

Research article

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Abdominal tuberculosis, a diagnostic dilemma: report of a series of cases

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Abstract

INTRODUCTION

Abdominal tuberculosis is one of the most common non-pulmonary tuberculosis infection sites, and it relates to immunosuppression. The nonspecific features of this form of tuberculosis make an accurate diagnosis difficult. The aim of this study is to report seven (7) patients diagnosed with abdominal tuberculosis requiring surgery at the Clinical Hospital of Pontificia Universidad Católica de Chile.

METHODS

A descriptive analysis of seven cases of abdominal tuberculosis treated in our center between August 2001 and June 2013 was performed to characterize its clinical presentation and diagnostic elements.

RESULTS

Four men and three women (29-68 years old) were diagnosed and operated on for abdominal tuberculosis: three had the peritoneal form of tuberculosis, two had a lymph nodal form and two had the intestinal form. In three cases, abdominal tuberculosis was associated with immunosuppression (HIV and rheumatoid arthritis treatment) and six cases presented with wasting syndrome of at least one month duration. Three patients had an acute presentation with signs of intestinal obstruction. Diagnosis was made by surgical biopsy. Of the seven patients, who underwent surgery, three required bowel resection for intestinal obstruction.

CONCLUSION

Abdominal tuberculosis requires a high index of suspicion for an early diagnosis, especially in populations at risk.

Resumen

INTRODUCCIÓN

La tuberculosis abdominal es una de las variantes extrapulmonares más frecuentes. Se relaciona a estados de inmunodepresión y, dado su cuadro clínico inespecífico, su diagnóstico es difícil. Nuestro objetivo es presentar una serie de siete casos diagnosticados de tuberculosis abdominal que requirieron cirugía en el Hospital Clínico de la Pontificia Universidad Católica de Chile.

MÉTODOS

Se realizó un análisis descriptivo de los siete casos de tuberculosis abdominal operados en nuestro centro entre agosto de 2001 y junio de 2013, caracterizando su presentación clínica y elementos diagnósticos requeridos.

RESULTADOS

Cuatro hombres y tres mujeres (entre 29 y 68 años) fueron diagnosticados y operados de tuberculosis abdominal: tres en su forma peritoneal, dos ganglionar y dos intestinal. En tres casos la tuberculosis abdominal se asoció a inmunosupresión (VIH y artritis reumatoide en tratamiento) y en seis casos se presentó con síndrome consuntivo de al menos un mes de evolución. Tres pacientes tuvieron una presentación aguda con signos de obstrucción intestinal. El diagnóstico fue realizado mediante biopsia quirúrgica. Los siete pacientes fueron intervenidos quirúrgicamente, tres de ellos requirieron resección intestinal en el contexto de obstrucción intestinal.

CONCLUSIÓN

La tuberculosis abdominal requiere de un alto índice de sospecha, principalmente en población de riesgo, para un diagnóstico oportuno.

Introduction

In Chile, morbidity associated to tuberculosis (TB) has declined considerably in recent decades, from 52.2 per 100,000 habitants in 1989 to 18.4 per 100,000 in 2003. Mortality rate has dropped from 220,8 per 100,000 habitants in 1950 to 2 per 100,000 habitants in 2002 [1].

Lungs are the most frequently affected organs in tuberculosis. Extra pulmonary disease is reported in 15-20% of cases and is proportionately more common in association with immunosuppression [2]. In HIV-infected patients, extra pulmonary disease can reach up to 50-70% [3],[4], with a higher proportion of atypical and disseminated forms, with cavitation and granuloma formation as a less frequent presentation.

The abdomen is the second most common site of extra pulmonary tuberculosis after the urinary tract [5]. Abdominal tuberculosis can occur as an isolated manifestation or in conjunction with pulmonary or lymph node infection. Active pulmonary tuberculosis foci have been reported in 15-20% of patients with abdominal tuberculosis [5]. In turn, 50-90% of patients with active pulmonary foci have some degree of gastrointestinal involvement, which is explained by the load of swallowed microorganisms [4],[5],[6].

Abdominal tuberculosis has an insidious course and nonspecific clinical manifestations, so its diagnosis is difficult [7],[8],[9],[10],[11],[12]. Etiologic diagnosis required histopathological and bacteriological analysis. Endoscopy and laparoscopy play a key role in taking samples for biopsy [4],[7],[13],[14],[15].

The aim of this study is to report a series of seven patients diagnosed with abdominal tuberculosis that underwent surgery at Pontificia Universidad Católica de Chile Hospital.

Methods

Clinical records of patients who were admitted and underwent surgery for abdominal tuberculosis in the Service of Digestive Surgery at the Pontificia Universidad Católica de Chile Hospital between August 2001 and June 2013 were reviewed retrospectively.

