Case Report

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Non-Hodgkin Lymphoma Presented with Peritoneal Seeding: A Case Report

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Received: 31 March 2017 **Revised:** 15 May 2017 **Accepted:** 23 May 2017

ARTICLE INFO

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Keywords:
Burkitt lymphoma;
Pleural effusion;
Omentum

ABSTRACT

Lymphoma is the most common malignancy originating from hematopoietic systems. Diverse biological and clinical manifestations of non-Hodgkin lymphoma have been recognized. As an unusual type of non-Hodgkin lymphoma is Burkitt lymphoma. The variability of the initial presentation is not unusual. We present a 15-year-old boy with generalized abdominal pain, fever. He had massive orange pleural effusion and ascites. There were peritoneal seeding and omentum thickening in abdominal computed tomography scan. Pathological investigations of the peritoneal biopsy revealed B-cell lymphoma (starry sky in pathology). The clinical presentation of sporadic Burkitt lymphoma could mimic some other diseases. Therefore, the clinicians should consider Burkitt lymphoma between the multiple differential diagnoses. In the case of peritoneal involvement, its differential diagnosis could be usually, peritoneal carcinomatosis, malignant peritoneal mesothelioma, and tuberculous peritonitis.

Citation: Salehi M, Talebi F, Ghanadan A, Ayoobi-Yazdi N. **Non-Hodgkin Lymphoma Presented with Peritoneal Seeding: A Case Report**. Case Rep Clin Pract 2017; 2(2): 37-41.

Introduction

Lymphoma is the most common malignancy originating from hematopoietic systems. It has been estimated that more than 80,000 newly diagnosed Hodgkin and non-Hodgkin lymphoma would be emerged in 2015, with over 20,000 deaths (1). Diverse biological and clinical manifestations of non-Hodgkin

lymphoma have been recognized. A persistent painless lymphadenopathy could be typically the presentation of non-Hodgkin lymphoma. Non-Hodgkin lymphoma is the fourth most common malignancy in children. Three clinical variants are described in World Health Organization classification: endemic, sporadic, and human immunodeficiency virus-associated. The patients usually complain of constitutional symptoms or present the involvement of other organs besides the lymphoid and hematopoietic system (2). As an unusual type of non-Hodgkin lymphoma, Burkitt lymphoma has been described from 1958 to 1962 for the first time in children. Jaw tumors might be the only clinical characteristic in the patients. The involvement of distal ileum, caecum, kidney, or breast could be often found in this malignancy. The variability of the initial presentation is not unusual (3). The majority of patients could be referred as abdominal mass (10-30%). However, peritoneal involvement has been reported to be very rare. In pediatric non-Hodgkin lymphoma, some curative therapies have been developed, increasing the overall survival rate exceeding 80% (4).

Case Report

A 15-year-old cachectic boy presented with generalized abdominal pain, fever, productive coughing, and 5 kg weight loss since previous 2 months. He reported nausea and vomiting and suffered from dyspnea during last week. In physical examination, tense ascites, lower limb edema, and decreased sound in basal parts of lungs were detected, and he had tachypnea. Chest X-ray revealed bilateral massive pleural effusion. Pleural and ascites paracentesis were done, the biochemical evaluation of the fluids was as follow: pleural fluid: color: orange (Figure 1), glucose: 28 mg/dl, protein: 21 mg/dl, lactate dehydrogenase (LDH): 18476 mg/dl, white blood cell (WBC): 8-10, red blood cell: 10-14 and ascites: color: orange, glucose: 20 mg/dl, albumin: 1.6 mg/dl, protein: 2.8 mg /dl, and LDH: 10,700 mg/dl. Other laboratory tests were including blood sugar: 60 mg/dl, serum albumin: 3.7 mg/dl, serum protein: 4.9 mg/dl, serum LDH: 5018 mg/dl, serum creatinine: 1.2 mg/dl, and serum urea: 46 mg/dl.

