Diagnostic Problem and Management of Intestinal Tuberculosis

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ABSTRACT

Intestinal tuberculosis, without any evidence of pulmonary or tuberculous infection elsewhere in the body, is still a rare case. Sometimes it is very difficult to make an early and prompt diagnosis for this, because clinical manifestations are varied, unspecific, and mimic other diseases. Examinations, including chest x-ray, tuberculin test, acid-fast stained smear, endoscopic and histological findings may still be inconclusive. Thus, therapeutic trials of anti-tuberculous drugs are advised.

We report a case of intestinal tuberculosis with a chief clinical manifestation of chronic diarrhea. There was no evidence of tuberculous infection elsewhere in the body Endoscopic appearance and histological findings were atypical and unspecific. The patient was given anti-tuberculous drugs and responded very well clinically within 2 weeks.

Keywords: Intestinal tuberculosis, difficult diagnosis, management

INTRODUCTION

Tuberculosis (TB) is the most important worldwide disease caused by *Mycobacterium tuberculosis*. This infection may involve any part of the human body, including the intestinal tract.[1] It continues to be prevalent in underdeveloped and developing countries due to resurgence of tuberculosis all over the world, associated with AIDS or HIV infection.[2]

Intestinal tuberculosis was described as an "ancient disease" and as a complication of pulmonary tuberculosis.[3] The disease may develop primarily (originating) within the intestinal tract, or secondary to a primary focus else where in the body, usually the lungs. However, less than 50% of modern cases are known to be associated with active pulmonary TB.[4,5] Epidemiological data of intestinal TB is very limited. It occurs with approximately equal prevalence in men and women. It has been reported in all age groups, but is predominant between 20 and 40 years of age.[2,4]

The pathogenesis of intestinal TB has not been completely understood, and involves several mechanisms. Possible routes of infection include direct invasion by the ingested organism, hematogenous seeding, transport by way of infected bile, and extension from adjacent diseased organ or tissues.[4,6] Most common locations are the ileum (ileocaecal region) and colon. Other common sites in decreasing frequency are the jejunum, rectum, duodenum, gaster, and esophagus.[2,4,5]

Symptoms of intestinal TB are unspecific and varied. Pathognomonic syndrome does not occur in any of its forms. The various symptoms include weight loss, fever, abdominal pain (usually located in lower right quadrant), weakness, diarrhea, and nausea. Chronic diarrhea caused by TB usually occurs with gastrointestinal bleeding.[7,8] In classic ileocaecal TB, a tender, fixed mass is palpable in about 50% patients.[4]

It is difficult to make early and prompt diagnosis of intestinal TB because of its varied clinical presentations. It greatly mimics other medical conditions and diseases such as Chrohn's disease, ulcerative colitis, and malignancy.[2,8] Negative tuberculin test does not rule out the diagnosis. Tissue culture is not always positive.[9]

Chest X-ray examination could help establish the diagnosis if concomitant pulmonary TB is found. More modern cases have been reported with no evidence of pulmonary TB.[2,4] It should be noted that negative chest x-ray does not rule out intestinal TB. Serologic examinations, such as PCR and anti-cord factor, are very sensitive and highly specific, but are also very expensive.[10] Radiologic examination such as Barium enema of intes-

tinal TB reveals segmental ulcer, mucous thickness, stenosis and ileocaecal valve deformity.[11] Colonoscopy is very important in distinguishing TB from other diseases. Segmental ulcerative and hypertrophic lesions are commonly found.[12,13] Tissue biopsy reveals specific histopathological characteristics such as granuloma, tubercle and caseation necrosis. Prior anti-tuberculous treatment could change gross appearance and microscopic descriptions, and may mislead in the diagnostic process.[2,4,8]

Diagnostic criteria for intestinal TB are: [4,8]
1. Positive culture of tissue or lymph node biopsy.
2. Histologic demonstration of typical acid-fast staining rods of *M. tuberculosis* in the lesion.
3. Histologic evidence of tubercles with caseation necrosis.
4. Typical gross description of endoscopy and consistent histologic findings for TB.
5. Favorable response to anti-tuberculous therapy.

