



A Case of Burkitt Leukemia Presenting with Malnutrition

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ABSTRACT

The incidence of malnutrition is increasing in cases with malignancies in which catabolism is increased. Burkitt lymphoma and leukemia is differentiated by the ratio of blastic cells in bone marrow (>25% or <25%). The primary tumor is usually in the abdomen in cases with Burkitt lymphoma. The most common locations are ileocecal, appendix and ascendant colon and the most common symptoms are abdominal pain and abdominal distention. The other associated symptoms are nausea, vomiting, weight loss and defecation disorders. In this report, a case with Burkitt lymphoma admitted with malnutrition is presented. (*JAREM 2016; 6: 53-5*)

Keywords: Burkitt's lymphoma/leukemia, malnutrition, children

INTRODUCTION

Malnutrition is a condition that occurs as a result of lack of protein and energy to varying degrees; it is most commonly seen in infants and in young children, and the main causes are inadequate intake, digestion, and absorption along with increased demand and catabolism. The incidence of malnutrition becomes more serious as catabolism increases (1).

Burkitt's leukemia is a disease that constitutes approximately 2% of acute lymphoblastic leukemia in children and that is more similar to Burkitt's lymphoma than to leukemia in its clinical, cytological, immunological, and genetic features. Burkitt's lymphoma and leukemia, which are considered to be two successive clinical forms of the same disease, are distinguished with the presence of blast cells at the rates below or over 25% in the bone marrow. Because no biological and genetic differences between Burkitt's lymphoma and primary Burkitt's leukemia have yet been declared, both are called Burkitt's lymphoma/leukemia. The primary tumor is often found in the abdomen. It is mostly localized in the ileocecal region, appendix, and ascending colon (2-4). Clinically, the most prominent symptoms are abdominal pain and abdominal swelling; however, nausea, vomiting, changes in bowel patterns, and weight loss are symptoms that accompany the clinical picture. In this article, we discuss the case of a patient with malnutrition who was diagnosed with Burkitt's leukemia localized in the colon.

CASE PRESENTATION

The three-year-old male patient was brought to the pediatric gastroenterology clinic of our hospital with complaints of abdominal pain and bloating. It was learned that there were no features in the postnatal period of the patient, who was born mature at 3500 g spontaneously through a normal vaginal birth as a result of a seamless pregnancy. There was no consanguinity between the mother and father. It was learned from the patient's medical history that he had complaints of abdominal pain and loss of appetite for two months; he did not gain weight in the past month and

even lost weight. On physical examination, the general condition of the patient, whose body weight was 10.6 kg (<3 p) and whose height was 82 cm (<3 p), was medium, cachectic, and weak in appearance. In addition, his eyeballs were sunken. The patient's respiratory system was normal. In the cardiovascular system, peak heart rate (PHR) was 140/min rhythmic and a systolic 2/6 murmur was detected at the apex. Because the abdomen was extremely distended, organomegaly could not be palpated. The results of laboratory examination were as follows: Hb: 10 g/dL, hematocrit: 30%, WBC (white blood cell): 8.380/mm³, and platelets: 44,000/mm³. AST (aspartate aminotransferase) was 56 U/L, ALT (alanine aminotransferase): 9 U/L, GGT (gamma-glutamyl transpeptidase): 20 U/L, ALP (alkaline phosphatase): 79 U/L, total protein: 5.4 g/dL, albumin: 2.9 g/dL, urea: 28 mg/dL, creatinine: 0.17 mg/dL, iron: 40 ng/dL, iron binding capacity: 206 ng/dL, serum ferritin: 21 ng/DL, IgA (immunoglobulin A): 36 mg/dL, IgG (immunoglobulin G): 686 mg/dL, and IgM: 49 mg/dL. There were no atypical cells in the peripheral blood smear. In the abdominal ultrasonography (USG), no pathology other than fecalomas was detected. Endomysium antibody (EMA) IgA and EMA IgG examinations of the patient, who was said to pass hard feces thrice a week, were found to be negative. Diffuse fine granulation in the lungs was observed in chest computed tomography (CT) taken because of intermittent cough and sporadic crepitations in the bilateral breath sounds. The tuberculin skin test, QuantiFERON test, ARB (acid-resistant bacilli) in stomach hunger fluid sent for three days, T and B cellular immunological tests, sweat test, and HIV antibody test were found to be negative. In the abdominal CT of the patient, whose abdominal distension gradually increased, dilatation was observed in the bowel loops and thickness of the bowel wall was observed in the right hepatic flexure. However, endoscopic examination could not be performed because the patient's general condition was not good. Neuron-specific enolase (NSE), LDH, and vanillylmandelic acid (VMA) in the urine were found during the differential diagnosis of neuroblastoma of the patient, and the β HCG level was within normal limits. In the 22nd day of hospitalization, a hard, amorphous mass was pal-

