

*Case report*

# Gastrointestinal Tuberculosis mimicking Crohn's Disease.

## Case report and review of the literature

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### SUMMARY

Although in recent years there has been a rise in Gastrointestinal Tuberculosis (GITB) incidence among immigrants and HIV patients, both in Europe and United States, the diagnosis is usually overlooked due to lack of experience and the similarity of the disease with other entities such as Crohn's disease, ileocecal lymphoma and peri-appendiceal abscess. The peritoneum and the ileocecal region are the most likely sites of infection. The transmission in the majority of cases is by hematogenous spread or through the swallowing of infected sputum from patients with primary pulmonary tuberculosis. Pulmonary tuberculosis is evident in less than half of patients.

A case of a 26 year old woman who was admitted to this department for an abdominal abscess and prolonged fever is reported. Physical examination, laboratory studies, and imaging findings were suggestive of Crohn's disease. However treatment with steroids and azathioprine led to clinical deterioration and the patient underwent ileocolic resection. Abscess fluid culture and polymerase chain reaction (PCR) assay of histological specimens demonstrated the presence of mycobacterium tuberculosis and established the diagnosis of GITB. The patient is now well under standard anti-Tb therapy.

**Key words:** Gastrointestinal tuberculosis, abdominal abscess, prolonged fever.

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### INTRODUCTION

A number of cases of GITB misdiagnosed as Crohn's disease are reported in the literature.<sup>1-4</sup> Treatment with steroids and immunosuppressive regimens had adverse consequences. Any region of the gastrointestinal tract can be involved with tuberculosis. The disease is still prevalent in developing countries where tuberculosis is a common health problem. There is no data of the incidence of GITB in Greece.<sup>5-6</sup>

### CASE REPORT

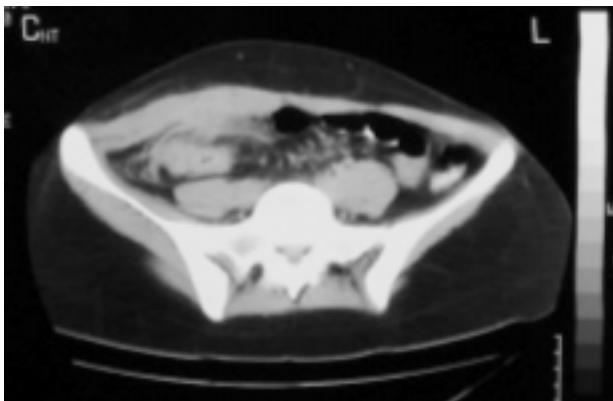
A 26-year-old woman was admitted to the Gastroenterology department with a one month history of fever, abdominal pain and a palpable mass in the right iliac fossa. The patient had undergone appendectomy for acute appendicitis five years before admission. After that she had had intermittent symptoms of abdominal pain and fever and been treated with a variety of analgesic drugs. From her past medical history it was unclear whether, at the age of eight, she had had a course of anti-Tb treatment for Tb-adenitis, but later this was confirmed by her local doctor. She had no history of alcohol abuse or tobacco use. There were no known familial diseases.

Physical examination revealed a conscious, malnourished patient with obvious signs of anaemia. Her blood pressure was 105/65 mmHg, pulse rate 93/min (sinus rhythm), and temperature 38,3°C. There were no skin, eye, or mucous membrane lesions. Chest examination was normal. The liver and spleen were not palpable. The right lower quadrant was tender to deep palpation and there was a 5-cm diameter soft, slightly mobile, tender mass. The bowel sounds were loud. Rectal examination was normal.

