

# A Rare Cause of Abdominal Pain: Crohn's Disease Like Intestinal Tuberculosis: Case Report

## Karın Ağrısının Seyrek Görülen Bir Nedeni: Crohn Hastalığı Benzeri İntestinal Tüberküloz

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**ABSTRACT** Although the pathophysiology of Crohn's disease has been understood better recently, the differential diagnosis of Crohn's disease and gastrointestinal tuberculosis is a dilemma to clinicians and pathologists as they present similar clinical, radiological, endoscopic and histological features. Unfortunately, there is no definite laboratory test for differentiating gastrointestinal tuberculosis from Crohn's disease. Herein we present a 13-year-old girl with intestinal tuberculosis who was previously diagnosed as Crohn's disease. Diagnosis was confirmed with histopathological findings of biopsy specimens, a positive Quantiferon-TB Gold test and *M. tuberculosis* growth in the gastric aspirate culture. In developing countries, gastrointestinal tuberculosis should be kept in mind for differential diagnosis of Crohn's disease. It is important to make the definitive diagnosis in order to avoid immunosuppressive therapy in patients with gastrointestinal tuberculosis who are presumed to be Crohn's disease.

**Key Words:** Crohn disease; tuberculosis; gastrointestinal tract

**ÖZET** Crohn hastalığının patofizyolojisi son yıllarda daha iyi anlaşılmış olsa da, Crohn hastalığı ve gastrointestinal tüberkülozun benzer klinik, radyolojik, endoskopik ve histolojik bulgular içermeleri nedeni ile klinisyenler ve patologlar tarafından ayırıcı tanılar zor olabilmektedir. Ne yazık ki, gastrointestinal tüberkülozu Crohn hastalığından kesin olarak ayırt etmeyi sağlayan bir laboratuvar yöntemi bulunmamaktadır. Burada daha önce Crohn hastalığı tanısı alan 13 yaşında intestinal tüberkülozlu bir kız hasta sunulmuştur. Tanı biyopsi örneklerinin histopatolojik bulguları, pozitif Quantiferon-TB Gold testi ve mide sıvısı kültüründe *M. tuberculosis* üremesi ile konulmuştur. Gelişmekte olan ülkelerde Crohn hastalığı ayırıcı tanısında gastrointestinal tüberküloz akılda tutulmalıdır. Crohn hastalığı olduğu düşünülen gastrointestinal tüberkülozlu hastalarda gereksiz bağışıklığı baskılayıcı tedaviden kaçınmak için kesin tanı çok önemlidir.

**Anahtar Kelimeler:** Crohn hastalığı; tüberküloz; gastrointestinal kanal

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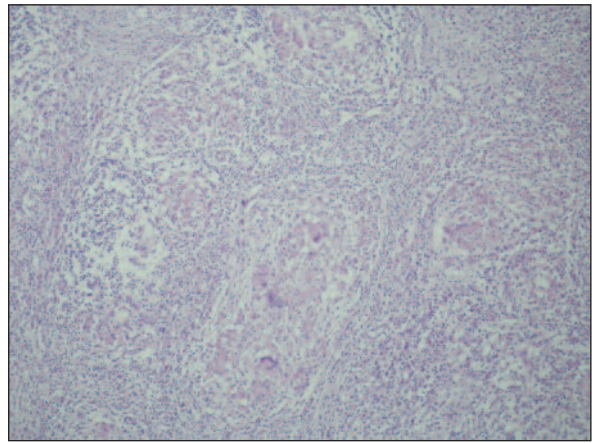
**T**uberculosis (TB) is one of the most important infectious diseases in the world in terms of its mortality, morbidity and economic consequences.<sup>1</sup> Abdominal tuberculosis is still a major problem in many regions of the world. Recently, in Western countries, the incidence of gastrointestinal TB has increased due to immigration.<sup>2</sup> Tuberculosis and Crohn disease (CD) are granulomatous disorders affecting the intestinal tract with similar clinical manifestations and pathologic features.<sup>3</sup> Both CD and gastrointestinal TB often have small bowel lesions. Morphological findings are very important for the correct diagnoses of these diseases.<sup>4</sup> Although the

pathophysiology of CD has been understood better in recent years, there is no simple test to differentiate CD from gastrointestinal TB.<sup>5</sup> For this reason, we present a case of an adolescent female with intestinal TB, previously diagnosed and treated as CD.

