

# Abdominal tuberculosis and thrombosis of inferior vena cava: a case report

M. Sayadinia, MD<sup>1</sup>

Assistant Professor Department of Surgery<sup>1</sup>, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.

(Received 28 Sep, 2013 Accepted 30 Jun, 2014)

## ABSTRACT

**Introduction:** Tuberculosis (TB) is an ancient disease. At the present, about 9 million people are suffering from the disease, and about 3 million people die due to TB and its complications. Abdominal or Gastrointestinal tract TB is the sixth most frequent site of extrapulmonary involvement. Diagnosis of abdominal TB is very difficult since it appears with multiple symptoms. In this study, we describe a case of abdominal TB with rare presentation of IVC thrombosis that was evaluated for a long time without any results.

**Case Report:** The patient was a 31-year-old woman - with history of chronic abdominal pain for 6 months - hospitalized at internal ward at Shahid Mohammadi hospital in Bandar Abbas, Iran. Abdominal sonography and CT scan showed a 15\*50 mm thrombosis in IVC. Physicians started anticoagulant therapy since they did not reach an appropriate diagnosis. After 2 to 3 months the abdominal pain was intensified and the patient was referred to a surgeon. Appendicular abscess was diagnosed and open surgery was an option for the removal of the abscess. During the surgery, the surgeon tried to drain the abscess from the preperitoneal space but, a big mass - separate from the abscess - was noted in the area. Pathological examinations of the mass showed that the cause of the problem was TB granuloma. Being treated with anti TB medication, the patient recovered.

**Conclusion:** Abdominal TB entailed various symptoms making the diagnosis controversial. Hence, strong clinical suspicion is a critical factor for the diagnosis of the disease in endemic regions. PCR test of ascites is very useful. Definite diagnosis is made by biopsy of peritoneal white nodules at the time of laparoscopy or laparotomy. The disease responds well to drug therapy. Therefore, on time diagnosis saves time and money.

*Correspondence:*

*M. Sayadinia, MD.*

*Surgery Department Hormozgan*

*University of Medical Sciences.*

*Bandar Abbas, Iran*

*Tel: +98 9173616477*

*Email:*

*drsaiadinia@yahoo.com*

**Key words:** Abdominal Tuberculosis – Thrombosis – Inferior Vena Cava

## Introduction:

Tuberculosis (TB) is an ancient disease whose traces have been found in Egyptian mummies. Around 9 million people suffer from the disease, and about 3 million die due to TB and its complications (13). Almost one third of this population show comorbidity of HIV. Eighty percent of TB cases are found in 22 countries of the world where India and China rank the highest prevalence rates. Eighty percent of the mortality

from TB occurs at the ages of 15 to 49 while 33% of the cases are asymptomatic (1). No one is absolutely safe from TB infection. Mycobacterium is the pathogenic agent discovered by Robert Koch. There are various types of mycobacteria the most important of which are Mycobacterium tuberculosis and Mycobacterium bovis.

TB bacteria normally enter the airways via inhaling infected particles. Then they are swallowed by alveolar macrophages and cause the inflammation of lymphatic nodes and formation of

Ghon's complex. The bacteria can be activated and spread throughout the body in case of immunodepression. In addition to the lungs, TB may affect the middle ear, tonsils, CNS, muscles, liver, spleen, peritoneum, bowel, genitourinary and heart (2).

TB can affect any part of gastrointestinal tract (GI). It is the 6<sup>th</sup> most common site of extrapulmonary involvement (12). Abdominal TB includes up to 12% of extrapulmonary TB and 1-3% of total cases of TB (13). Abdominal TB may affect GI from mouth to anus, peritoneum and biliary tracts and trigger a variety of demonstrations. However, the only solution for primary diagnosis of the disease could be a strong clinical suspicion and attention to the manifestations in endemic regions. There are two types of abdominal TB: A) only abdominal TB and B) Abdominal TB following pulmonary TB.

The prevalence of sole involvement of abdominal TB is from 0.02 to 5.1%. In India where TB and particularly abdominal TB are most common, the involvement of women is more than men. All types of extrapulmonary involvement of the disease like abdominal TB are more prevalent in those with HIV. In such cases, the prevalence of symptomization (becoming symptomatic) of the disease as well as its severity are even higher (3). The most common type of mycobacterium causing abdominal TB is *Mycobacterium tuberculosis* rather than *Mycobacterium bovis*.

