

## A Rare Cause of Chronic Abdominal Pain in Children: Isolated Mesenteric Tuberculous Lymphadenitis

### Çocuklarda Kronik Karın Ağrısının Nadir Bir Nedeni: İzole Mezenterik Tüberküloz Lenfadenit

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#### ABSTRACT

Tuberculosis is one of the main causes of death due to infections in the world. Extrapulmonary infection accounts for one third of the cases, of which abdominal tuberculosis may present with mesenteric lymphadenitis, peritonitis, gastrointestinal system involvement or solid organ involvement. Among them, isolated mesenteric tuberculous lymphadenitis (IMTL) is a type of extrapulmonary disease characterized by the involvement of intraabdominal lymph nodes mostly due to lymphohematogenous spread of primary mycobacterium tuberculosis. IMTL is a rare clinical entity in children and is often associated with underlying immunosuppressive disorders. Chronic abdominal pain, intermittent fever, and weight loss are the classic clinical presentations of this disease. In this paper, a rare case of IMTL in a healthy fifteen-year-old girl is reported.

**Keywords:** Abdominal tuberculosis, children, chronic abdominal pain, isolated mesenteric tuberculous lymphadenitis

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#### ÖZET

Tüberküloz, dünyada enfeksiyonlara bağlı ölümlerin başlıca nedenlerinden biridir. Abdominal tüberküloz mezenterik lenfadenit, peritonit, gastrointestinal sistem tutulumu veya solid organ tutulumu ile seyreden olguların üçte birini ekstrapulmoner enfeksiyon oluşturur. Bunlardan izole mezenterik tüberküloz lenfadenit (IMTL), çoğunlukla primer mycobacterium tuberculosis'in lenfohematojen yayılımına bağlı olarak intraabdominal lenf nodlarının tutulumu ile karakterize bir ekstrapulmoner hastalık türüdür. IMTL, çocuklarda nadir görülen bir klinik antitedir ve sıklıkla altta yatan immünsüpresif bozukluklarla ilişkilidir. Kronik karın ağrısı, aralıklı ateş ve kilo kaybı bu hastalığın klasik klinik belirtileridir. Bu yazıda, on beş yaşındaki sağlıklı bir kız çocuğunda, nadir görülen bir IMTL vakası sunulmaktadır.

**Anahtar Sözcükler:** Abdominal tüberküloz, çocuklar, kronik karın ağrısı, izole mezenterik tüberküloz lenfadenit

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**INTRODUCTION**

Tuberculosis (TB) is one of the leading causes of death due to infection worldwide. According to the World Health Organization (WHO) Global Tuberculosis Report, the incidence of TB was 142/100.000 (1). In parallel with the increase in the number of human immunodeficiency virus (HIV) infection and multidrug-resistant tuberculosis cases, it has been reported that there has been an increase in the frequency of TB all over the world in the last 10 years (1,2). In the pediatric age group, it is predicted that the annual number of new cases is approximately 1 million and the number of cases resulting in death is 450.000 (2,3).

Abdominal TB is a rare type of extrapulmonary TB, with a prevalence of between 0.3 to 4.3% among the childhood TB cases (2,4). Abdominal TB usually develops a result of lymphohematogenous spread of the primary infection or adjacent to an abdominal focus or mesenteric lymph node (2,4). Although this disease may involve the gastrointestinal tract, peritoneum, mesenteric lymph nodes and solid organs, it is most commonly encountered as peritoneal involvement, and mostly affects young adults (2,5). In the children, abdominal TB is frequently observed in patients who are immunosuppressed or on continuous ambulatory peritoneal dialysis (5). Among abdominal TB cases, mesenteric nodal disease often accompanies with other abdominal organ involvement. However, isolated mesenteric tuberculosis lymphadenitis (IMTL) is a very rare manifestation of abdominal TB infection (3,5). Herein, we present a rare case of IMTL in a girl without an immune suppressive disorder is reported.