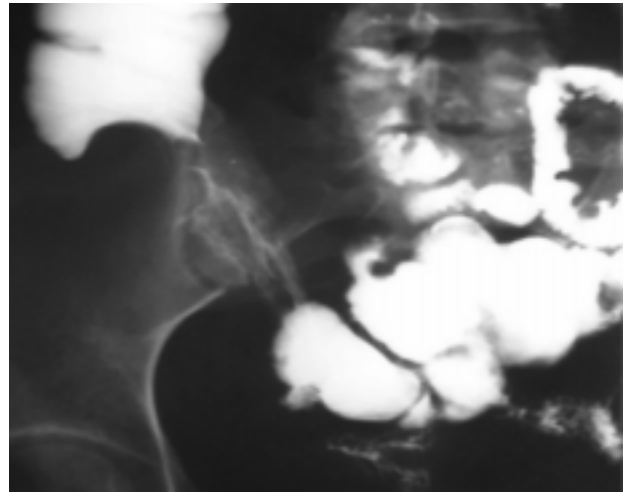
Routine laboratory studies were normal except for the following: Hb: 10 g/dL, MCV: 81, MCH: 25, Serum

iron: 10mg/dl, Ferritin:12 ng/ml, WBC:18900 (Polymorphonuclear cells: 80%), PLT:530000, ESR: 46, C-RP:13,2 mg/dl, Albumin: 2,9 gr/dl. Urinalysis showed no red or white blood cells. Blood and urine cultures were negative. Stool examination for common bacteria and parasites was negative. Tuberculin purified-protein derivative (PPD) test was strongly positive (12 mm in diameter). Chest radiograph was normal. A computed tomography scan of the abdomen and pelvis revealed marked irregularity and wall thickening in the region of the terminal ileum and cecum and a 5-cm mass in the mesentery of the ileocecal region. (Figure 1) Enteroclysis showed narrowing and oedema of the last 10cm of the terminal ileum along with a filling defect of the cecum (Figure 2). Upper GI endoscopy showed normal findings. At colonoscopy the entire colon except the area of the cecum was normal. The mucosa of the cecum was erythematous and granular with a narrowed ileocecal valve and two probable enteroenteric fistulas. (Figure 3) Multiple biopsies from the cecum and the terminal ileum showed non-specific inflammatory lesions.

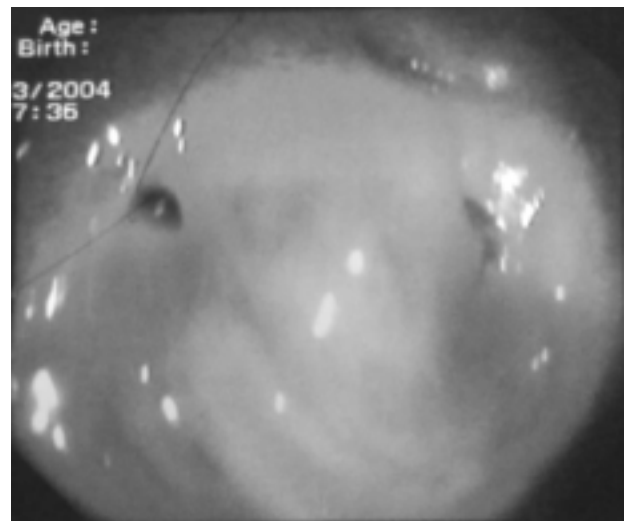
An initial diagnosis of Crohn's disease was made, based on the medical history and the clinical and the laboratory findings. The patient started a course of Prednisolone 50mg/d, Ciprofloxacin 800mg/d and Metronidazole 1500mg/d i.v, as well as Azathioprine 100mg/d p.o. Four days after admission a spontaneous drain of 300 ml of suppurative fluid through a newly formed enterocutaneous fistula of the right iliac fossa was noticed. Pus culture for common bacteria yielded *Escherichia coli* and *Klebsiella Pneumoniae*. The acid fast stain did not show acid fast bacillous. Cultures for *M. Tuberculosis* were sent to the laboratory. Marked clinical improvement followed the spontaneous drainage of the abdominal abscess.