The most common site of involvement in abdominal TB is ileocecal region (due to more stasis of the material, increased absorption of liquids and electrolytes in the region, less digestive activity, and more number of lymphatic nodes in the region) (4). Abdominal TB may also involve the regions after ileum including (in order of prevalence) cecum, ascending colon, jejunum, appendix, sigmoid, rectum, duodenum, stomach and esophagus. The involvement may be seen either on one site or multiple sites. Peritoneum may also be affected through lymphatic nodules, bowels and salpingitis. In one third of cases with peritoneal TB, association of lymphatic nodes was observed without involvement of GI.

Peritoneal TB is demonstrated in three forms:

- A) Wet type with abdominal ascitis

- B) Dry type with adhesion and localized swelling
- C) Fibrotic type with abdominal masses composed of mesenteric and thickened omentum, with matted bowel loops felt as lump(s) in the abdomen (12).

As stated earlier, abdominal TB is more common in mature young people (5). The symptoms of abdominal TB may be acute or chronic. Some of the symptoms include fever (40-70%), weight loss (40-90%) and in some cases weakness and anorexia. The reason of abdominal pain in 80% to 95% cases may be either colic (due to stenosis of lumen) or consecutive and continuous (due to the involvement of lymphatic nodes). Diarrhea (11-20%) and constipation are also seen. There are reports of periodic constipation and diarrhea. The involvement of ileocecal region may result in abdominal colic pains along with a mass in RLQ region (loops attached to the bowel and lymphatic nodes and thickened mesosigmoid) (6). In 3-20% of cases it may cause obstruction (due to stenosis of lumen, thickening of bowel wall, the pressure raised by the swollen lymphatic nodes on bowel, and fibrosis). Complications such as malabsorption and intestinal perforation have also been seen (7).

Rare clinical symptoms including dysphagia andodynophagia occur following the ulcer in the middle of esophagus due to esophageal TB (12). The most common symptom in colon is abdominal pains; however, slight hematochezia and seldom LGIB are also seen. Circular stricture of rectum and multiple fistula in anus are seen in the involvement of TB in these regions (12).

The pulmonary involvement can be seen in the thorax chest X-ray of 25% of cases with abdominal TB (12).

The notable laboratory findings include high ESR, Anemia, Positive Tuberculin test and hyperalbuminuria. Observation of ascites shows liquid turbid color, Pr > 3 gr/dL, serum ascites albumin gradient < 1.1, TLC = 150-4000 / $\mu$ L with more lymphocytes. Culture of ascites is positive in less than 20% of cases. In such patients, adenosine deaminase (ADA) becomes positive in particular when the patients are HIV negative ( $\geq 36$  U/l). However, ADA is more probable to be negative in HIV positive patients (8).

The procedures which may help include barium swallow, barium enema, sonography and CT may be contributing. Colonoscopy may detect nodes in colon, TB ulcers in colon wall, and deformation, inflammation and stricture in the ileocecal valve region (9). Laparoscopy is a helpful diagnostic method for the suspected cases (12).

Intestinal TB is characterized by transverse ulcers, fibrosis, increased thickness and stricture of bowel walls, enlarged and adhered lymph nodes in clinical pathology (12).

Treatment of abdominal TB includes prescription of traditional anti-tuberculosis medications for at least 6 months (12). Surgical procedures are conservative and are limited to the control of complications (12).

As specified, abdominal TB are manifested differently. Therefore, its diagnosis requires strong clinical suspicion in the endemic regions. However, the diagnosis becomes very difficult in some cases. To confirm this, a patient with abdominal TB and rare representation is addressed who was without a definite diagnosis and treated symptomatically (10, 11).

### Case Report:

The patient was a 31 year-old woman, from Bandar Abbas (Iran), married, with a child. She was under investigation and treatment from 6 months earlier. She had history of hypothyroidism and medicated by levothyroxine. The patient complained of anorexia and weight loss. Endoscopy showed slight esophagitis, abdominal CT and sonography indicated a mass at RLQ associated with thrombosis and dimensions of 15 X 150 mm in IVC. All the examination from in terms of coagulation and rheumatologic disorders such as the disorders of coagulation factors, Liden V factor disorder, the disorder associated with antiphospholipid syndrome were negative.

The abnormal findings in this patient were as increased platelets ( $800 \times 10^3$ ), ESR=58, CRP (2+) and hyperalbuminemia. She was placed on anticoagulant therapy (Enoxaparin) since no proper diagnosis was achieved. After 2 to 3 months, the abdominal pain was intensified and the patient was referred to a surgeon. The pains of the patient within the last 6 months were colic and periodical.