## CASE REPORT

A 13-year-old girl was referred to the pediatric surgery clinic with abdominal pain and projectile vomiting. In physical examination, axillary body temperature was 38.5°C, along with periumbilical pain, abdominal distension and tenderness were found with palpation. Laboratory findings revealed hemoglobin (Hgb): 11g/dL, hemotocrit (Htc):37%, white blood cell count (WBC): 15 900/ mm<sup>3</sup>, platelet count (Plt): 381 000/mm<sup>3</sup> and liver and kidney function tests were normal. Abdominal X-ray showed air-fluid levels whereas the abdominal ultrasound and computed tomography (CT) showed a 6x5x3.5 cm solitary mass extending between subpancreatic and mesenteric regions. Operation was performed with the prediagnosis of intestinal mass and intestinal obstruction. During operation, perforation surrounded by edema in ileum and mesenteric mass at the site of perforation were found. Histopathology of operation material showed; ulceration in ileum resection material, fissuration and inflammation in all layers, transmural chronic active inflammation with perforation and mild transmural inflammation in extralesional sites and noncaseating granulomas (Figure 1).

Together with these findings, patient was diagnosed as inflammatory bowel disease by the pediatric surgery clinic and referred to our clinic for treatment. Detailed history showed a 6-year history of severe abdominal pain with bloody and mucously diarrhea at intervals, and an increase in severity of pain for the last 2 months. In physical examination her appearance was cachectic and pallor, BCG scar was positive, other systemic findings were normal. Laboratory findings showed; Hgb: 11g/dL, Htc: 37%, WBC: 11 900/mm<sup>3</sup>, Plt: 223 000/mm<sup>3</sup>, C-reactive protein (CRP): 60 mg/dL, erythrocyte sedimentation rate (ESR): 75 mm/hr, anti saccharomyces cerevisiae antibodies (ASCA-



**FIGURE 1:** Epithelioid histiocytes, multinuclear giant cells and lymphocytes forming noncaseating granulomas (HE, x100).

(See color figure at <http://www.turkiyeklinikleri.com/journal/pediatri-dergisi/1300-0381/>)

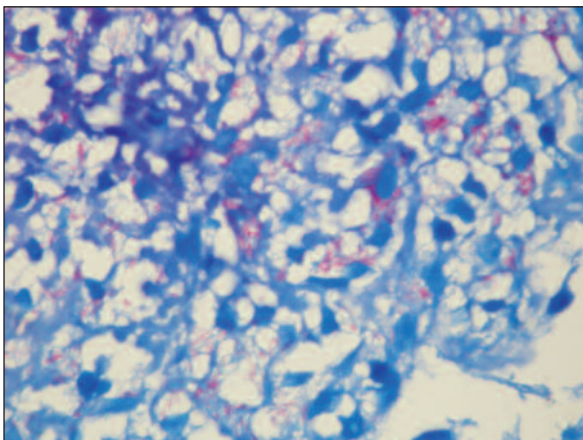
IgG) as positive and serological markers for HIV as negative.

According to Harvey and Bradshaw activity index, she was diagnosed as moderate CD.<sup>6</sup> Mesalamine 30 mg/kg/day in 3 divided doses was initiated. On the second day of treatment, her fever subsided and her condition improved partially. But on the fifth day her general status was deteriorated associated with severe abdominal pain, abdominal distension, defence and rebound on physical examination. There was hyperemia and purulent secretion at the site of operation and an increase in sepsis markers. Thickening in proximal ileal segments, mesenteric inflammatory changes, multiple lymph nodes, focal dilatation in proximal ileal segment level were seen in abdominal ultrasound and CT. Colonoscopic evaluation was done because of no documented microorganisms in abscess culture, persistence of abdominal pain and rectal bleeding in spite of treatment for CD. Multiple ulcers were found in terminal ileum and rectum. The borders of ulcers were protruded and granulated. Although their background was exudative, normal mucosa was examined between the ulcers. Mucosa of caecum, ascending, transvers, descending and sigmoid colon were also normal. Meanwhile, clinical state of the patient got worsened. Her chest X-ray revealed hilar enlargement and reticulonodular infiltrations. In thorax CT multiple lymphadenopathy and milimetric nodules were found. Histopathologi-

cal examination of biopsy specimens taken from the ulcers was showed necrotic caseating granulomas that had epithelioid histiocytes, Langerhans giant cells and acid fast bacilli (AFB) (Figure 2). Both the histological analysis of the terminal ileum and tissue culture revealed *M. tuberculosis*. Quantiferon-TB Gold test AFB analysis from gastric aspirate samples was found to be strongly positive. *M. tuberculosis* growth was also reported in the gastric aspirate culture. Tuberculin skin test (TST) of the patient was found to be negative and there was no index case for tuberculosis in the family detected by screening. It was learned that patient was using unpasteurized milk products. Antituberculous therapy with rifampicin, isoniazid, pyrazinamide, and streptomycin was given for 2 months, followed with rifampicin and isoniazid for an additional 10 months. By the end of the first week of antituberculous therapy she had complete resolution of abdominal pain. Regressions in infective markers were also noted. Cultures and AFB on stain were negative in two months. The patient is still under follow-up without any complaints.

