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Case Report / Olgu Sunumu

A Hydatid Cyst Case Diagnosed in Recurrent Urinary Tract Infection Examination of a Pediatric Patient

Tekrarlayan İdrar Yolu Enfeksiyon İncelemesi Sırasında Tanı Alan Çocuk Hastada Ortaya Çıkan Kist Hidatik Olgusu

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ABSTRACT

A 10-year-old girl applied to the family health center with complaints of urinary burning and left-side pain. It was found that she received various treatments for the diagnosis of recurrent urinary tract infection based on medical history. Hepatomegaly and left costovertebral angle tenderness were detected in physical examination,. Abdominal ultrasonography (USG) and computed tomography (CT) revealed a 3 mm thick encapsulated cystic lesion measuring approximately 8.5 x 8 x 8 x 8 cm in the left lobe of the liver that also presses on the left kidney. In the follow-up of the patient, who was surgically treated and histopathologically diagnosed as a hydatid cyst, her complaints about recurrent urinary tract infection were observed to be resolved.

Key words: Hydatid cyst, urinary tract infection, pediatric patient.

ÖZET

10 yaşında kız hasta idrarda yanma ve sol yan ağrısı nedeniyle aile sağlığı merkezine başvurdu. Özgeçmişinde tekrarlayan idrar yolu enfeksiyonu tanısıyla çeşitli tedaviler aldığı öğrenildi. Fizik muayenesinde; hepatomegali ve sol kostovertebral açı hassasiyeti saptandı. Abdominal ultrasonografi (USG) ve bilgisayarlı tomografide (BT) karaciğer sol lobda sol böbreğe de bası yapan yaklaşık 8,5x8x8 cm boyutlarında 3 mm kalınlığında kapsüllü kistik lezyon saptandı. Cerrahi tedavi yapılan ve histopatolojik olarak kist hidatik tanısı konulan hastanın takibinde tekrarlayan idrar yolu enfeksiyonu ile ilgili şikayetlerinin düzeldiği görüldü.

Anahtar kelimeler: Hidatik kist, idrar yolu enfeksiyonu, çocuk hasta.

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INTRODUCTION

After otitis media, the urinary tract infection (UTI) is the second-most frequently seen infection in the childhood period. UTI has the highest incidence among the males between birth and 6th month.[1] Moreover; its incidence among children aged <16-year is 7% for boys and 11% for girls. Its clinical appearance varies depending on age. While it is asymptomatic among neonatal and babies, it might be symptomatic among the children in other age groups. The bacterium that is most frequently (75%) responsible from its etiology is *E.Coli*.[2] There should be a minimum of 2 attacks for a case to be termed UTI. The most frequently seen reasons for recurrent UTI include vesicourethral reflux (VUR) (8-40%) and obstructive urinary tract pathologies (4%). The imaging methods such as complete urine analysis (CUA), urine culture, voiding cystrourethrography (VCUG), and dimercaptosuccinic acid scanning (DMSA), ultrasonography (USG), computerized tomography (BT) can be used in diagnosis.[3] Recurrent UTI is an important morbidity (i.e., renal scar, chronic renal failure, and hypertension) and mortality (i.e., urosepsis) reason.[2]

CASE REPORT

A 10-year-old girl patient applied to a family health center with pain on her left side and urinary burning complaints. It was found out that; she has applied to different centers for her complaints but she hasn't got any response from medical treatments. She had no characteristic feature in her medical history. Regarding her family, it was also determined that his brother has undergone surgery for hydatid cyst but other family members have never been investigated for hydatid cyst.

In the physical examination, the liver was palpated approximately 2 cm below the costal arch, and left costovertebral angle tenderness was detected. Results of the complete blood test (CBC) and biochemical tests were within normal limits. In complete urinary analysis (CUA), proteinuria was (+++) positive, pH was 6.0, leukocyturia was (++) positive, and 10 leukocytes were observed at every field in microscopy. There was no bacterial growth in the urinary culture. In the direct abdominal graph, a circular opacity was found in the upper right quadrant. Then, the patient was referred to the pediatric surgery polyclinic.

In the abdominal USG, a cystic lesion filling the left lobe of the liver, having approximately 8.5x8x8 cm dimensions, and containing minimal echogenicity was observed. It was classified as Type 1 according to Garbi's classification **(Figure 1).**

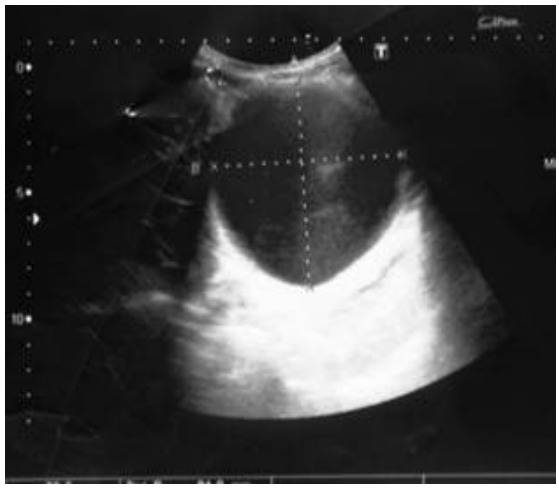

Figure 1. A cystic lesion filling the left lobe of the liver and having approx. 8.5x8x8 cm dimensions and minimal echogenicity is seen.