Which was not related food intake and did not change with menstruation. Within this period, the patient lost about 15 Kg weight due to anorexia. The patient had watery diarrhea two to three days prior to the surgeon visit, the patient had watery diarrhea. Examination of the patient showed fever of  $37.9^{\circ}\text{C}$ , a mass associated with tenderness and rebound tenderness at RLQ region. So sonography was requested and indicated where the result show thrombosis in IVC and aggregation of liquid along with stucked loops at RLQ region. The patient was hospitalized with the primary diagnosis of mass appendicitis. Intravenous antibiotic started along with anticoagulant therapy (Enoxaparin and Warfarin).

The CT reported: 1) no abdominal ascitis, 2) normal liver and spleen, 3), a thrombosis with dimensions of 5 X 1 cm at IVC, and 5) localized liquid aggregation at RLQ region. Appendicular abscess was a suspected diagnosis for the patient. Initially, an effort was made to discharge the abscess through sonography, but it was then decided for open surgery due to inappropriate location of the fluid accumulation to cecum as well as lack of appropriate response to drug therapy.

The surgeon started the operation by McBurney incision on the abdomen and tried to drain the abscess via retro peritoneum space. In the meantime, the surgeon noted a big mass in the region with no route to the abscess. So laparotomy was decided. Although the patient had no history of previous surgery, abnormal adhesions like stalactites hanging from the ceiling of caves were observed in abdominal viscera which had no justification. No fluid was observed in pelvis. There were several lymphatic nodules in mesosigmoid and small intestine and also a big mass in the region of RLQ including ileum terminal and cecum. IBD and malignancy were diagnosed for the patient. Although the surgeon tried carefully to release the adhesions and separate the bowel, it ultimately resulted in the rapture of ileum terminal and cecum. Then it was decided to remove the affected areas. After right hemicolectomy, end-to-end anastomosis of ileum to colon was performed. Finally, a drain was placed at the location of the abscess. After the closure of the incision, the patient was transferred to the surgical ward.

The mass was sent to the pathology department for further investigation, but the anticoagulant therapy continued. Pathology report indicated that it was a tuberculous granuloma.

Further investigation showed that one of the close relatives of the patients has been TB positive and was under the treatment of anti TB drugs. The patient did not have history of coughing and sputum. His CXR was normal. Tuberculin and HIV tests were negative. Anti TB treatment started for the patients. The drain was removed when secretions reduced on the 3<sup>rd</sup> day post-operation. After tolerating a diet, the patient was discharged from hospital with a good general health. The patient received required orders for both anti TB and anticoagulant drugs.

In follow-up visits, it was found that the patient regularly gained weight and had descending abdominal pains. The size of thrombosis at IVC became smaller and smaller; and ESR decreased to the normal ranges. After about 2 months, all the clinical symptoms disappeared and thrombosis was completely resolved.

### Conclusion:

As mentioned earlier, TB is common in some countries with different manifestations from pulmonary to extrapulmonary types. Therefore, clinical suspicion and attention to TB in endemic regions are the keys for the primary diagnosis of the disease (4). TB is common in some areas in Iran.

The findings of a study in Turkey on 11 cases of abdominal TB showed that they all had ascites, and the most common signs were weight loss, abdominal mass, abdominal pain, anorexia and night sweats (13). The most important finding in sonography and CT was ascites, and pulmonary involvement was just observed in one case through CXR (13). TB family history of TB (2 cases) and positive PPD (2 cases) were confirmed. AFB sputum was negative in all cases (13). At the time of operation, the most important findings included extensive involvement of viscera and parietal peritoneum, nodules and/or military nodules, enlarged nodules, ascites, and fibrotic bands (Violin String), and increased thickness of omental. There were several lymphocytes in the ascites fluid, and tuberculous granuloma in the biopsy of the

specimens, although both the specimens were AFB negative (13). The PCR of the ascites fluids was *Mycobacterium tuberculosis* positive for all specimens. The level of CA-125 was high in some of the patients.

Abdominal TB may have similar symptoms as other diseases including IBD, infectious diseases and malignancies. Therefore, it is diagnosed late and sometimes results in unnecessary surgeries (13). As a result, achieving more effective diagnostic methods may prevent complications and mortality from abdominal TB. Although patient's pulmonary TB and/or TB involvement of the patient's family members may help the diagnosis of abdominal TB, it is observed in just 30% of cases. In other words, most cases of abdominal TB are primary (13). Positive PPD is seen in one fourth of cases. PCR of ascites fluid greatly contributes to the diagnosis of the disease. Although sonography and CT are abnormal in most cases, they are non-specific for abdominal TB. Surgeries are often performed as a result of suspicion to malignancy. The diagnostic procedures in laparotomy are signs of military nodules in peritoneum and sampling of Frozen section (13). Laparoscopy is an elective diagnostic method for abdominal TB.