## DISCUSSION

Tuberculosis is still an important health problem and can present with acute, chronic or even atypical symptoms.<sup>1-3</sup> It is important that the history of residence or immigration from the epidemic regions. Tuberculosis may spread to abdomen by sev-



**FIGURE 2:** Presence of acid fast bacilli in the necrotic areas of biopsy material (EZN, x1000).

(See color figure at <http://www.turkiyeklinikleri.com/journal/pediatric-dergisi/1300-0381/>)

eral routes; by hematogenous spread from active pulmonary TB or military TB, contiguous spread from adjacent organ, ingestion of contaminated milk or through swallowing of infected sputum from primary pulmonary TB.<sup>7,8</sup> Detailed history of our patient emphasizes the consumption of unpasteurized milk.

Clinical, histological, radiological, endoscopic and surgical findings in patients with intestinal TB are indistinguishable from CD. Similar to CD, jejunoleal and ileocecal regions are commonly involved in intestinal TB. Biopsy has a limited value in differential diagnosis of intestinal TB from CD. Caseating granulomas occur in TB. But, noncaseating granulomas may be seen also in 1/3 of cases of TB. Biopsies should be obtained from ulcer margins since granulomas are typically located in the submucosa.<sup>5,8,9</sup> In our patient, non caseating granulomas were observed in biopsy taken in the surgery, after a one month period caseating granulomas were also found along with the positive culture for *M. tuberculosis* in the tissue culture taken from the ulcer margins during colonoscopy.

Pulmonary involvement is seen in 20-75% of the patients with intestinal TB.<sup>8,9</sup> Initially our patient did not have a pulmonary involvement. Clinical findings of pulmonary involvement may be due to possible hematogenous spread and diagnosis was confirmed by Quantiferon-TB Gold test, AFB and culture positivity in the biopsy materials.

Differentiating intestinal TB from CD can be difficult.<sup>10,11</sup> Crohn's disease can be excluded when *M. tuberculosis* organisms are identified and there is resolution of symptoms with the treatment. Negative results for TST do not exclude the diagnosis of TB, since false-negative results are seen in 50% of intestinal TB patients, such as our patient.<sup>9,12</sup>

Abdominal radiographs and ultrasound are not useful in diagnosis, whereas CT may show adenopathy and/or thickening of the ileocecal valve and cecum.<sup>13</sup> Culture yields positive results only in 45-70% of the patients with intestinal TB. Polymerase chain reaction (PCR) is highly specific, but less sensitive for TB.<sup>14</sup> There are studies reporting the effect of PCR and Quantiferon-TB Gold test in diagnosis

of TB.<sup>15,16</sup> In our patient we did not use PCR since the diagnosis was confirmed by histopathological findings and positive culture results.

Serological tests may not be helpful in differentiating CD from TB. Amarpurkar et al found that positivity rates for intestinal TB were; p-ANCA- 3.8%, IgA ASCA-23.1% and IgG ASCA-42.3%, respectively.<sup>5</sup> In this case, we have also understood that positive result of ASCA IgG is not a valuable test in differentiating of CD from TB, and even may cause the wrong diagnosis.

Differential diagnosis of these two conditions remains a major challenge to clinicians. In spite of recent technical developments and better understanding the pathophysiology of the diseases, there is still not a simple test to differentiate CD from

gastrointestinal TB. Amarpurkar et al. reported that clinically absence of systemic fever, presence of hematochezia and diarrhea, long duration of symptoms were more common in CD, whereas high fever and presence of ascites were common in gastrointestinal TB.<sup>5</sup>

As a result, since it is very difficult to differentiate gastrointestinal TB from CD both clinically and serologically, it will be essential to think of TB in developing countries preferentially and take the biopsy material from the ulcer base. Each time, microbiological examination including culture and histopathological examination should be performed. Since TB is still an important disease in developing countries, it is essential to make the appropriate differential diagnosis.

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