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Case Report / Olgu Sunumu

An important diagnosis of ascites and abdominal mass coexistence in a child: Peritoneal tuberculosis

Çocuk hastada asit ve abdominal kitle birlikteliğinde önemli bir tanı: Peritoneal tüberküloz

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Abstract

Tuberculosis is still a life-threatening disease worldwide, particularly in developing countries. Miliary tuberculosis is an important diagnosis in children which needs urgent treatment. A 15-year-old male patient was investigated for an abdominal mass with the symptoms of chronic abdominal pain, weight loss, and ascites. On ultrasonography, a 4.5×4×4 cm sized mass that could not be differentiated whether cystic or solid was defined at left paraumbilical region. During laparotomy, widespread punctate granulomas were seen on the intestinal surfaces, peritoneum, and thickened omentum. Tissue biopsies were taken with preliminary diagnosis of possible tuberculosis. The pathological examination was compatible with granulomatous inflammation involving caseous necrosis. In conclusion, miliary tuberculosis with abdominal involvement is a rare type of the disease and can also be seen in pediatric patients without lung tuberculosis. Percutaneous sampling of ascites fluid may not be enough for the diagnosis. Tissue sampling is the most appropriate method for diagnosis and timely treatment for abdominal tuberculosis in children.

Keywords: Abdominal mass, assit, children, miliary tuberculosis.

Öz

Tüberküloz dünya çapında, özellikle gelişmekte olan ülkelerde halen önemli bir hastalıktır. Miliyer tüberküloz, çocuklarda önemli bir tanı olup, acil tedavi gerektirir. On beş yaşında erkek hasta kronik karın ağrısı, kilo kaybı ve asit semptomlarıyla abdominal kitle açısından araştırıldı. Ultrasonografide sol paraumblikal alanda, 4.5×4×4 cm boyutunda sistik veya solid komponenti net ayırt edilemeyen bir kitle saptandı. Laparotomi sırasında intestinal yüzeylerde, periton ve kalınlaşmış omentumda yaygın punktat granülomlar görüldü. Muhtemel tüberküloz ön tanısı ile doku biyopsileri alındı. Patolojik incelemede kazeifikasyon nekrozu içeren granülomatöz enflamasyon saptandı. Sonuç olarak, abdominal tutulumlu miliyer tüberküloz hastalığın nadir bir formu olup, akciğer tüberkülozu olmayan çocuk hastalarda da görülebilir. Asit sıvısının perkütan örneklemesi tanıda yeterli olmayabilir. Çocuklarda abdominal tüberkülozun tanı ve zamanında tedavisi için doku örneklemesi en uygun yöntemdir.

Anahtar sözcükler: Abdominal kitle, asit, çocuk, miliyer tüberküloz.

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Abdominal pain is one of the symptoms which is frequently encountered in pediatric surgery practice and may develop due to many different etiological reasons. Abdominal mass is one of the most important pathologies that causes abdominal pain. In particular, patients with chronic abdominal pain should be evaluated for abdominal tumors such as lymphoma or other abdominal soft tissue malignities. After excluding all other malignancies presenting with an abdominal mass in children,

miliary tuberculosis with abdominal involvement should be kept in mind in patients with additional symptoms such as weight loss, fever, and night sweats.

Tuberculosis is still a worldwide life-threatening disease, particularly in developing countries. Pediatric tuberculosis was reported in 11% of all tuberculosis cases in 2018.[1] Extrapulmonary tuberculosis is a less common form which can be diagnosed in only 15% of all tuberculosis cases worldwide.[1]

Abdominal involvement is uncommon for extrapulmonary tuberculosis, particularly in pediatric patients and is one of the pathologies that must be diagnosed early and treated promptly. In this article, we present a pediatric case of abdominal tuberculosis.

CASE REPORT

A 15-year-old male patient suffered from abdominal pain, cough, night sweats and weight loss (7 kg in the previous month) for three months. He had no family history of tuberculosis. He had intermittent fever, weakness, and anorexia for about four months. Abdominal ultrasonography revealed a 4.5×4×4 cm mass in size in the left paraumbilical region which could not be differentiated whether cystic or solid. Also, several enlarged mesenteric lymphadenopathies and abdominal ascites were described. There were no pathological findings for any pulmonary disease on chest X-ray. No pathological results were obtained in blood tests other than a minimal increase in acute phase reactants. As the abdominal findings persisted in consecutive examinations, surgical exploration was planned with the suspicion of a malign abdominal mass. Due to the patient's general condition and the suspicion of a malignant mass, laparotomy was preferred instead of laparoscopy. During surgery, all intestinal surfaces, peritoneum, and omentum were covered by punctate granulomas and became thickened like a mass (Figure 1-3). Adhesions between the omentum and intestine were carefully separated. Ascites fluid sample was obtained for further evaluation. After omental and peritoneal biopsy specimens were taken, and surgery was terminated. There were no intra- or postoperative complications. Adenosine deaminase level was evaluated and histopathological examination was performed for possible caseous necrosis with the preliminary diagnosis of tuberculosis. A part of the sample was sent microbiological examination with culture for acid-resistant bacteria involvement. After consultation of pediatric infectious diseases clinic, tuberculosis treatment was started. The patient was negative for human immunodeficiency virus (HIV) infection. The pathological examination was compatible with granulomatous inflammation