In the abdominal CT, it was observed that the liver was in the normal position and larger size (17 cm). The calcific granulomas at millimetric dimensions were observed in liver section 7. A cystic lesion with dimensions of 8.5x8x8 cm, involving a 3 cm-thick capsule, having exophytic extensions, applying pressure on the gut, duodenum, and kidney at inferior and lateral, and compressing the left portal vein branches at its vicinity was observed in the left lobe of the liver **(Figure 2, 3).**

Figure 2. A cystic lesion (arrow) having 8.5x8x8cm dimensions, involving a 3 cm-thick capsule, having exophytic extensions, applying pressure on the gut, duodenum, and kidney at inferior and lateral, and compressing the left portal vein branches at its vicinity is seen in the left lobe of the liver.

Figure 3: The encapsulated cystic lesion with 8.5x8x8 cm dimensions in the left lobe of the liver is shown with a blue arrow. It is shown with a yellow arrow that the left kidney is under pressure due to the cyst hydatid.

In laboratory analyses, positivity was detected for echinococcus granulosus in the indirect hemagglutination test. β-HCG and Ca 19-9 values were found to be high among the tumor markers.

The lesion-specific surgery (cystotomy and capitonnage) was performed due to the pressure findings and recurrent UTI. The case was diagnosed with a hydatid cyst in the histopathological analysis of the case because of the off-white, bright, and pouch-like material having 11x8 cm dimensions (Figures 4 and 5).

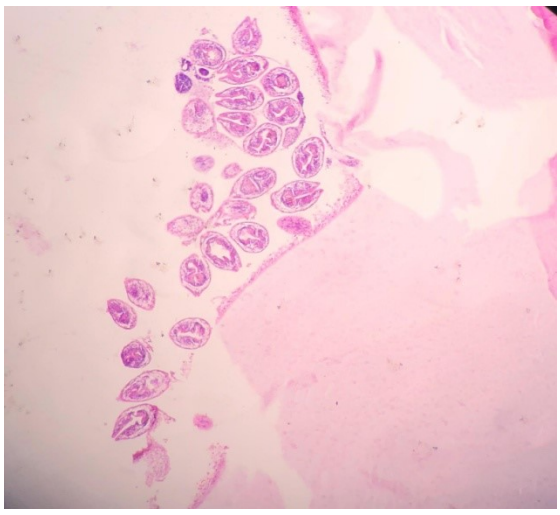

Figure 4. The appearance of eosinophilic stained, lamellar structure, acellular cuticle layer, and scolex structure in the cyst (HEx20).

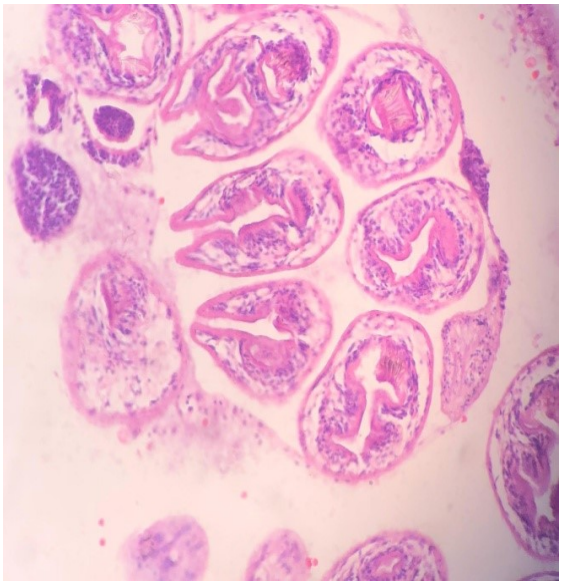

Figure 5. Scolex structures (HEx40).

Albendazole (2 doses of 20mg/kg/day) was administered to prevent a recurrence. In the follow-up, 4-cm-diameter calcification in the left lobe of the liver was observed in abdominal USG. The results obtained in agglutination, CBC, and liver function tests were within normal limits. UTI-related complaints of the patient were completely resolved.

An informed consent form was taken from the legal representative of the patient.

DISCUSSION

A detailed anamnesis should be taken and physical examination should be performed for the differential diagnosis of recurrent UTI patients. One of the very rarely seen obstructive reasons for recurrent UTI is the liver cyst hydatid.

The most frequent etiology for the hydatid cyst is echinococcus granulosus. The main hosts of this parasite are animals such as dog, cat, wolf, fox, and jackal. The intermediate host is infected when the eggs in feces of the main host contaminate the greens and these greens are eaten by cattle and sheep. The eggs in the intermediate host hatch within the small bowels and, by penetrating the wall, cause the development of cyst hydatid disease by settling in the liver, lungs, and other organs through the portal vein. The transmission to humans occurs through eating the non-cleared and contaminated vegetables, contact with infected animals, and soil contaminated with a cyst. Thus, the human becomes the intermediate host.[4] Cyst hydatid history of the patient's older brother suggests the possible contact of family. After the present case, the family members were scanned using serological tests and cyst hydatid was detected also in the other sibling.