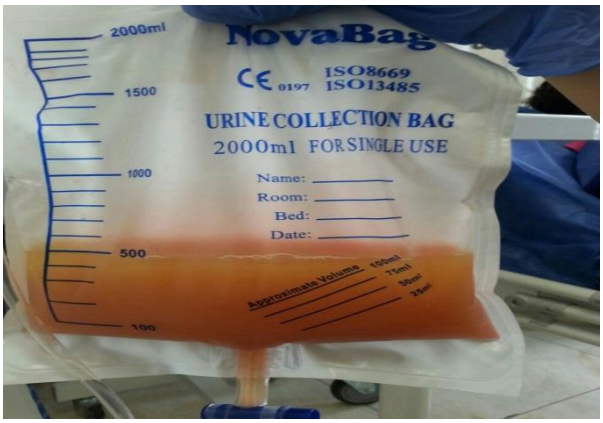

Figure 1. Drained pleural effusion of the patient with orange color

The results of cell blood counts are as follows: complete blood count: WBC: 7700, hemoglobin: 12.7 mg/dl, platelet: 527,000, and ESR: 14 mm/L. Microbiological investigation, polymerase chain reaction for acid-fast bacilli and cytological evaluation of ascites and pleural fluid were negative. There were peritoneal seeding and omentum thickening with compression effects on the bowel loops and also small low attenuation lesions were seen in both kidneys in abdominal computed tomography (CT) scan (Figure 2).

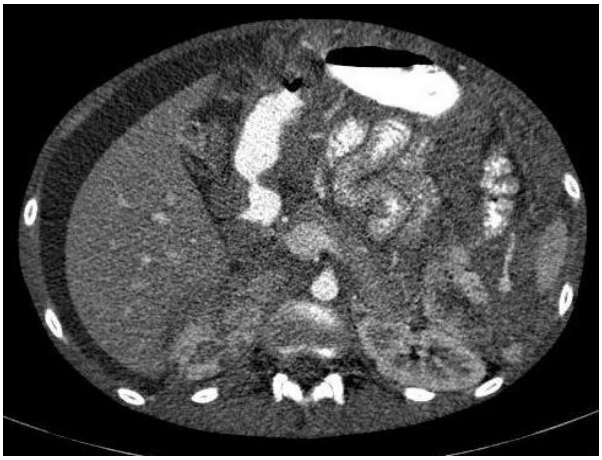

Figure 2. A cut of abdominal computed tomography scan showing peritoneal seeding

According to the above conditions, peritoneal biopsies were taken. The pathological examination result has been shown in figure 3. As the figure denotes, microscopic examination shows diffuse infiltration of monomorphic medium size cells with abundant basophilic and round nuclei with coarse chromatin (starry sky pattern).

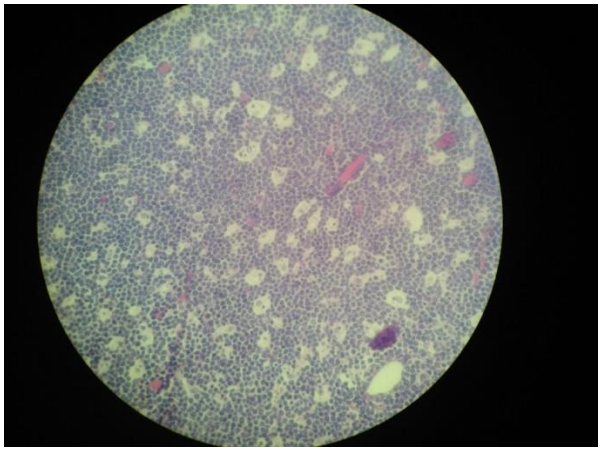

Figure 3. The microscopic examination of omentum specimen shows diffuse infiltration monomorphic medium-sized cells with abundant basophilic cytoplasm and round nuclei with coarse chromatin (starry sky pattern)

Discussion

Burkitt lymphoma originating from B-cells is a very aggressive malignancy. In African children, its endemic type occurs and involves the jaw and facial bones. In the case of human immunodeficiency virus/ acquired immunodeficiency syndrome, the diffuse lymphadenopathy is its common manifestation. Its sporadic form is more frequent in males and is distributed worldwide (5). The clinical presentation of sporadic Burkitt lymphoma could mimic some other diseases. Therefore, the clinicians should consider the differential diagnosis of this type. In the case of peritoneal involvement, its differential diagnosis could be usually, peritoneal carcinomatosis, malignant peritoneal mesothelioma, and tuberculous peritonitis.

