

# Intestinal Tuberculosis Mimicking Colon Carcinoma

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**Abstract** Gastrointestinal tuberculosis occurs most often in the ileocecal region, but it can also occur in other locations in the gastrointestinal system. However, few cases with isolated gastrointestinal involvement have been reported. A 27-year-old female presented with abdominal pain, fatigue, weakness, weight loss, and anorexia. A mass was identified in her right lower abdominal quadrant on physical examination. Abdominal computed tomography (CT) showed a thickened right colon wall with marked narrowing of the lumen, and mucosal ulcers at the hepatic flexure and circular narrowing of the lumen 10cm distal to these lesions were identified on colonoscopic examination. Laparoscopic right hemicolectomy was performed due to the fact that malignancy could not be rule out. Gastrointestinal tuberculosis is often confused with inflammatory diseases, and even histopathological diagnosis is difficult in most cases. In addition to this, differentiation between malignancies and infectious diseases is also necessary.

**Keywords:** tuberculosis, gastrointestinal tuberculosis, colon carcinoma

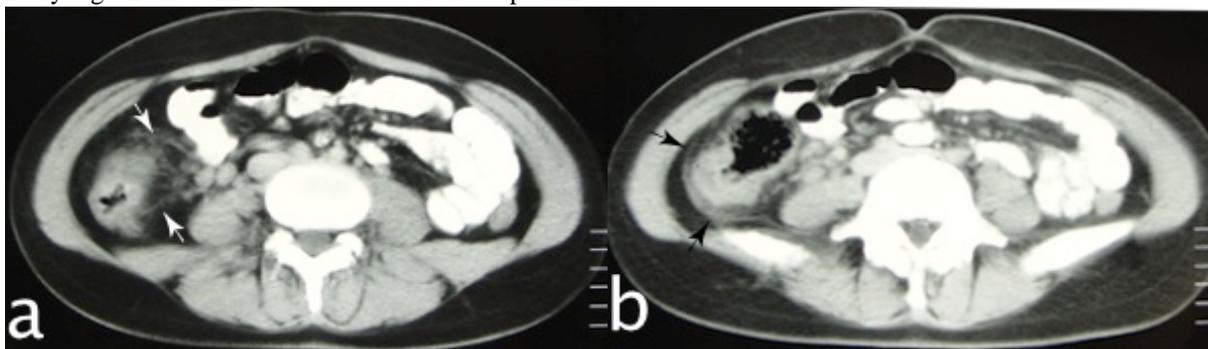
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## 1. Introduction

The incidence of tuberculosis has been increasing worldwide in recent years, and the frequency of extrapulmonary diseases has increased in parallel. Gastrointestinal tuberculosis is caused by infection of intestinal organs and the peritoneum by the acid-resistant bacteria *Mycobacterium tuberculosis*, and it is especially more common in developing countries. The most common cause of primary gastrointestinal tuberculosis is direct mucosal penetration due to consumption of milk contaminated with the bovine strain of the tuberculosis bacillus. Secondary gastrointestinal tuberculosis develops in

association with active or past pulmonary tuberculosis, usually as a result of hematogenous dissemination or the swallowing of infected sputum [1].

Gastrointestinal tuberculosis can be identified in any age group and the presenting symptoms are generally nonspecific [2]. Isolated tuberculosis involvement in the colon is rare and constitutes 2-10.8% of all gastrointestinal tuberculosis cases [3,4]. Diagnosis of patients with isolated colon involvement is highly problematic, especially in the absence of pulmonary infection. We herein present a case of isolated colon tuberculosis that mimicked a malignancy and describe its clinical, endoscopic, and radiologic findings.