Analysis of biopsies included histopathological features, histochemical study with Ziehl-Neelsen staining and molecular biology study of TB-632 with polymerase chain reaction (PCR) for the presence of Mycobacterium tuberculosis in duplicate by amplification of sequences IS6110, with internal positive and negative external control.

Results

This series consists of seven patients who underwent surgery in our center with a postoperative diagnosis of abdominal tuberculosis. They were three women and four men. Age range was 29-58 years. Three patients presented with peritoneal tuberculosis; two patients had nodal affection and two patients had intestinal tuberculosis. Two patients had been treated for extra-abdominal tuberculosis when presenting abdominal symptoms (see Table 1). A patient without concomitant extra abdominal tuberculosis had history of treated pulmonary tuberculosis (medical management and pneumonectomy) 30 years ago. Only three patients had an immunosuppression condition (HIV or immunosuppressive therapy). Immunosuppressive therapy consisted in Prednisone or anti-TNF antibodies for the management of rheumatoid arthritis. One HIV-patient was on stage AIDS despite antiretroviral therapy and had been treated for concomitant extra-abdominal lymph node tuberculosis.

Patient	Sex	Age	Immuno-suppression	Actual abdominal TB	Extra-abdominal concomitant TB	Anti-TB therapy	Background	Origin
1	M	53	No	Lymph node TB	No		Treated NHL	Urban, metropolitan region
2	M	54	No	TB of the distal ileum	Pulmonary TB	Biweekly phase	Chronic gastritis	Urban, metropolitan region
3	M	29	HIV-AIDS	Lymph node TB	Lymph node TB	Daily phase	HIV-AIDS	Urban, VII region
4	M	68	No	Peritoneal TB	No		Treated prostatic cancer	Urban, VI region
5	F	41	Prednisone use	Peritoneal TB	No		RA	Urban, metropolitan region
6	F	65	anti-TNF	Peritoneal TB	No		RA, treated pulmonary TB	Urban, metropolitan region
7	F	35	No	Colonic TB	No		Ovarian teratoma in study	Urban, VII region

TB: tuberculosis
 NHL: non-Hodgkin lymphoma
 RA: Rheumatoid Arthritis
 Anti-TNF: Anti - necrosis tumoral factor antibody

Table 1: Clinical data of patients who underwent surgery by abdominal tuberculosis.

Regarding clinical features, fatigue and weight loss were present in five patients. Those without this condition were in treatment with anti- tuberculosis by concomitant tuberculosis. Abdominal pain was present in four of seven patients, three of whom had peritoneal irritation associated with fever. Patients without abdominal pain had an insidious clinical course: one patient presented with fever, night sweats and weight loss; another two patients presented with ascites and wasting syndrome. Abdominal symptoms were related to an acute complication of abdominal tuberculosis like intestinal perforation, cecal fistula, tuberculous peritonitis and intestinal obstruction.

All patients were studied with basic laboratory tests, with nonspecific results. This initial study guided management in patients with a severe underlying complication. All patients were studied with contrasted CT that suggested diagnosis of tuberculosis in four cases. These signs suggestive of tuberculosis included intestinal parietal thickening in three cases and retroperitoneal lymph nodes and cecal fistula in one patient. Colonoscopy was performed in three cases; one patient had suggestive features (sores and ulcers), but the pathology showed nonspecific colitis.

Seven patients underwent surgery to obtain samples for pathological examination. The details of the interventions performed are presented in Table 2.

Patient	Current abdominal TB	Computed tomography	Colonoscopy	Colonoscopy biopsy	Surgery	Reason for surgery	Surgical findings
1	Lymph node TB	Nonspecific mesenteric lymphadenopathy	Normal	Normal	Laparoscopy + lymph node and splenic biopsy	Lymph node biopsy	Mesenteric lymphadenopathy
2	TB of the distal ileum	Intestinal perforation and peritonitis	Colonic sores and ulcers	nonspecific colitis	Intestinal resection and anastomosis	Acute abdomen	Peritonitis and intestinal perforation
3	Lymph node TB	Retroperitoneal lymph nodes (lymph node TB), cecal fistula	Not done	Not done	Ileocecal resection and anastomosis	Cecal fistula	Fistula and mesenteric lymphadenopathy
4	Peritoneal TB	Ascites without evidence of TB	Normal	Normal	Laparoscopy + Biopsy	Biopsy	Peritoneal nodules and ascites
5	Peritoneal TB	Peritoneal thickening suspected of TB	Not done	Not done	Laparoscopy + Biopsy	Biopsy	Peritoneal and omental nodules, ascites
6	Peritoneal TB	Peritoneal thickening suspected of TB	Not done	Not done	Laparotomy	Acute abdomen	Peritoneal and omental nodules, ascites
7	Colonic TB	Intestinal obstruction suspected of TB	Not done	Not done	Right hemicolectomy	Intestinal obstruction	Colon wall thickening and stenosis

TB: tuberculosis

Table 2. Clinical findings in patients underwent surgery by abdominal TB.