**Fig. 1.** CT scan of the abdomen. Marked irregularity and wall thickening in the region of the terminal ileum and cecum and a 5-cm mass in the mesentery of the ileocecal region



**Fig. 2** Enteroclysis: Narrowing and oedema of the last 10cm of the terminal ileum along with a filling defect of the cecum



**Fig. 3** Colonoscopy: The mucosa of the cecum is erythematous and granular with a narrowed ileocecal valve and two probable enteroenteric fistulas

Finally the patient was discharged with a tapering course of methylprednisolone and azathioprine.

Ten days later the patient was readmitted to this department with fever and clinical and radiological signs of obstructive ileus. Due to deterioration in her clinical condition she underwent a right hemicolectomy with resection of the 20 cm of the terminal ileum. At laparotomy the bowel wall appeared thickened with multiple strictures and there was an inflammatory mass surrounding the ileocecal region. Histological examination of the full length of the resected bowel (including 7 regional nodes)

did not reveal caseating or non-caseating granulomata. Five days after surgery pus culture of the spontaneous drained abscess of the right iliac fossa became positive for *M. Tuberculosis*. The patient was treated with a 4-drug antituberculosis regimen including isoniazid 300mg/d, rifampicin 600mg/d, ethambutol 1,25gr/d and pyrazinamide 1,25gr/d. For the last two months she has made a spectacular clinical recovery, is now asymptomatic and has gained 7 kg in weight.

## DISCUSSION

Nowadays tuberculosis involving the gastrointestinal tract is rare in the developed world, but this was not always the case. At the beginning of the 20<sup>th</sup> century, intestinal tuberculosis was the most common cause of small intestine obstruction and stricture.<sup>7</sup> The prevalence of this pathology dramatically fell due to improved life style, pasteurization of milk (leading to decreased frequency of *Mycobacterium bovis* infection), and control of bovine tuberculosis. This has also been the case in Greece during the second half of the last century, resulting in the closure of most special anti-Tb hospitals.

Tuberculosis is much more common in certain groups of patients, including immigrants, those with AIDS, the urban poor, prisoners, and the elderly in nursing homes.<sup>7</sup> Our patient was admitted to this department with non-specific symptoms, including right lower abdominal pain, fever, and anaemia. The patient's symptoms suggested an infectious, neoplastic, or inflammatory disorder. The mass found on physical examination raised the possibility of Crohn's disease, lymphoma, tuberculosis, ameboma, abscess, or a complication of an acute enteric infection (*Yersinia* or *Salmonella*). Tubal and ovarian infections or neoplasms could not be ruled out.

The most common presenting symptom of intestinal tuberculosis, seen in 90% to 100% of patients, is midabdominal and/or right lower quadrant abdominal pain. Other common symptoms include weight loss (in 66% of patients), fever (35%-50%), and a change in bowel habit (20%). Less common but well-described symptoms include malabsorption, night sweats, malaise, anorexia, nausea, vomiting, melaena, and rectal bleeding.<sup>8</sup> The diagnosis of intestinal tuberculosis is frequently delayed due to the nonspecific symptoms and signs with which patients present. It is not uncommon for patients to have symptoms for up to one year before they are properly diagnosed.

The finding of a tender abdominal mass was also typical. Approximately 25%-50% of patients with gastrointes-

tinal tuberculosis have a palpable right lower quadrant abdominal mass. Several of the common symptoms and signs focus on the right lower quadrant. This reflects the most common location for tuberculosis in the gastrointestinal tract. Approximately 42% of gastrointestinal tuberculosis cases involve the ileocecum, 35% involve the jejunum and/or ileum, and 12% involve the colon. The involvement of the ileocecal area is likely due to the relative stasis in the region and the organism's predilection for lymphoid tissue.<sup>8</sup>

