

# The rare cause of fever with unknown origin in childhood: Abdominal Tuberculosis

 Hilal Karabag Citlak<sup>1</sup>,  Erdem Topal<sup>2</sup>

<sup>1</sup>Inonu University, Faculty of Medicine, Department of Pediatrics, Malatya, Turkey

<sup>2</sup>Inonu University, Faculty of Medicine, Department of Pediatric Allergy and Immunology, Malatya, Turkey

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## Dear Editor,

Abdominal tuberculosis accounts for approximately 3% of extrapulmonary tuberculosis cases. Although intestinal tuberculosis may be involved in any section of the gastrointestinal tract, it is frequently observed in the ileum and ileocecal region. Fever, abdominal pain are common but non-specific symptoms. Vomiting, diarrhea, constipation, weight loss, and rectal bleeding are among the other symptoms (1,2).

A 16-year-old adolescent female patient with no previous history applied with fever, asthenia, and vomiting that lasted for 15 days. Vital findings of the patient were as follows: Pulse rate was 120, respiratory rate was 28/m, blood pressure was 116/75 mm Hg, body temperature was 38.5°C and oxygen saturation was 95%. Physical examination revealed abdominal tenderness in the left lower quadrant and other systemic examinations were normal. In the complete blood count, it was determined that white blood cell (WBC) was 4.950 /mm<sup>3</sup>, hemoglobin was 12.2 g/dL, platelet count was 221.000 mm<sup>3</sup>, peripheral smear was 60% neutrophil dominance, C reactive protein was 5.3 mg/dL, erythrocyte sedimentation rate was 63 mm/h, and biochemical parameters and complete urinalysis was under normal limits. Salmonella, Brucella, HIV and viral serology findings of the patient were negative. Urine and blood culture of the patient were sterile. Purify protein derivation (PPD) test and QuantiFERON test was positive. Three-cavity (brain-thorax-abdominal Computed Tomography) imaging was conducted for fever etiology. Abdominal CT showed hypoechoic nodular lesions (pathological lymphadenopathy) in the preaortic area at the umbilicus level, in the abdominal midline and slightly to the right of the midline, the largest of which was 24x13 mm, and some of which were combined and contained minimal echogenic reflux (Figure 1).



**Figure 1.** Hypoechoic nodular lesions in abdominal CT

The patient underwent bone marrow aspiration to test for malignancy and no pathology was identified. Positron-emulation tomography (PET) revealed hypermetabolic nodular images in the intraabdominal region in the preaortic and superior-rectal regions with conglomerated appearance and without clear borders and with a size of approximately 2 and 2.5 cm. Laparoscopic biopsy was conducted on the abdominal lesions of the patient. Nonspecific culture, tuberculosis (TB) culture, Acid Resistant Bacillus (ARB) staining, and Polymerase Chain Reaction (PCR) were conducted on the biopsy material. When the pathology result was positive for necrotizing granulomatous lymphadenitis tuberculosis and ARB staining, the patient was diagnosed with abdominal tuberculosis with lymph node involvement and quadruple anti-tuberculosis treatment (Isoniazid, Rifampicin, Ethambutol, Pyrazinamide) was initiated. The patient, whose fever was reduced,

**Received:** 14.10.2019 **Accepted:** 13.05.2020 **Available online:** 26.05.2020

**Corresponding Author:** Hilal Karabag Citlak, Inonu University, Faculty of Medicine, Department of Pediatric Allergy and Immunology, Malatya, Turkey **E-mail:** drhilalkrbg@gmail.com

and anorexia was improved during the follow-up, was discharged after nine-month treatment was planned.

There has been an increase in extrapulmonary tuberculosis incidence during the recent years. Chronic diseases such as diabetes mellitus, renal failure, connective tissue diseases, infectious diseases such as human immunodeficiency virus (HIV), malignant diseases, conditions such as steroid and anti-tumor necrosis factor use that lead to inhibition of immune response are important risk factors in the above-mentioned increase (3). Tuberculosis is often presented with lung involvement, however up to 30% of extrapulmonary tuberculosis cases are observed in childhood (4). It was observed that abdominal tuberculosis is a type of extrapulmonary tuberculosis, prevalence of which has been increasing worldwide. Although tuberculosis is observed due to viral infectious factors such as HIV that suppresses the immune system or systemic chemotherapy in developed countries, it is observed in individuals with normal immunity due to inadequate hygiene conditions and crowded family environment in developing countries (5,6). In our case, the patient did not suffer any viral infection that could suppress the immune system and there was no history of chemotherapy or any medical treatment that would suppress the immune system.

Abdominal tuberculosis may develop by reactivation of previously acquired bacillus, and may spread via hematogenous spread of active pulmonary tuberculosis, ingestion of infected sputum, oral intake of contaminated food, beverages, and via neighborhood and may involve peritoneal, intestinal, nodal and solid organs. The most common localization of tuberculosis bacilli in the gastrointestinal tract is in the ileocecal region. The main reasons for this localization include the relative physiological stasis in this region, minimal absorption activity, and the affinity of tuberculous bacilli to lymphatic tissue (7,8).

Abdominal tuberculosis may accompany clinical findings such as fever, weight loss, loss of appetite, abdominal pain, diarrhea or constipation, abdominal ascites and rarely clinical findings such as organomegaly, hepatomegaly and splenomegaly (8,9). In our case, clinical findings such as fever, asthenia, vomiting and diarrhea were present, but there was no organomegaly or there were no ascites in the abdomen.

Crohn's disease is important due to its role in the differential diagnosis of intestinal tuberculosis. Crohn's disease is similar to abdominal tuberculosis due to clinical symptoms of weight loss, abdominal pain, and the presence of anemia and hypoalbuminemia in laboratory findings (10).

In abdominal tuberculosis cases, mesenteric lymphadenopathies, intestinal wall thickening, ascites and omental cake appearance could be observed with transabdominal ultrasonography and computer tomography (10). Abdominal CT of our patient exhibited hypoechoic nodular lesions at the umbilicus level in the preaortic region, on the midline of the abdomen and slightly to the right of the

midline, and 24 x 13 mm in size, some with minimal echogenic reflux and considered as pathological lap.

Although biopsy still has an important role in the diagnosis of abdominal tuberculosis, new examinations have recently acquired significance in the diagnosis. The presence of caseous granulomas is a histologically pathognomonic finding. Caseification may not always be observed in the mucosa, however it is more common in regional lymph nodes (3). The presence of caseification of lymph nodes in laparoscopic biopsy of our case also led to the diagnosis, consistent with the literature.

Classic quadruple anti-TB (isoniazid, ethambutol, pyrazinamide, and rifampicin) drugs are used in the treatment of abdominal tuberculosis. Although there is disagreement about the length of treatment among publications, most authors agreed that this period should be nine-months (6,8,11).

In conclusion, abdominal tuberculosis should be considered in patients presenting with complaints such as abdominal pain and fever with unidentified etiology in countries where tuberculosis cases are prevalent such as Turkey.

*Competing interests: The authors declare that they have no competing interest.*

*Financial Disclosure: There are no financial supports.*

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