Intraoperative findings were peritoneal nodes, omental implants, ascites in peritoneal tuberculosis cases; intestinal parietal thickening in cases of intestinal tuberculosis and

lymph nodes in lymph node tuberculosis. The summary of the pathologic findings is presented in Table 3.

Patient	Current abdominal TB	Histopathology	Ziehl-Neelsen	Mycobacterium-PCR
1	Lymph node TB	Histiocytosis in lymph nodes and spleen	Negative	Positive
2	TB of the distal ileum	Ulcers and granulomas in intestinal tissue	Negative	Positive
3	Lymph node TB	Chronic granulomatous inflammation	Positive	Not done
4	Peritoneal TB	Chronic granulomatous inflammation	Positive	Positive
5	Peritoneal TB	Chronic granulomatous inflammation	Positive	Not done
6	Peritoneal TB	Chronic granulomatous inflammation	Positive	Positive
7	Colonic TB	Chronic granulomatous inflammation	Negative	Positive

PCR: polymerase chain reaction
TB: tuberculosis

Table 3. Histopathological findings in patients underwent surgery by abdominal TB.

Discussion

Abdominal tuberculosis represents a diagnostic challenge. It requires a high suspicion index to make an accurate diagnosis by performing a sequential and standardized study. Several diagnostic elements are common with other abdominal diseases, but these should be key to suspect abdominal tuberculosis [3],[9],[14].

The risk population is mainly immunocompromised subjects: HIV (+), people with immunosuppressive therapy and cachectic states. Immunosuppression must be considered an element of suspicion of TB in all its forms, but this context should suggest atypical presentations of tuberculosis [5],[6],[16],[17]. In our study, almost half of the cases were associated with immunosuppression; most of them had a consumptive disease with an acute event that triggered consultation.

Laboratory and imaging tests are key to assess primary evaluation, detect possible complications, rule out other diseases and guide further tests. Higher resolution images, such as CT can demonstrate findings suggestive of tuberculosis and guide appropriate histopathological study to confirm the diagnosis [1],[3],[4]. In our series, CT showed findings suggestive of abdominal tuberculosis in four patients.

There are endoscopic abnormalities suggestive of tuberculous enteritis, which can confirm the diagnosis through the histological study in a number of cases; in other cases [4],[13],[15],[18], it will be difficult to distinguish from other causes of chronic intestinal inflammation such as Crohn's disease [19],[20],[21],[22]. In our experience, although colonoscopy was not performed in all cases, when performed, it provided therapeutic guidance.

The etiological confirmation must consider usual microbiological analysis and molecular analysis if histological study is inconclusive [4],[6],[18]. In our series, PCR for Mycobacterium was necessary to confirm the diagnosis in 5 patients. In 2 cases the diagnosis was made solely on the basis of molecular analysis.

There is a group of patients, who despite all of the above, can still not achieve confirmation of tuberculosis. A very high clinical suspicion even without histological confirmation allows starting a course of medical treatment and assesses clinical response ("therapeutic trial") [1],[23],[24]. Therapeutic trial required an appropriate clinical follow-up. Laboratory parameters and endoscopic studies play an important role in this assessment [5],[6]. In our series, surgical exploration was an adequate way to obtain samples for histopathological and molecular analysis. This study confirmed diagnosis of tuberculosis.

Conclusion

Abdominal tuberculosis requires high index of suspicion for early diagnosis, particularly in populations at risk. Clinical

context, associated with an insidious, progressive and consumptive course is a characteristic setting of tuberculosis [24],[25]. CT and adequate biopsy sampling are key for diagnostic confirmation.

Notes

From the editor

This article was originally submitted in Spanish and was translated into English by the authors. The *Journal* has not copyedited this version.

Ethical aspects

The *Journal* ethical aspects editor reviewed the original manuscript of this article. He considers that, since the cases were analyzed retrospectively from clinical records, the identities of the patients are not discernible nor traceable from the information provided in the article. This protects the confidentiality of sensitive data of the patients, who do not suffer any physical or psychic intervention as part of the study. Consequently, no violation of basic principles of research ethics are violated.

Conflicts of Interests

The authors completed the conflict of interests declaration form from the ICMJE, and declare not having any conflict of interests with the matter dealt herein. Forms can be requested to the responsible author or the editorial direction of the *Journal*.

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