pable around the navel. In the repeated abdominal USG, 7×6.5 mm and 7×7.5 mm hypoechoic nodular areas whose boundaries were difficult to discern from neighboring parenchyma were observed in the liver parenchyma in the left lobe (metastatic areas depending on a possible lymphoproliferative process defined in the epigastrium); in the abdominal midline, wall thickenings gathering in the epigastrium and causing the appearance of a mass were observed in the colon (suggesting Burkitt's lymphoma), and an increase in the bilateral renal size and thin-walled, millimeter-size hypoechoic lesions in both kidneys, the largest of which was 7 mm in the right kidney, were observed. In repeated abdominal CT, the kidney size was seen to be increased (suggesting metastasis) and a mass was seen in the hepatic flexure in the right colon. Because the calcium level was 13.6 mg/dL and the uric acid level was 7.8 mg/dL in the laboratory examination of the patient, who had intermittent fever in the follow-ups, alkaline hydration was started in consideration of the possibility of tumor lysis depending on malignancy. During the biopsy preparation of the patient, the uric acid level was found to be 12.1 mg/dL, and allopurinol was initiated. In addition, because of the continued fever of the patient, in whom ceftriaxone treatment was started, the 3rd generation cephalosporin treatment was ended and piperacillin-tazobactam treatment was started. A biopsy could not be performed on the mass because the overall condition of the patient was bad and there was no improvement in his clinical condition. Bone marrow aspiration was performed. Cells with vacuolated cytoplasm at a rate of 40% and blastic morphology were detected in the bone marrow aspiration. Therefore, the patient, who was diagnosed with Burkitt's leukemia on the 28th day of hospitalization, was transferred to the pediatric hematology department for the continuation of treatment. The patient, in whom a chemotherapy protocol was initiated on the 48th day of hospitalization, died due to sepsis. Written informed consent was received from the patient.

DISCUSSION

In sporadic Burkitt's lymphoma, the abdomen is the most frequently involved location. Burkitt's lymphoma is more common between the ages of 5 and 10 years in children (2, 3). Lymphomas constitute 1% of all gastrointestinal tumors (GIT). The primary gastrointestinal involvement of non-Hodgkin's lymphomas is 4 to 20%. Burkitt's lymphoma, which often shows extranodal involvement, is an aggressive type of non-Hodgkin's lymphoma (4). Extranodal disease may involve the appendix or colon, particularly the ileocecal region in the gastrointestinal tract. Abdominal pain, distension, nausea, vomiting, diarrhea, weight loss, gastrointestinal bleeding, and, rarely, intestinal perforation are the main signs and symptoms. Mass or acute abdominal pain may be seen in the right lower quadrant in approximately 25 to 30% of patients due to ileocecal intussusceptions (2). Detecting these tumors with radiological methods is quite difficult. In most patients with diffuse abdominal involvement, malignant acid may frequently occur, with the involvement of the mesenterium, retroperitoneal lymph nodes, kidneys, ovaries, and peritoneal level. Bone marrow involvement is seen in 20% of cases. In 1 to 2% of patients with sporadic Burkitt's lymphoma, diffuse bone marrow involvement (> 25% blast cells) may be observed; these cases are called B-cell ALL (B-cell acute lymphocytic leukemia) (3).