Common complications of intestinal TB are perforation abcess, gastrointestinal bleeding, fistula formation, peritonitis and malnutrition.

Management of intestinal TB consists of anti-tuberculous drugs and surgery, the regiment is the same as for other extra-pulmonary TB. Rifampisin, Isoniazid, Pirazinamid, and Ethambutol are given for 9 months (2RHZE/7RH).[14] There are still controversies about the length of treatment. Conventional therapy suggests 18 to 24 months, but others consider short treatment course as also effective.[5] It is sometimes difficult to establish the diagnosis of intestinal TB, and it is frequently discovered only from surgical findings. Thus, therapeutic-trial of antituberculous drugs empirically, without any definite diagnosis of TB is advised by many authors.[2] Surgical therapy is only conducted in case of emergency or life threatening conditions such as massive bleeding, perforation or obstruction.

CASE REPORT

Ms. A, a 22 year-old woman, was hospitalized since the 28th of April, 2001. She suffered from continuous diarrhea for 4 months. No blood or pus was seen in her feces. She also suffered from abdominal pain and sometimes nausea and vomiting. Her appetite decreased and she lost 15 kg in 4 months. She sometimes suffered from fever and night sweats. She had undergone colonoscopy and had been given medical treatment such as antibiotic and antipyretic but there was no improvement. The patient was a student and did not smoke. She never received prior anti-tuberculous drug. Her little brother had pulmonary TB and was given anti-tuberculosis drugs.

Upon examination, the patient was thin, with a bodyweight of 45 kg and a height of 163 cm. Her blood pressure was 100/60 mmHg, pulse rate 100 x/minute and respiratory rate of 16 x/minute. Her body temperature was 37.5°C. Conjunctiva were pale but the sclera showed no signs of jaundice. Her heart sounds were normal and pulmonary examination was normal. Abdomen was soft, not distended, with slight tenderness in the lower left region, revealed no mass, no ascites and no enlargement of the liver or spleen. Her bowel sounds were normal. Other physical examinations were normal.

Laboratory investigations revealed a hemoglobin level of 10.5 g/dl, total white blood count of 8200/ml, platelet count of 1,044,000/ml, ESR of 28 mm/hour, ureum level of 20 mg/dl, creatinine level of 0.7 mg/dl, blood glucose level of 83 mg/dl, AST level of 27 mg/dl, ALT level of 11 mg/dl, serum albumin level of 3.4 g/dl, and serum globulin level of 3.6 g/dl. Her chest x-ray was normal. The gram stain acid-fast stained smear was negative. Her feces analysis was positive for candida and gram negative bacteria. Colonoscopy was performed twice, the first one showing ileacaecal granulomatosa and polyposis. The second one showed polypoid lesions and multiple ulcers.
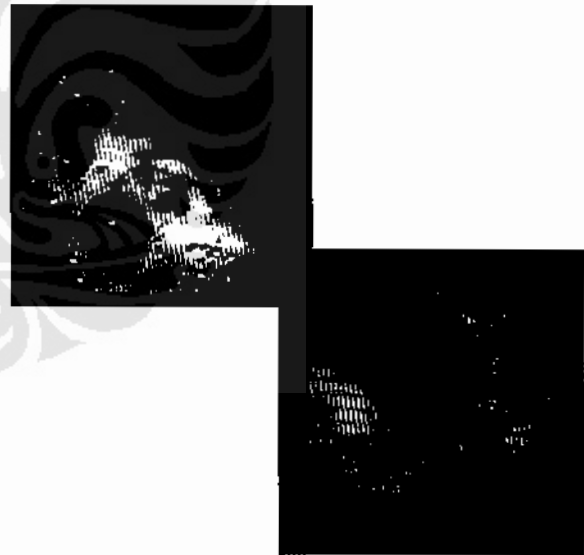

Figure 1. Endoscopic findings showed pseudopolip, ulceration, and hyperemi of mucosae from ileocaecal region

The histopatologic findings from endoscopy and ileocaecal biopsy showed atypical tubercle, epitheloid cell and severe dysplasia. The conclusion suggested the possibility of TB infection.