As illustrated in the case presented here, laboratory and imaging findings are usually nonspecific. An increased erythrocyte sedimentation rate is seen in 90% of patients. Mild anemia is a frequent finding. A positive PPD test occurs in 70% to 86% of patients, and chest x-ray shows evidence of tuberculosis in only 35% of cases of intestinal tuberculosis.<sup>9</sup> Barium enema may be helpful but is generally not diagnostic. Typical findings include a "pipestem" colon and a cone-shaped, retracted cecum.<sup>8</sup> Small bowel radiographs may resemble those in Crohn's disease, lymphoma or ameboma. The ileocecal area is usually involved as a whole unit and ileal disease alone should suggest another diagnosis. Early changes seen on CT include a slightly thickened cecum and terminal ileum with few regional lymph nodes. Later changes include more prominent thickening of the cecum and ileum, adherent loops of bowel, large nodes, and mesenteric thickening.<sup>10</sup> The CT scan of our patient showed marked irregularity and wall thickening in the region of the terminal ileum and cecum, and a 5-cm solid mass in the mesentery of the ileum or cecum. These findings are most compatible with lymphoma, tuberculosis, Crohn's disease, or a bacterial enteritis.

In colonoscopy typical findings include a deformed, incompetent ileocecal valve, along with a deformed cecum. Other characteristic findings include segments of mucosal nodules and ulcerations. Occasionally strictures are seen in the area of the nodules and ulcerations. There is controversy regarding the diagnostic value of colonoscopy. Some authors consider it the method of choice<sup>9,11,12</sup> while others do not.<sup>15-16</sup> Colonoscopy findings in our case were non-contributory. The endoscopic abnormalities were compatible with any of the diagnoses suggested by the CT scan.

A rare presentation of this entity is diffuse colitis that can mimic either Crohn's disease or ulcerative colitis. It is important to recognise this presentation because treatment with steroids could have adverse consequences.<sup>8</sup>

Histology of endoscopic biopsy specimens suggests the diagnosis in 40% of cases. Caseating granulomas are

the classic findings, but caseation is found primarily in lymph nodes. The noncaseating granulomas, are typical for endoscopic biopsies obtained from the edge of gastrointestinal ulcers. Forty percent of patients will have positive cultures from endoscopic biopsies.<sup>7</sup> Unfortunately, culture results can take more than 4 weeks to obtain. Another diagnostic strategy is to submit biopsy specimens for PCR. Except for granuloma with caseation and confluence, which is the characteristic of intestinal tuberculosis, other pathological features of intestinal tuberculosis and Crohn's disease are very similar or are difficult to find in endoscopic biopsy specimens. Gan et al, found that the positivity rate by PCR in 39 intestinal tuberculosis specimens was 64.1% (25/39), while it was zero in 30 Crohn's disease specimens. Moreover, tissues of intestinal tuberculosis with granulomata similar to those of Crohn's disease, were positive by PCR in 71.4% (10/14) of cases, whereas tissues without granulomata were positive by PCR in 61,1% (11/18).<sup>13</sup>

In general, surgical intervention is not necessary for successful treatment. Medical management with a 4-drug regimen is the initial treatment of choice. Symptoms usually begin to improve after 1-2 weeks of therapy. Occasionally, patients present with complications from their disease, such as perforation, obstruction, fistula formation, and massive bleeding, and some of these complications do require immediate surgical intervention.<sup>8</sup>

Anand et al<sup>14</sup> evaluated 39 patients with symptoms and radiological evidence of bowel obstruction. All patients were medically managed. Of the 34 patients who completed the study, 91% had significant clinical improvement and 76% had complete resolution of symptoms; only 9% required surgical intervention. Repeat barium enema revealed complete resolution of the lesions in 70% of patients. Individuals with strictures longer than 12 cm were more likely to require surgical intervention. Our patient is doing extremely well so far with a four-medical anti Tb regime, although she required surgery due to initial misdiagnosis and treatment with corticosteroids.

In conclusion, we have reported a case of GITB mimicking Crohn's disease in a female adult patient with challenging differential diagnosis. The relevant accessible Hellenic literature of the last two decades include a pe-

diatric original paper and a literature review. Therefore it was considered appropriate to report the diagnostic and therapeutic challenges in an adult case of GITB because of its rare and educational nature.

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