnosis of peritoneal TB. The increasing activity of ADA is due to the immune cell response against Mycobacterium tuberculosis. Gupta et al from India demonstrated that an ADA level of 30 units / l in the ascitic fluid had a sensitivity of 100% and specificity of 94.1% for peritoneal TB. Liao et al from Taiwan, showed that the use of 27 U / l as the limit value of ADA had a sensitivity and specificity of 100% and 93.3%, respectively, for detecting tuberculous ascites in patients with underlying chronic liver disease [5]. In our study, ADA was performed in 278 patients and was positive in 72%. This is consistent with the results of several studies, in particular that of Rana et al, where the ADA was positive in 87 % of patients [6].

The second most common site of abdominal TB is the gastrointestinal tract [7, 8]. It may affect all segments of the digestive tract, but the ileocecal region remains the most frequent location. This can be explained by various factors like stasis, presence of abundant lymphoid tissue, increased rate of absorption at this site and closer contact of the bacilli with the mucosa [8, 9]. Isolated luminal TB or associated with other abdominal forms represents 17% in our series, 20% according to Ming-Luen Hu *et al*. [3] and 24% according to Jardak *et al*. [10].

In the absence of high clinical suspicion, the diagnosis of gastrointestinal TB can be difficult and might mimic gastrointestinal lymphoma or Crohn's disease. Ultrasound, CT and nuclear magnetic signs are not very specific, but the association of some lesions may be suggestive of tuberculosis [8]. Sood et al's study about the role of ultrasound and abdominal computed tomography in gastrointestinal tuberculosis revealed that CT was superior to ultrasound in detecting periportal, peripancreatic lymphadenopathy and bowel wall thickening [11]. On the other hand, dilatation of bowel loops was better studied on ultrasound than computed tomography. However, while CT seems to be more successful in case of tuberculosis, ultrasound has the advantage of being cheaper, widely available and easy to perform.

Colonoscopy can be very helpful in the diagnosis of luminal TB if the biopsies contained a necrotizing granuloma.

Hepatic and splenic tuberculosis are rare forms of abdominal TB. They represent respectively 1.2% and 0.6% of all our patients. They can occur primarily, in the absence of any history of tuberculosis and without other associated sites. This form is extremely rare even in endemic countries. The secondary form is more common. It is often associated with disseminated miliary tuberculosis [8].

Pancreatic tuberculosis is extremely rare. It is exceptionally primitive. Most often, it is secondary to a miliary tuberculosis or associated to other abdominal sites [8]. We had only one case of pancreatic tuberculosis associated with peritoneal TB. Computed tomography showed a cystic lesion of the pancreas. The diagnosis was made by histological study of biopsies obtained by laparoscopy.

The diagnosis of abdominal tuberculosis is often difficult but it is made easier by the new non invasive biological techniques.

Gamma interferon release assays (IGRA) aims to highlight the immune memory following contact with mycobacterium complex tuberculosis. Their use in adults has been authorized by the High Authority for Health (HAS) since 2006 [12]. These tests, compared to intradermal tuberculin reaction, are more specific (90 to 100%), reproducible, and do not require that the patient be seen again at 72 hours [37, 38]. The choice between the two tests is based more on a problem of cost or test availability than true scientific arguments. The negative predictive value of IGRA tests is 99.7% regardless of the population studied. A negative immunological test

whether it is an IDR or an IGRA test does not eliminate either a TB disease or differentiate an old infection from a recent one. Moreover, all the results must be evaluated according to the immune status of the subject [12]. The High Authority for Health recommends the use of these immunological tests only for the diagnosis of latent tuberculosis and with a purpose of treatment. For the diagnosis of tuberculosis disease, these tests should not be indicated in routine practice but may, however, be helpful in some cases of difficult diagnosis [13]. Although not indicated for the diagnosis of tuberculosis disease, the interest of the measure of IFNγ and its variation under treatment remains controversial and varies according to the location of the disease [14,15].

The Xpert MTB / RIF technique provides a rapid and reliable assessment of bacterial load above a threshold of 100 bacteria per sample [16]. This technique optimizes rapid diagnosis of tuberculosis (less than 2 hours) [17]. Recent studies on the evaluation of the diagnostic performance of this test have shown that sensitivity to culture was more than 98% for positive microscopic specimens but 68% for negative microscopic specimens [18]. This technique therefore remains less sensitive than culture and a negative result obtained on a paucibacillary sample does not make it possible to exclude tuberculosis.

Morocco has a national tuberculosis control programme. The current treatment regimen in Morocco is 6 months: 2RHZE / 4RH. A meta-analysis by Jullien and al including randomized controlled trials comparing six-month versus longer regimens for treating abdominal tuberculosis concluded that:

- No evidence found suggesting that six-month regimens are insufficient to treat people with abdominal tuberculosis.
- The nine-month treatment does not reduce the risk of relapse at the end of treatment [19].
- A treatment started in time and well conducted allows a positive outcome. The mortality rate in our series that included immunocompromised patients was 1% (5 cases). Our results were consistent with those reported in Abdallah and Chaudary's studies, where the mortality rate was 1.1% and 1.2% respectively.