The treatment of abdominal TB is drug based. The treatment takes for 6 months (5, 7, 8). Several articles recommended continuation of the drug therapy even for 12 to 18 months. Surgical treatment is limited to the complications of the disease including obstruction and bowel rupture. Even if abdominal TB is diagnosed after the opening of abdomen, the operation discontinues without manipulation of abdomen if no signs of particular complications is observed without manipulation of abdomen. Then anti TB treatment starts. After some time, the symptoms of the patients become better and disappears. Surgical procedure necessitates In case of severe stricture or obstruction and or bowel perforation. However, unnecessary manipulation must be avoided. The recommended procedures include bypassing of stricture region, obstruction and/or resection of perforated and anastomosis region. Experience has shown that drug therapy can resolve abdominal adhesions and recover the signs of the disease. Improvement rate has been reported about 94-99% (5).

Abdominal TB often has unusual demonstrations. Although abdominal mass is a common finding, its companionship with increased platelets and IVC thrombosis has not been reported. In the case presented in this study, IVC thrombosis may occur as a result of the mass pressure and increased chronic inflammation and subsequent reactive thrombocytosis. Intestinal TB sometimes results in coagulation disorders and clot formation is quite rare (1,3,8,9). Another noteworthy point regarding the present case study is that despite heavy surgery, any of the complications was not developed due to timely onset of treatment. And possibly fear from the surgery of the complications of abdominal TB is not reasonable.

Abdominal TB has to be considered at the time of differential diagnosis of all types of abdominal masses, ascites, and even CA-125. Performing PCR on ascites fluid is quite helpful. In case of negative PCR and strong clinical suspicion, laparoscopy and/or laparotomy have to be carried out (13). The diagnostic procedure includes biopsy of peritoneal nodules due to existence of epithelial granulomas with central necrosis (13).

At the end, it is reminded that unusual manifestations of the disease including abdominal mass, even IVC thrombosis and its relationship with abdominal TB should be considered in endemic areas. The same clinical suspicion to TB may sometimes be a key to primary diagnosis. This prevents unnecessary surgery with a variety of complications and also prevents heavy financial expenses.

## References:

- Bhargava A, Pinto L, Pai M. Mismanagement of tuberculosis in India: Causes, consequences, and the way forward. *Hypothesis*. 2011;9:1-10.
- Li X, Xu P, Shen X, Qi L, DeRiemer K, Mei J, et al. Non-Beijing strains of Mycobacterium tuberculosis in China. *J Clin Microbiol*. 2011;49:392-395.
- Jamal S, Khan Z, Ahmed I, Shabbir S, Khaliq T. Presentation and Outcome of Abdominal Tuberculosis in a Tertiary Care Unit. *Ann Pak Inst Med Sci*. 2011;7:33-36.
- Sachdeva KS, Satyanarayana S, Dewan PK, Nair SA, Reddy R, Kundu D, et al. Source of previous treatment for re-treatment TB cases registered under the National TB Control Programme, India, 2010. *PloS one*. 2011;6:22061.
- Engel N, Kenneth J, Pai M. TB diagnostics in India: creating an ecosystem for innovation. *Expert Rev Mol Diagn*. 2012;12:21-24.
- Lorenz R, Würfl P, Haerter G, Cammerer G, Barth T, Hausladen S, et al. Interferon-gamma release assay in the ascites: Early hint for diagnosis of abdominal tuberculosis. *Infection*. 2010;38:69-72.
- Chou CH, Ho MW, Ho CM, Lin PC, Weng CY, Chen TC, et al. Abdominal tuberculosis in adult: 10-year experience in a teaching hospital in central Taiwan. *J Microbiol Immunol Infect*. 2010;43:395-400.
- Hossain SM, Rahman MM, Hossain SA, Ahmed SFU. Mode of presentation of abdominal tuberculosis. *Bangladesh Medical Journal Khulna*. 2012;45:3-5.
- Kan X, Chiang C-Y, Enarson DA, Chen W, Yang J, Chen G. Indoor solid fuel use and tuberculosis in China: a matched case-control study. *BMC Public Health*. 2011;11:498.
- Dong H, Liu Z, Lv B, Zhang Y, Liu J, Zhao X, et al. Spoligotypes of Mycobacterium tuberculosis from different Provinces of China. *J Clin Microbiol*. 2010;48:4102-4106.
- Meshikhes A-WN. Pitfalls of diagnostic laparoscopy in abdominal tuberculosis. *Surg Endosc*. 2010;24:908-910.
- Sharma MP, Bhatia V. Abdominal Tuberculosis. *Indian Journal of Medical Research*. 2004;120:305-315
- Uzunokoy A, Harma M, Harma M. World Diagnosis of abdominal tuberculosis: Experience from II cases and review of literature. *World Journal of Gastroenterology*. 2004;10:3647-3649.