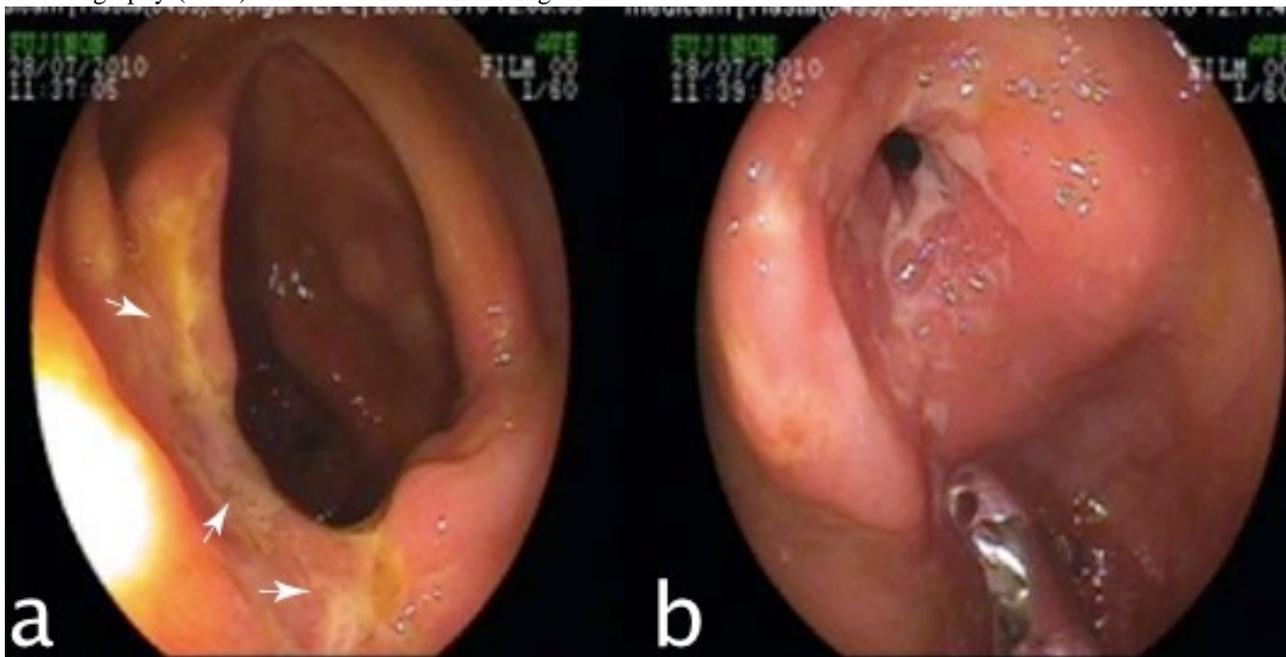


**Figure 1.** Abdominal CT; a) inflammation and mesenteric lymphnodes on the right pericolic area (arrows). b) the wall of right colon is thickened and the luminal area is narrowed (arrows)