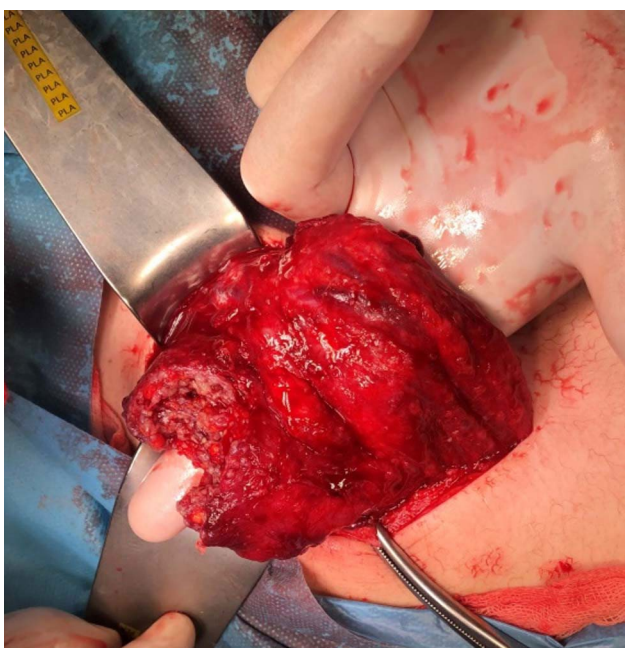

Figure 1. Thickened omentum with wide spread granulomas on surface.

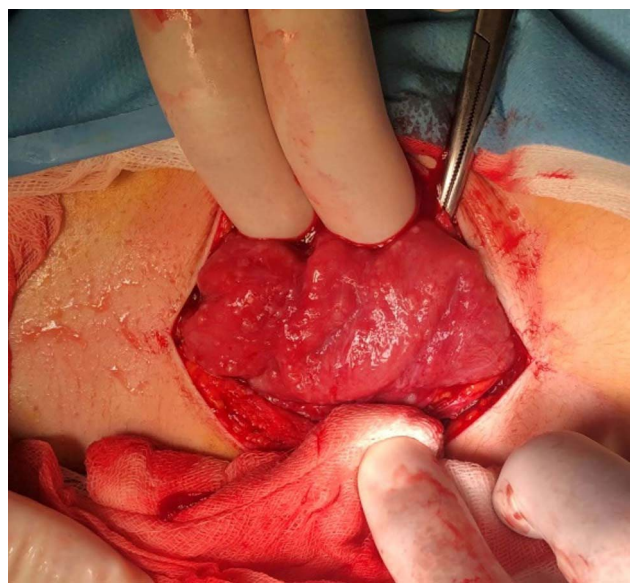

Figure 2. Granulomas on the intestinal surfaces.

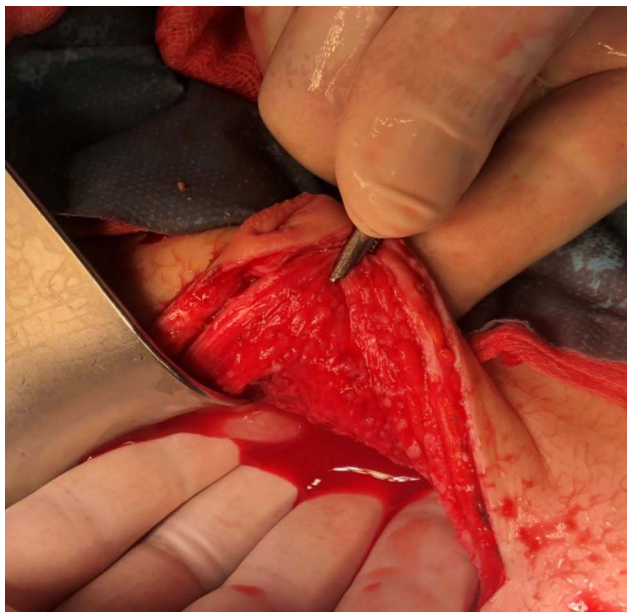

Figure 3. Widespread granulomas on peritoneum.

involving caseous necrosis and miliary tuberculosis. Cytologic and microbiological examination of ascites fluid sample was negative for acid-resistant bacteria. The patient was fed on the second postoperative day and discharged on the fourth postoperative day with oral tuberculosis treatment. Postoperative one-month follow-up was uneventful.