## گزارش یک مورد سل شکمی و ترومبوز ورید اجوف تحتانی

دکتر مهرداد صیادی نیا<sup>۱</sup>

<sup>۱</sup> استادیار گروه جراحی، دانشگاه علوم پزشکی هرمزگان

مجله پزشکی هرمزگان سال هجدهم شماره ششم بهمن و اسفند ۹۳ صفحات ۵۵۲-۵۴۷

### چکیده

**مقدمه:** سل یک بیماری قدیمی است که هم اکنون نیز در حدود ۹ میلیون نفر از آن رنج می‌برند و ۳ میلیون نفر در سال به علت ابتلا به سل و عوارض آن می‌میرند. عامل آن نوعی باکتری به نام مایکوباکتریوم است که انواع مختلفی چون مایکوباکتریوم توبرکلوزیس، مایکوباکتریوم بوویس (Bovis) دارند. سل شکمی و گوارشی ششمین مکان شایع درگیر در TB خارج ریوی است. TB شکمی تظاهرات گوناگون دارد که تشخیص آن را بسیار مشکل می‌کند. شک بالینی قوی در مناطق اندمیک یک عامل کلیدی مهم برای تشخیص به موقع بیماری است.

**معرفی بیمار:** بیمار خانم ۳۱ ساله که با درد شکمی مزمن از حدود ۶ ماه قبل در سرویس داخلی تحت بررسی بوده است و تنها یافته‌های غیرطبیعی در وی پلاکت خون  $800 \times 10^3$  و  $ESR=58$  و  $CRP2+$  و هایپوآلبومینمی بوده است. در سونو و CT شکم متوجه ترومبوز  $15 \times 50$  میلی‌متر در IVC شده‌اند، هنگامی که به تشخیص مطلوب نمی‌رسند، بیمار را تحت درمان ضد انعقادی (آنوکسپارین) می‌گذارند. بعد از ۲ الی ۳ ماه بیمار دچار تشدید درد شکمی می‌شود که به جراح مراجعه می‌کند. برای بیمار آسبه آپاندیسیت مطرح شد. در اتاق عمل جراح سعی در درناژ آسبه از فضای پره پریتون نمود ولی حین این اقدامات متوجه توده‌های بزرگ در ناحیه شده که راهی به آسبه نداشت. بعد از باز کردن شکم، چسبندگی‌های غیرطبیعی در قسمت فوقانی شکم، بدون سابقه عمل جراحی قبلی در ناحیه، همانند قیف‌های یخی در سقف غار (stalagmite) مشاهده شد. در داخل لگن مایعی دیده نشد. جراح مجبور به برداشتن نواحی نکروزه، پرفوره و تمام توده می‌شود و همی کولکتومی راست همراه آناستوموز ایلئوم باقی مانده به کولون به صورت انتها به انتها انجام می‌شود. توده جهت پاتولوژی ارسال شده و جواب پاتولوژی بیمار TB گزارش می‌شود.

**نتیجه‌گیری:** سل شکمی دارای تظاهرات بالینی مختلفی است. لذا شک قوی بالینی و توجه به شیوع سل در مناطق اندمیک مهم‌ترین کلید تشخیص بیماری است. انجام تست PCR مایع آسیت بسیار مفید است. تشخیص قطعی، به وسیله نمونه برداری ندول‌های سفید صفاقی در لاپاراسکوپی و یا لاپاراتومی مسجل می‌گردد. بیماری به خوبی به درمان دارویی پاسخ می‌دهد. بنابراین تشخیص به موقع می‌تواند از اتلاف وقت و هزینه جلوگیری نماید.

**کلیدواژه‌ها:** سل شکمی - ترومبوز - ورید اجوف تحتانی

نویسنده مسئول:

دکتر مهرداد صیادی نیا

گروه جراحی بیمارستان شهیدمحمدی

دانشگاه علوم پزشکی هرمزگان

بشردیاس - ایران

تلفن: +۹۸ ۹۱۷۳۶۱۶۴۷۷

پست الکترونیکی:

drsaiadinia@yahoo.com

دریافت مقاله: ۹۲/۷/۶ اصلاح نهایی: ۹۳/۳/۳۱ پذیرش مقاله: ۹۳/۴/۹