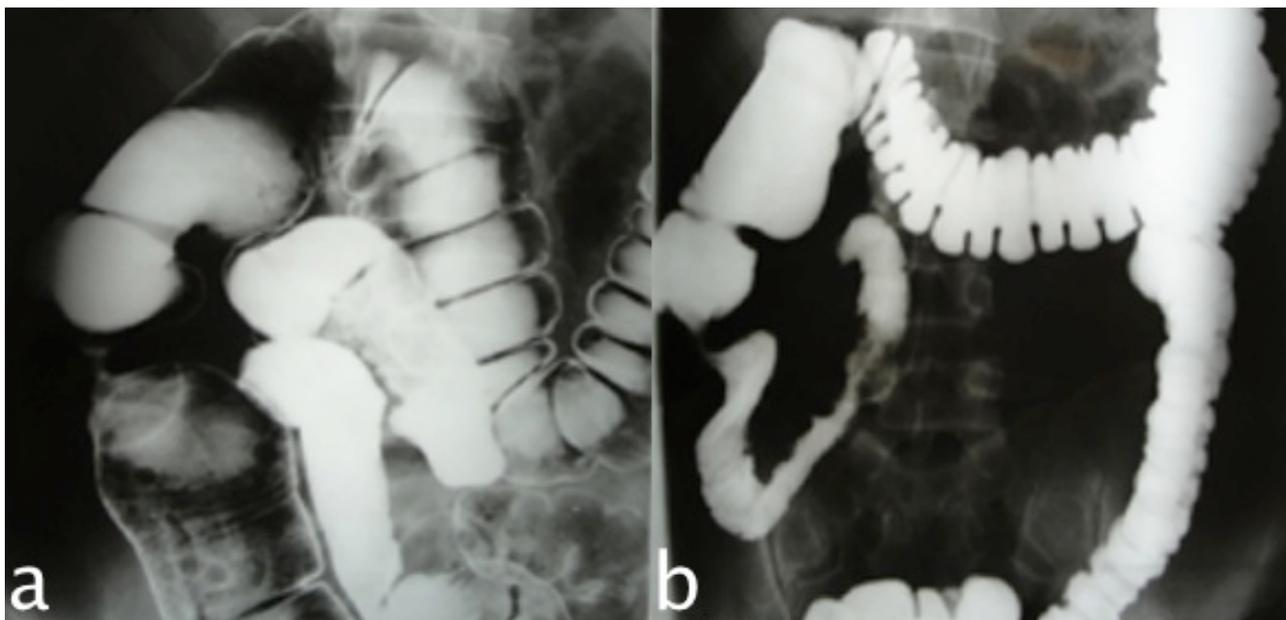
## 2. Case Report

A 27-year-old female presented with a 6-month history of abdominal pain, fatigue, weakness, weight loss (7 kg), and anorexia to Sakarya University Faculty of Medicine General Surgery Clinic, Turkey. A mass was identified in her right lower abdominal quadrant on physical examination. Her laboratory findings were normal with the exception of anemia (Hb = 9.2 g/dl). The patient had no family history for gastrointestinal malignancy or chronic disease (such as tuberculosis). Abdominal ultrasonography (USG) showed marked thickening of the

right colon wall as well as mesenteric lymphadenopathy, but no intra-abdominal ascites. Abdominal computed tomography (CT) showed a thickened right colon wall with marked narrowing of the lumen, and the pericolic region displayed an inflammatory appearance (Figure 1). Mucosal ulcers at the hepatic flexure and circular narrowing of the lumen 10 cm distal to these lesions (Figure 2) were identified on colonoscopic examination, and a tissue biopsy was taken for histopathologic examination. Lumen narrowing and an apple-core appearance were identified in the right colon on barium examination (Figure 3).



**Figure 2.** Endoscopic findings; a) mucosal ulceration (arrows), b) a mass image located on the distal part of the ulceration causing luminal obstruction



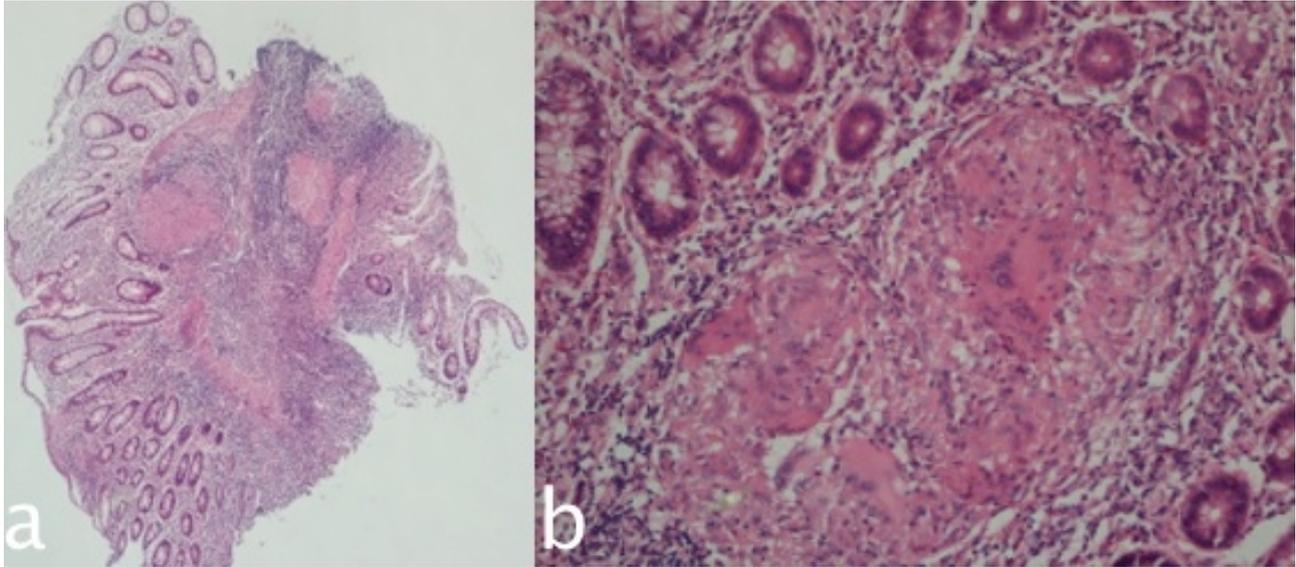
**Figure 3.** Barium passage graphy of the colon; an intraluminal obstruction is observed on a short part of the right colon