Peritoneal carcinomatosis is the most common diagnosis of peritoneal involvement in older patients. The primary mucinous tumors could spread to peritoneal cavity and result in peritoneal carcinomatosis. Its most common origins are ovaries and colon. But the most frequent primary origin is desmoplastic small round cell tumor in children and adolescents (6). In imaging evaluation, neoplastic peritoneal involvement presents as a soft tissue tumor, it could result in ascites when a significant enhancement occurs. An irregular outer contour of the infiltrated omentum could suggest carcinomatosis (7). It has some additional findings including necrosis, calcifications and a cystic form. Sometimes no known neoplasm could be found, in this situation, an occult gastrointestinal, ovarian or another organ neoplasm should be considered, especially in older patients (8).

Malignant peritoneal mesothelioma is a very rare condition. Some of the peritoneal mesothelioma patients had been exposed to asbestos. It has two major types, in dry type, a peritoneal mass which may be confluent would be observed, but in wet type, there is ascites and nodular or diffuse peritoneal thickening (8).

Tuberculosis could involvement the peritoneal cavity and behaving the tumoral involvement of peritoneum. Based on the amount of peritoneal fluid a variety of the disease has been described (9). The peritoneal cavity might be loculated and septated. The high attenuation values of CT scan could denote a peritoneal effusion. Diffuse peritoneal thickening could occur but usually shows a smoother and more regular contour. A fine nodular pattern may be found. A cake appearance might be found in omental involvement. Lymphadenopathies are very common, and the most characteristic pattern is peripheral enhancement (9).

In CT imaging evaluation, diffuse peritoneal and omental lymphomatosis could not be differentiated from ones originating from other etiologies. Non-loculated ascites and enlarged lymph nodes could help to find out the different etiologies (10). Burkitt

lymphoma could present in different clinical symptoms based on the site of involvement. The most common site is the abdomen, but Burkitt lymphoma could not prevalently result in peritoneal and omental disorder. Due to its non-surgical treatment, the exact diagnosis of Burkitt lymphoma is of utmost importance (10). Although the non-invasive imaging evaluation is important, histological techniques are necessary to reach a definitive diagnosis. However, peripheral blood analysis and other laboratory tests may be required (11).

One of the CT findings may be peritoneal thickening. The peritoneal thickening has usually a linear pattern compared with nodular pattern. Administration of intravenous contrast could result in heterogeneous enhancement. Peritoneal masses and ascites are commonly observed with each other. Large masses with caking or confluent nodules could be observed on the involvement of omentum (10). The diffuse peritoneal disease could cause focal gastrointestinal masses. The involvement of retroperitoneal and mesenteric lymph nodes can cause a very significant mass effect. Splenomegaly and hepatomegaly can be found concomitantly. In young adults and children, isolated peritoneal involvement has been observed, but it is not common (9, 10).

Pleural effusion is usually evaluated macroscopically, microscopically, cytologically, and sometimes specific tests. Macroscopically, normal pleural fluid is transudate and is usually clear; light yellow and odorless without any clots. Transudate fluid might be clearly serous and light yellow (e.g., cirrhosis). Milky and pearl color fluid is characteristic of chylothorax. Turbid and cloudy fluid might be due to inflammation or infection (for example, empyema). It may be like pus and fuggy. Bloody fluid could be due to trauma and tumor. In this case report, an unusual case of Burkitt lymphoma has been presented. He had orange pleural and peritoneal fluids. We could not find any lymphadenopathies and extranodal involvement, but a very diffuse involvement of omentum has been found. It caused an omental cake appearance in imaging evaluation. For further evaluation, an immunohistochemical study was recommended, but the patient was not agreed to do that due to financial problems.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

We should appreciate the grateful cooperation of the Pathology and Radiology Departments of Imam Khomeini Hospital.

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