**CASE REPORT**

A fifteen-year-old girl presented with non-localized abdominal pain, intermittent fever, weight loss, fatigue, and loss of appetite for the last two months. She had no history of cough, night sweats, or expectoration. There was no family history of TB. At the time of application, her general condition was good, her body weight was 39.5 kg (5-10%), her height was 165 cm (75-90). There was a Bacille Calmette-Guerin (BCG) scar on the left arm. Abdominal examination revealed a well-circumscribed and immobile mass in the right lower quadrant. Other system examinations were normal.

On the laboratory examination, complete blood count was as follows; haemoglobin 7 gr/dl, white blood cell count of 8900/mm<sup>3</sup>, platelet count of 237000/mm<sup>3</sup>. No atypical cells were found in the peripheral smear. Biochemical and urine analysis were normal. The erythrocyte sedimentation rate was 48 mm/hour. HIV serology was negative.

On the radiological examination; chest X-ray was normal. Abdominal ultrasonography (US) detected a 54x40 mm hypoechoic mass with internal millimetric calcifications in the right lateral neighborhood of the umbilicus. In addition, multiple lymphadenopathies were observed in the periportal and paraaortic region, the largest of which was 15 mm in size. On the abdominal computed tomography (CT), a space-occupying lesion containing calcified foci in the right lateral neighborhood of the umbilicus and in front of the psoas muscles was detected in axial ( Figure 1) and coronal sections (Figure2). Multiple periportal and paraaortic lymph nodes were also confirmed. Tuberculin skin test (TCT); 5 tuberculin units were administered by intradermal injection of a purified protein derivative (PPD). The widest diameter of the induration, measured 72 hours after the test, is considered positive  $\geq 10$  mm in those without BCG vaccination, and  $\geq 15$  mm in those with BCG vaccination. TCT test was measured as 25 mm in our patient.

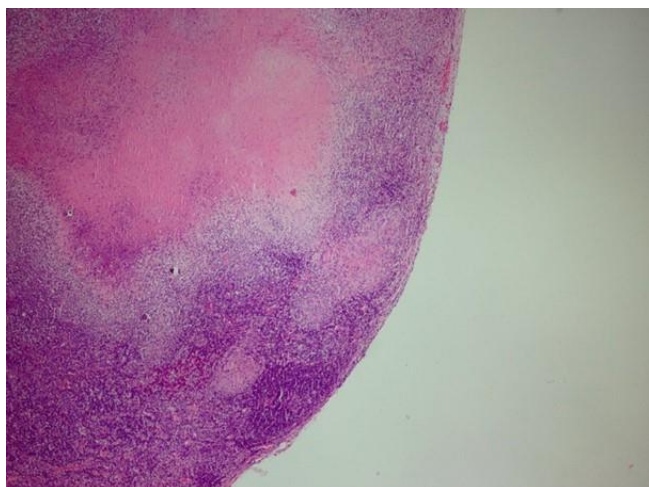


**Figure 1:** Non-contrast axial abdominal CT section: Lesion with calcification in the right lateral of the umbilicus, anterior to the psoas muscle.