CONCLUSION

Abdominal TB causes often a diagnostic dilemma. Its clinical presentation mimics various gastrointestinal disorders. Our study is characterized by the young age of the patients, the various and nonspecific clinical features. Peritoneal TB was the most common site and the outcome was positive under antituberculous treatment in almost all the cases.

REFERENCES

1. World Health Organization. Global Tuberculosis Report 2017. Available from link: http://www.who.int/tb/publications/global_report/en/
2. Epidemiology of tuberculosis in Morocco 2016, Ministry of Health. Available from link: http://www.sante.gov.ma/Pages/Accueil.aspx
3. Hu ML, Lee CH, Kuo CM, Huang CC, Tai WC, Chang KC, Lee CM, Chuah SK. Abdominal tuberculosis: analysis of clinical features and outcome of adult patients in southern Taiwan. Chang Gung Med J. 2009 Sep;32(5):509-16.
4. Abdallah M, Larbi T, Hamzaoui S, Mezlini E, Harmel A, Ennafaa M, Bouslama K, Labben M, Ayari M, Khalfallah N, Najjar T. Tuberculose abdominale: étude rétrospective de 90 cas. La Revue de médecine interne. 2011 Apr 1;32(4):212-7.
5. Rathi P, Gambhire P. Abdominal Tuberculosis. Journal of The Association of Physicians of India Vol. 64 February 2016
6. Rana S, Farooqui MR, Rana S, Anees A, Ahmad Z, Jairajpuri ZS. The role of laboratory investigations in evaluating abdominal tuberculosis. Journal of family & community medicine. 2015 Sep;22(3):152.
7. Debi U, Ravisankar V, Prasad K, Sinha S, Sharma A. Abdominal tuberculosis of the gastrointestinal tract: Revisited. World J Gastroenterol 2014; 20(40): 14831-14840
8. Dafiri R et Imani F. Tuberculose abdominale. Encycl Méd Chir Radiodiagnostic - Appareil digestif, 33-010-A-30, 2001, 12 p.
9. Ndiaye A.R, Klotz F. Tuberculose abdominale. EMC - Gastro-entérologie 2012; Volume 9-060-A-10
10. Jardak S Kchir H, Maamouri N, Chaabouni H, Ben M.-N. La tuberculose abdominale : profil épidémiologique, diagnostique et thérapeutique. La Revue de médecine interne 37 (2016) A141-A267
11. Sood R. Diagnosis of Abdominal Tuberculosis: Role of Imaging., Indian Academy of Clinical Medicine Journal Vol. 2, No. 3 July-September 2001
12. Guillet-Caruba C, Martinez V, Doucet-Populaire F. Les nouveaux outils de diagnostic microbiologique de la tuberculose maladie. La Revue de médecine interne. 2014 Dec 1;35(12):794-800.
13. Haut Conseil de la Santé Publique. Tuberculose et test de détection de l'interféron gamma. Paris: HCSP. 2011 Jul.
14. Diel R, Goletti D, Ferrara G, Bothamley G, Cirillo D, Kampmann B, Lange C, Losi M, Markova R, Migliori GB, Nienhaus A. Interferon-γ release assays for the diagnosis of latent M. tuberculosis infection: A systematic review and meta-analysis. European Respiratory Journal. 2010 Jan 1:erj01151-2010.

15. Goletti D, Sester M. Screening for latent infection with Mycobacterium tuberculosis: a plea for targeted testing in low endemic regions. Expert review of molecular diagnostics. 2012 Apr 1;12(3):231-4.
16. Horne DJ, Royce SE, Gooze L, Narita M, Hopewell PC, Nahid P, Steingart KR. Sputum monitoring during tuberculosis treatment for predicting outcome: systematic review and meta-analysis. The Lancet infectious diseases. 2010 Jun 1;10(6):387-94.
17. Fitzwater SP, Caviedes L, Gilman RH, Coronel J, LaChira D, Salazar C, Carlos Saravia J, Reddy K, Friedland JS, Moore DA. Prolonged infectiousness of tuberculosis patients in a directly observed therapy short-course program with standardized therapy. Clinical infectious diseases. 2010 Aug 15;51(4):371-8.
18. Mavila R, Kottarath MD, Naseer N, Thambi N, Mohan V. Clinico-pathological profile of abdominal tuberculosis and their treatment response in a tertiary care centre. International Journal of Research in Medical Sciences. 2016 Dec 16;4(12):5120-4.
19. Jullien S, Jain S, Ryan H, Ahuja V. Six-month therapy for abdominal tuberculosis. Cochrane Databaseof Systematic Reviews. 2016 Jan 1.
20. Chaudhary P, Kumar R, Ahirwar N, Nabi I, Gautam S, Munjewar C, Kumar A. A retrospective cohort study of 756 cases of abdominal tuberculosis: two decades single centre experience. Indian Journal of Tuberculosis. 2016 Oct 1;63(4):245-50.