

OBSTRUCTIVE JAUNDICE AS THE PRESENTING MANIFESTATION OF BURKITT'S LYMPHOMA IN A 4-YEAR-OLD BOY

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Abstract: Obstructive jaundice often occurs as a late manifestation of non-Hodgkin's lymphoma (NHL), but has rarely been reported as a presenting manifestation, especially in children. We report a case of a 4-year-old boy with Burkitt's lymphoma (small non-cleaved cell NHL) who presented with obstructive jaundice, resulting from encasement of the common bile duct by the tumor. The patient underwent near-total excision of the tumor and biliary-enteric bypass to relieve the jaundice. Combined chemotherapy was not given because of refusal by his family. Two weeks after the operation, obstructive jaundice reappeared due to a large recurrent tumor compressing the liver hilum. He received chemotherapy and the jaundice disappeared within 6 days. Follow-up computed tomography 1 year later revealed total resolution of the tumor. Three conclusions are suggested by this case. First, although NHL presenting as obstructive jaundice is uncommon in children, it should be included in the differential diagnosis. Second, relief of obstructive jaundice can be effectively accomplished by chemotherapy alone. Third, chemotherapy should be given once NHL is diagnosed.

Key words: Cholestasis; Lymphoma, non-Hodgkin; Burkitt lymphoma; Chemotherapy, adjuvant

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Although obstructive jaundice occurs often as a late manifestation of Burkitt's lymphoma, it rarely occurs as a presenting symptom of this tumor. Because of the rarity of Burkitt's lymphoma, standard procedures for management have not been established. Methods such as surgical, endoscopic, radiological or chemotherapeutic decompression have been reported to relieve obstructive jaundice caused by lymphoma.¹⁻³ Data on the management of obstructive jaundice caused by Burkitt's lymphoma is scarce, especially in children. We report a case of obstructive jaundice caused by Burkitt's lymphoma in a 4-year-old boy. This case demonstrates that chemotherapy can be effective while aggressive surgical decompression may be unnecessary.

Case Report

A 4-year-old boy was referred to our hospital for treatment of cholestatic hepatitis. He had suffered from progressive jaundice for 1 week with tea-colored

urine and nausea. The past history was unremarkable. On physical examination, there was no evidence of abdominal mass, hepatosplenomegaly or neck lymphadenopathy but jaundice was noticed. Hemoglobin was 12.9 g/dL, total white cell count was 10,600/ μ L, platelet count was 197,000/ μ L, total bilirubin was 15.1 mg/dL, direct bilirubin was 8.3 mg/dL, aspartate aminotransferase was 159 U/L, and alanine aminotransferase was 147 U/L.

Abdominal sonography showed a heterogeneous mass compressing the portal area with markedly distended gall bladder. Magnetic resonance image (MRI) showed a heterogeneous mass located in the hepato-duodenal-pancreatic area (Fig. 1). The mass was hypo-intense on T1-weighted image and hyper-intense on T2-weighted image with faint enhancement. The portal vein and common bile duct (CBD) were compressed and displaced anteriorly, resulting in markedly distended gall bladder and mild dilatation of intrahepatic bile ducts. Panendoscopy showed an externally compressed lesion in the second portion of the duodenum.

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Fig. 1. Before tumor excision. Magnetic resonance image (T2) of abdomen shows a heterogeneous mass (arrowheads) (approximately 4 x 4 cm) compressing the portal area and a markedly distended gall bladder (arrows).

Laparotomy was performed for biopsy and relief of obstructive jaundice. During surgery, the tumor was found to be located in the hepato-duodenal ligament, but was separated from the duodenum. The mass encased the CBD and compressed the pancreas. Frozen section of the biopsy specimen revealed lymphoma. Since the CBD was encased, insertion of a drainage tube was impossible. Pediatric surgeons performed a near-total excision of the mass including the CBD and hepaticojejunostomy to relieve jaundice.