Other than complaints of clinical abdominal distention, persistent constipation, loss of appetite, and weight loss, bleeding, and abdominal pain were not found in our case. Despite the suspicion of malignancy, the mass in the colon could not be found in repeated ultrasound and CT scans, as noted in the literature. Burkitt's leukemia constitutes approximately 2% of acute lymphoblastic leukemia in children, and its clinical, cytological, immunological, and genetic characteristics are more similar to Burkitt's lymphoma than to leukemia (5). Burkitt's leukemia, which has the worst prognosis during periods when it is treated together with acute leukemia, can now be treated with the initiation of therapy with advanced stage Burkitt's lymphoma (5). The similarity of these two diseases is not limited to their response to therapy. Burkitt's lymphoma and Burkitt's leukemia are accepted to be two clinical forms that possibly follow each other and can be distinguished by the presence of blast cells in the bone marrow up to or greater than a ratio of 25%, which is a boundary negligently determined for the same (5-7). After the mass in the colon of our patient was located by ultrasonography and computed tomography, as the clinical condition of the patient was not suitable for biopsy, L3 type lymphoblasts containing vacuoles in the cytoplasm at a rate of 40% were detected through bone marrow aspiration. Patients with Burkitt's lymphoma/leukemia can also present with cytopenia or pancytopenia, hepatosplenomegaly, or extramedullary involvement. Extranodal disease may involve the appendix or colon, particularly the ileocecal region in the gastrointestinal tract. Extranodal masses rapidly grow due to the tendency of the cells to proliferate rapidly. When there is gastrointestinal involvement, changes in bowel habits, obstruction, perforation, bleeding, and invagination may occur (3). Diagnosis is difficult through routine radiological methods. In particular, radiology is very important in the diagnosis of patients with intestinal infiltration. Intestinal Burkitt's lymphoma often involves the submucosal layer and causes diffuse thickening of the wall, which leads to sonographic low-echo appearance (8, 9). Renal involvement is a common finding in Burkitt's lymphoma, and prognosis is known to be poor in patients with concomitant kidney function disorder (10, 11). The renal involvement of Burkitt's lymphoma is most frequently determined to be hypo- or anechoic foci in ultrasonographic examinations (11). An increase in bilateral renal size and thin-walled, millimeter-size hypoechoic lesions in both kidneys, the largest of which was 7 mm in the right kidney, were observed in our case. Hypodense areas can be observed in the periportal and liver parenchyma in the liver involvement of Burkitt's lymphoma (12). Hypoechoic nodular areas were also detected in the left lobe of the liver parenchyma of our patient.

Although the mass was not initially palpable in the physical examination of the patient with weight loss, determining the location of the lesion by abdominal CT, the detection of bowel wall thickening in the abdominal ultrasound examination and colonoscopic examination are very important in the diagnosis if there is an involvement in the ileocecal area and the clinical condition of the patient is appropriate. Laparotomy is rarely required. However, as marrow involvement is common in patients with Burkitt's lymphoma and cannot be diagnosed by radiology or interventional procedures, examination of the bone marrow aspiration aids the diagnosis (13, 14).

CONCLUSION

When abdominal distension, constipation, weight loss, and bowel wall thickening, as in our case, are detected by radiological imaging methods, malignant diseases such as Burkitt's lymphoma/leukemia, in which early diagnosis and treatment are important for differential diagnosis, should be suspected; radiological imaging methods are thus greatly beneficial in the diagnosis of such diseases.

Informed Consent: Verbal informed consent was obtained from patients' parents who participated in this case.

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