DISCUSSION

Tuberculosis is still a life-threatening problem in developing countries, and its incidence is higher in individuals with low socioeconomic status. Male children are affected more commonly than female children.[2] This difference about sex ratios is the same as extrapulmonary tuberculosis.[3,4] Abdominal involvement of disease is thought to be secondary to a latent peritoneal area which is previously affected by hematogenous spread.[5] Kilic et al.[6] reported 29 patients who were diagnosed with tuberculosis peritonitis and only five of them had intestinal tuberculosis. Primarily lung involvement was seen only in 31.4% of patients.

Aston[7] reported that it is important to exclude other mimicking abdominal pathologies. Inflammatory bowel disease, lymphoma, and other malignancies of abdomen are some of these serious diagnosis.[7] Fever, weight loss, fatigue, and abdominal pain are the most seen symptoms.[8,9] Tinsa et al.[10] reported a study including 13 pediatric patients with abdominal tuberculosis. Two patients had abdominal masses mimicking lymphoma and the diagnosis was obtained by histopathological examination. Due to the non-specific symptoms, diagnosis was delayed. In our patient, the studies for abdominal mass investigation took a month. Therefore, abdominal tuberculosis should be kept in mind as a differential diagnosis in such a patient with non-specific symptoms. Timely diagnosis is important for specific treatment.

Bacteriological tests may not always be diagnostic for abdominal tuberculosis diagnosis. In the study reported by Tinsa et al.,[10] only three patients' bacteriological examination had confirmed tuberculosis. Other studies supported similar results previously.[11,12] Our patient's bacteriological studies were negative for diagnosis, but histopathological examination was compatible with abdominal tuberculosis.

Abdominal ultrasonography may show ascites with septations and abdominal lymphadenopathies. It can be used for ascites fluid sampling for examination, but it may not always be diagnostic. Fluid sample can have exudative features and it may help proving the diagnosis. Although it is an expensive test, high levels of adenosine deaminase in ascites fluid have high sensitivity and specificity in the diagnosis.[13] In our study, consistent with the literature, patient's abdominal ascites fluid sample had a high level of adenosine deaminase.

Laparoscopy has a high success rate in diagnosis of abdominal tuberculosis by histopathological sampling in a minimal invasive manner.[14] It also decreases the rate of unnecessary laparotomies, but in some conditions such as a patient having huge abdominal mass with suspicion of any malignities or miliary involvement, laparotomy may be needed. In our case, we decided to perform a diagnostic laparotomy for preliminary diagnosis of the abdominal mass and for safe excision of a possible abdominal lymphoma. In other reported studies, some of the cases underwent laparotomy for those reasons.

Marshall[15] reported a 27.3% ratio of active pulmonary tuberculosis for the patients with abdominal tuberculosis. In the study reported by Kilic et al.,[6] the ratio of active pulmonary tuberculosis was 31.4%. Our patient had no active pulmonary tuberculosis and his lung imaging studies were

normal. Patients may have abdominal tuberculosis without active pulmonary involvement. Therefore, absence of pulmonary findings does not rule out the abdominal tuberculosis diagnosis.

Classical initial treatment includes four-drug antituberculosis treatment. Steroids may be useful to prevent adhesions due to serositis. However, it is still a controversial issue with a low level of incidence.[16] The treatment plan of our patient was tailored by the Pediatric Infectious Disease Department and our patient was given four-drug therapy.

In conclusion, tuberculosis is still a worldwide life-threatening disease, particularly in developing countries. It can be seen in a wide range from only lung involvement to generalized disease. Miliary tuberculosis with abdominal involvement is a rare form of the disease and can also be seen in children without lung tuberculosis. Abdominal tuberculosis should be considered in children with fever, abdominal pain, weight loss and ascites in the abdomen. After exclusion of other malignancies by surgical or radiological examination, samples must be taken and sent for evaluating for a possible tuberculosis involvement. Percutaneous sampling of abdominal ascites fluid may not be enough for the diagnosis, as it may be negative as in our patient with miliary tuberculosis. Therefore, when suspected, tissue sampling is the most appropriate method for the right diagnosis and timely treatment for abdominal tuberculosis in children.

Patient Consent for Publication: A written informed consent was obtained from the parent of the patient.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: Study idea/concept: B.T.S., N.K.; Design and writing the article, references: B.T.S., F.Ç.; Data collection and/or processing/materials: Y.Ç., T.T.; Literature review: F.Ç., Y.Ç., T.T.; Critical review: M.E.B., N.K.; Control/supervision: N.K.

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