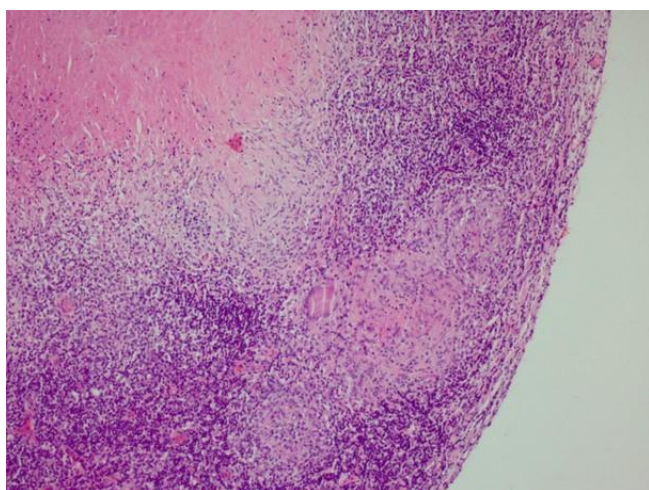


**Figure 2.** Mesenteric calcified mass on coronal abdominal CT section.

As a result of clinical, laboratory, and radiological findings, abdominal TB was considered as primary diagnosis. Since lymphoma should also be considered in the differential diagnosis, excisional biopsy was planned for the definitive diagnosis. During the operation, the mass was found to be a mesenteric lymph node. Intestines and other abdominal organs were normal. In the histopathological examination of the specimen, Langhans giant cells and a large caseating granuloma with peripheric epithelioid histiocytes and central caseation was detected (Figure 3 and 4). The tissue material was sent to microbiology for polymerase chain reaction (PCR). Mycobacterium tuberculosis was identified by PCR in the biopsy tissue.



**Figure 3.** Large caseating granuloma, H&E, 4x



**Figure 4.** Epithelioid histiocytes at the periphery with central caseation and Langhans giant cell, H&E, 10x

In the treatment, isoniazide, rifampicin, ethambutol and pyrazinamide treatment was started for the first two months in the intensive phase, according to the WHO consolidated guidelines on tuberculosis 2020. In the next follow-up phase, isoniazide and rifampicin were used for four months. The clinical signs and symptoms disappeared after the 6-month-therapy.

## DISCUSSION

Extrapulmonary involvement is encountered in one third of all TB cases (5). Although superficial lymph node involvement is most common in extrapulmonary TB, the central nervous system, gastrointestinal system, genitourinary system, and musculoskeletal system can also be involved (5,6). Parallel to the increase in other forms of TB, an increase is also observed in abdominal TB in recent years (5,6).

Abdominal TB is classically seen in four different forms; peritoneal, mesenteric lymph nodes, gastrointestinal, and solid organ involvement (2). Some patients do not have signs of pulmonary TB. In our patient, pulmonary TB was excluded due to the absence of cough, night sweats, and normal chest X-ray and thorax CT, although her PPD test was 25X30 mm.

Although clinical findings in abdominal TB differ according to the site of involvement, fever, weight loss, abdominal pain, diarrhea, ascites, intestinal obstruction, perforation, and palpable mass are the leading causes of admission (4-6). In our patient, fever, weight loss, and palpable abdominal mass supported the diagnosis of abdominal TB. US and CT are helpful radiological methods for the diagnosis in patients with abdominal TB. On US, lymph nodes can be seen individually or as clusters. In the center of lymphadenopathies, hypoechoic areas and calcifications are observed in some patients (2,6,7). Abdominal US and CT examinations in our patient were compatible with the literature.

IMTL is rare in abdominal TB, and occurs as a result of the involvement of lymph nodes in the mesentery, ileocaecal and pyloroduodenal areas (5). Intestinal involvement may not be present in the patients. Abdominal mass may be palpable on the physical examination, and can cause intestinal or urinary obstruction by external pressure. Isolated lymph node involvement is more common in immunosuppressed patients and infections caused by drug-resistant bacteria (5). In our case, there was no immunosuppressive situation, and no drug resistance was found in the culture antibiogram.

IMTL can mimic mesenteric lymphadenitis, inflammatory bowel diseases, HIV, metastasis or lymphoproliferative diseases (5,7). Therefore, pathological examination of the lymph node and isolation of the agent by PCR are mandatory to achieve the correct diagnosis (4). In our patient, the mesenteric lymph node was surgically excised, and the diagnosis was confirmed histopathologically. *Mycobacterium tuberculosis* was also identified in the lymph node by PCR.

As antituberculous treatment, isoniazid, rifampicin, ethambutol and pyrazinamide are used for the first two months. In addition, the combination of isoniazid and rifampicin is given to the patients for the next four months (3). A good clinical response was obtained with this standard antituberculosis treatment in our patient. The signs and symptoms completely disappeared.

In conclusion, abdominal TB should be considered in patients presenting with abdominal complaints lasting longer than five days. In patients with IMTL, excisional biopsy should be performed and the diagnosis should be made by pathological and microbiological studies.

## Conflict of interest

No conflict of interest was declared by the authors.

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