Histological examination of the samples revealed inflammatory changes compatible with the initial findings of inflammatory bowel disease. We then aimed to exclude the differential diagnosis of malignancy. The endoscopic

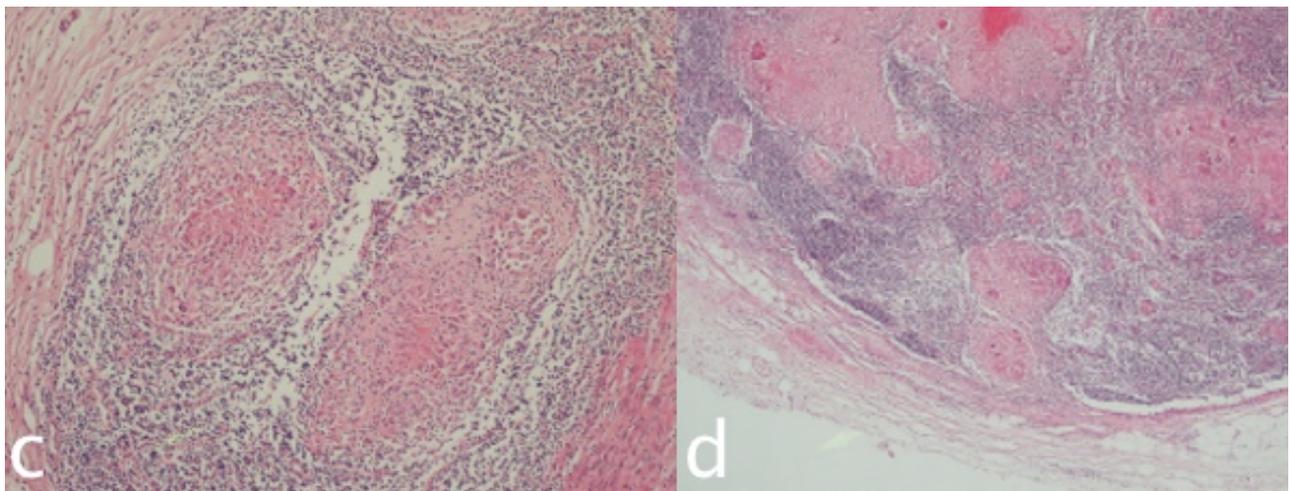
biopsies were repeated, but the histopathological findings did not change. An operation was planned because a malignancy was still suspected, and laparoscopic right hemicolectomy was performed. The patient was discharged

without complications on postoperative day 5. The histopathologic examination revealed granulomatous changes

with caseation necrosis (Figure 4), but no findings of malignancy.



**Figure 4ab.** Endoscopic biopsy findings; a) submucosal granulomas formed by epithelioid histiocytes (H&E X40). b) mucosal granulomas formed by epithelioid histiocytes containing Langhans multinuclear cells and lymphocytes (H&E X200)



**Figure 4cd.** postoperative histopathological findings; c) colonic resection material: epithelioid histiocytic granulomas containing caseification necrosis within the colonic wall (H&E X200). d) pericolic lymph node: epithelioid histiocytic granulomas involving multinuclear giant cells and central caseification necrosis of different sizes that tend to combine with each other (H&E X40)

After consultation with the infection diseases clinic, the patient began antituberculosis treatment [daily doses of 4x500mg Ethambutol (E), 1x300mg isoniazid (H), 1x600mg Rifampicin (R) and 4x500mg Pyrazinamide (Z) for 2-months and followed four months with 1x300mg isoniazid (H), 1x600mg Rifampicin (R) (2EHRZ\4HR)]. The patient has been followed for 32 months with no pulmonary or gastrointestinal problems.