Cyst hydatid disease is endemically seen in Russia, Middle East, Central Europe, China, and South American countries.[5] However, it is transported to other countries through travels and animal migration. The organs that hydatid cyst affects mostly are liver, (70%), lungs (20%), any part of the body (10%), spleen (6%), and brain and heart (2%).[5] In most of the patients, the cyst is found in a single organ.[6] The course of the disease may vary. Some of the cysts heal with calcification, whereas some others enlarge and cause several complications by either pushing the healthy organs or changing places with them. In comparison to the left lobe, the cysts in the liver are located in the right lobe more frequently due to the portal blood flow and their size varies between 1 and 15 cm. The annual growth rate of cysts varies between 1-2 cm and 10 cm. [5] In the present study, compatible with the literature, the patient had a cyst (with dimensions of 8.5x8x8 cm) in the liver but at the left lobe. No other lesion was seen in the other organs.

The hydatid cyst in the liver is frequently diagnosed incidentally but it may appear together with various symptoms and findings. It may vary depending on the toxic reaction, local or mechanical effects of parasite, localization, and nature of the cyst.[5]

The first symptom is generally swelling and stinging pain in the right hypochondrium and epigastrium in the liver hydatid cyst; whereas it might be swelling in the left hypochondrium and epigastrium, mild pain, and nausea in spleen cysts. Cough and chest pain are observed in the lung hydatid cyst. Dyspnea and hemoptysis develop depending on the rupture or leakage from the cyst.[6] In the present case, the patient had complaints such as left side pain and recurrent urinary tract infection arising from the pressure applied by a hydatid cyst in the left lobe of the liver on the left kidney.

One of the diagnostic methods used in cyst hydatid is the indirect hemagglutination (IHA). In this method, 89% of liver cysts and 73% of lung cysts are IHA-positive.[7,8] Eosinophil can be seen in complete blood tests in the laboratory, anomaly (40%) in liver function tests (LFT) and high alkaline phosphate (ALP) level can be seen in biochemistry.[5] In the present case, IHA positivity was found but there was no abnormality in the CBC and biochemistry tests. An increase was observed in β-HCG and Ca 19-9 values among tumor markers. As known, β-HCG increases in pregnancy, ectopic pregnancy, molar pregnancy, placental site trophoblastic tumor, trophoblastic diseases such as choriocarcinoma, and embryonal carcinoma showing trophoblastic variation.[9] It was reported that Ca 19-9 is synthesized mainly in the pancreas and also in biliary ductus, gastric, and colon cells. Additionally; its level in liver and kidney diseases was reported to be above the normal limits possibly due to degradation of elimination and metabolism.[10] Since there was no underlying pathology to which could explain the high β-HCG value, it was thought that this high level was possibly due to a medication effect or cross-reaction. It was also considered that high-level Ca 19-9 was related with current liver and kidney pathology.

The auxiliary radiological methods used in diagnosis and treatment follow-up of liver hydatid cyst include laboratory tests, direct graphs, USG, CT, and magnetic resonance imaging (MRI). Among the methods used in the diagnosis of hydatid cyst disease, the efficient use of USG both prevents the unnecessary examinations and enables

the accurate treatment selection. The most frequently used type of USG is the Gharbi classification. The Gharbi classification consists of 5 stages and it is performed based on the morphological appearance.[5,7] In the present case, firstly the abdomen graph was taken and, upon detection of a mass at this location, USG was planned. In the USG, the type of lesion was classified as Gharbi Type 1. Then, the dimensions and relationship of the cyst with adjacent tissues were determined using abdominal CT.

The method used in the treatment of this disease varies depending on the cyst's location, size, and complications. The treatment methods used include medical treatment (benzimidazole derivatives and praziquantel), surgical treatment (cystotomy and capitonnage, omentoplasty, marsupialization, and tube drainage, cystojejunostomy), and percutaneous aspiration of a cyst and scolicidal agent injection (PAIR). Albendazole, among the derivatives of benzimidazole, was reported to be more effective than mebendazole.[4,5] The patient presented in the article underwent surgical treatment (cystotomy and capitonnage) first and then albendazole treatment was administered. Various morbidities and mortalities related with surgical treatment might be seen. An increase in liver enzymes (20%) and pressure on bone marrow after ceasing the treatment can be seen as adverse effects of benzimidazole derivatives (albendazole and mebendazole) used in the medical treatment.[5] No complication related with surgery or medical treatment was found in the follow-up.

CONCLUSION

In conclusion, a hydatid cyst is a parasitosis that is endemic in different regions of the world. It is one of the diseases that should be considered for the differential diagnosis of patients applying with recurrent UTI.

Conflict of interest:

No potential conflict of interest relevant to this article was reported.

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