The problems in this patient were chronic diarrhea,

thrombocytosis, and anemia.

Chronic diarrhea was based on history of diarrhea for 4 months, thought to be due to colon tuberculosis with secondary infection of candida and bacteria. Benzidine test turned out positive and indicated minor gastrointestinal bleeding. Initially, the patient was treated with cotrimoxazol and mycostatin. After 5 days, there was still no response, and clinical symptoms worsened. The patient was then given anti-tuberculous drugs.

Thrombocytosis was based on the platelet count of 1,044,000/ml. It was probably due to chronic infection and no special treatment was needed. It improved gradually as the underlying disease was cured. Anemia was based on a hemoglobin value of 10.5 g/dl and was thought due to chronic infection, occult intestinal tract bleeding, and inadequate intake or malabsorption. The patient was advised to consume more calories, and high protein diet (2300 Cal/day).

On follow-up after 2 weeks of treatment with anti-tuberculous drug, the patient showed improved clinical condition. She no longer suffered from diarrhea and her abdominal pain had diminished. She regained her appetite and her body weight increased. Peripheral blood examination was rechecked and revealed her platelet count and Hb value gradually becoming normal as the underlying disease was treated. She went home in good condition and had regular check-ups at the Gastroenterology Department.

DISCUSSION

Intestinal TB with no evidence of pulmonary TB is still a rare case, sometimes making early and prompt diagnosis difficult. However, delayed treatment of this disease can be fatal.

The main problem in establishing the diagnosis of intestinal TB is its varied and unspecific clinical symptoms. Absence of evidence of pulmonary TB does not rule out the diagnosis. Tuberculin test does not provide much help and is not able to differentiate whether the disease is active or not. Malnutrition and an immuno-compromised state may cause a negative result in the tuberculin test. Microbiologic examination is rarely positive. Thus, diagnostic confirmation is obtained from histologic findings of TB, such as granuloma, tubercles and caseation necrosis.[2-9]

The chief clinical manifestation in this patient was chronic diarrhea with minor gastrointestinal bleeding. Many things could cause this condition and the etiology has to be sought. It could be due to bacterial infection, protozoa or malignancy. Feces analysis and culture may help rule out the differential diagnosis. Colonoscopy should have been able to establish the diagnosis, but the result was still confusing, since no specific appearance was found. This could have been due to segmental locations of the lesions and inadequate biopsy specimen.

History of anti-tuberculous drug intake is very important, since it could change the macroscopic and histopatologic appearance of the lesions, due to the healing process. Biopsy results were still inconclusive in this patient. This may be due to inadequate biopsy specimen. Biopsy should cover the submucous layer, to see the characteristic histologic features clearly.[1,8]

There were two hematologic abnormalities found in this patient: anemia and thrombocytosis. They were due to chronic infection. Anemia was also secondary to intestinal tract bleeding and malabsorption. Low serum iron may be caused by chronic blood loss. Treatment of underlying disease and iron supplementation will gradually improve the condition.

Response to anti-tuberculous treatment was very good in this patient. Such good response is also included in diagnostic criteria for intestinal TB. Relapse rarely happens if anti-tuberculous drugs are given adequately. We plan to administer the drugs for 9 months (2RHZE/7RH) according to the WHO treatment guideline for TB. This is the same as for other extra-pulmonary TB. Surgical treatment is only needed if there is a serious life threatening complication, such as obstruction, perforation or massive bleeding. Patients on anti-tuberculous treatment must be observed carefully because complications such as obstruction may occur due to the healing process. Fibrotic-post therapeutic lesions may cause stenosis and obstruction.[2,5,9]. Therapeutic response can be evaluated objectively by endoscopy within approximately 2 or 3 months. Intestinal TB is rarely recurrent and the prognosis is good.[4]

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