### 3. Discussion

Gastrointestinal tuberculosis remains an important cause of mortality and morbidity in developing countries, and its frequency has reportedly increased during the past two decades. The most important reasons for this rise in frequency are increases in immunosuppressive diseases, low socioeconomic levels, and chronic diseases [1]. Gastrointestinal tuberculosis may occur in any region of the gastrointestinal system, however, it is observed most

frequently in the ileum and ileocecal regions [4]. In our case, involvement was identified in the ascending colon.

The clinical presentation of abdominal tuberculosis is usually non-specific. Symptoms such as abdominal pain, weight loss, fever, loss of appetite, diarrhea or constipation, fatigue, overall deterioration of the general condition, and anemia may be observed. Aside from these symptoms, slight or severe gastrointestinal bleeding and partial or complete obstruction may be identified in some patients [5]. Diagnosis of gastrointestinal tuberculosis based on non-specific symptoms is considerably difficult, especially in the absence of active pulmonary tuberculosis. Colon cancer, lymphoma, inflammatory bowel diseases, periapical abscesses, diverticulitis, and infectious diseases should be considered in the differential diagnosis of intestinal tuberculosis [6]. Our patient had nonspecific gastrointestinal complaints with the exception of weight loss. Because of the weight loss history, anemia, and abdominal fullness, malignancy was the initial differential diagnosis.

Distinction between tuberculosis and gastrointestinal malignancies is also very difficult radiologically. Because some findings (*e.g.*, bowel wall thickening, lumen narrowing, mesenteric lymphadenopathy, apple-core shape, etc.) may be similar between the two conditions, the role of imaging studies is limited [7]. In our case, we thought initially that colon cancer might be present due to the abovementioned findings in the absence of characteristic symptoms of tuberculosis.

The most important factor that contributes to the diagnosis of intestinal tuberculosis is suspicion. A positive tuberculin skin test might be useful in patients suspected of having intestinal tuberculosis; however, the test is not specific [8]. In addition, positive acid-fast bacilli (AFB) in the tissue and a positive culture are the definitive methods of diagnosis. Tissue samples may be obtained by USG-guided percutaneous techniques or endoscopically. In our case, we obtained tissue samples via colonoscopy; however, we did not perform a microbiological investigation. Despite our clinic being in an endemic area for tuberculosis, we didn't think the possibility of tuberculosis due to the fact that the patient had no chronic disease history and we had not previously encountered with isolated colonic tuberculosis patient.

Typical endoscopic findings of intestinal tuberculosis are lesions that are ulcerative, hypertrophic, or both. Hyperplastic or hypertrophic lesions are reported in 70% of primary gastrointestinal tuberculosis cases, while ulcerative lesions are reported in cases of secondary tuberculosis [9]. Hypertrophic lesions generally present with a pseudotumor appearance. The presence of caseified granulomas and AFB in biopsies obtained endoscopically from the edges of ulcerated lesions allows for a diagnosis to be established in 35-60% of cases. We detected mixed lesions (ulcerative and hypertrophic) on endoscopic examination; it is possible that we may have suspected tuberculosis if ulcerative-only type lesions rather than a mass obstructing the lumen had been present.

Microscopic findings of tuberculosis are granulomatous inflammation and giant cell accumulation. However these characteristic findings of tuberculosis may not be observed almost half of cases [10]. In our case, the endoscopic biopsy materials did not show caseation necrosis, although granulomatous inflammation was detected. Characteristic findings of tuberculosis were revealed by postoperative histopathological examination.

Surgical treatment for intestinal tuberculosis should be considered only if complications are present [5]. The complications generally observed with intestinal tuberculosis are obstruction, perforation, fistula formation, and bleeding. Patients with ongoing obstruction following antituberculosis treatment and in whom the possibility of malignancy cannot be ruled out are indicated for surgical treatment. Due to the presence of malignancy suspicion in our case, surgical treatment was preferred.

In conclusion, although gastrointestinal tuberculosis is a rare entity, its potential presence should be kept in mind when confronted with isolated gastrointestinal lesions in patients living in geographic regions endemic for tuberculosis.

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