Histological examination of the surgical specimen disclosed a small non-cleaved cell lymphoma of Burkitt's type (Fig. 2) that immunoassayed positively

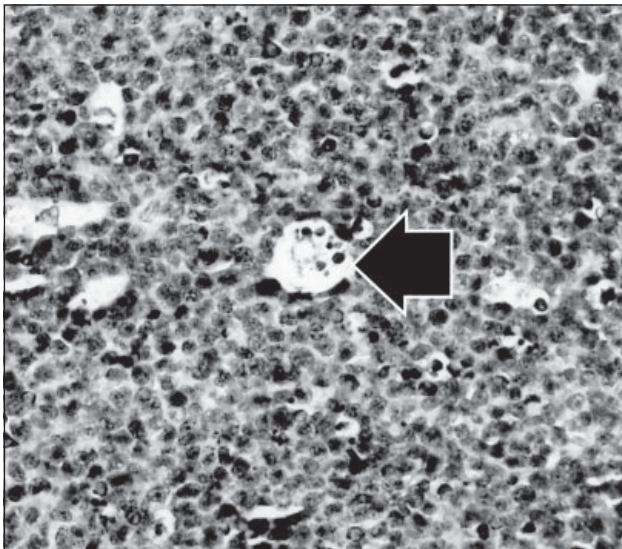


Fig. 2. Histological examination of the surgical specimen. The mass consisted of undifferentiated cells bearing non-cleaved nuclei, inconspicuous nucleoli and little basophilic cytoplasm with evenly dispersed histiocytes (arrow), forming a 'starry sky' appearance (hematoxylin and eosin, x200).

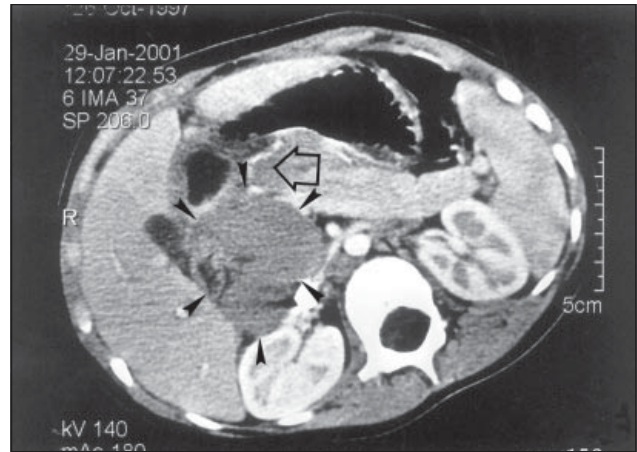


Fig. 3. After tumor excision without chemotherapy. Computed tomography of abdomen shows a large recurrent tumor (arrowheads) [approximately 5 x 5 cm] compressing the liver hilum with extension to the pancreatic head (arrow).

for B-cell markers. The gall bladder and CBD were encased but not invaded by malignant cells. Burkitt's lymphoma originating from the hepatoduodenal ligament was diagnosed. However, the family refused chemotherapy for the patient.

The patient was discharged due to rapid resolution of symptoms and biochemical abnormalities post-operation, but was admitted to our hospital again due to obstructive jaundice 2 weeks later. Computed tomography (CT) of the abdomen showed a large local recurrent tumor in the hepato-duodenal-pancreatic area with extension to the pancreatic head (Fig. 3) and a right basal pleural nodule. Gallium scintigraphy demonstrated radioactive lesion in the upper abdomen close to the midline. Bone marrow aspirate and biopsy, and study of cerebral spinal fluid did not show the presence of malignant cells. The bone scan was negative. The diagnosis was stage III (Murphy's classification) non-Hodgkin's lymphoma (NHL).

The patient was treated with the Taiwan Pediatric Oncology Group 98-B-NHL protocol.⁴ The chemotherapeutic drugs included cyclophosphamide, ifosfamide, dexamethasone, methotrexate, cytosine arabinoside, epirubicin and vincristine. The 8-week course of chemotherapy went smoothly except for some episodes of neutropenic fever. The jaundice disappeared 6 days after the start of chemotherapy. One year later, follow-up CT of the abdomen did not reveal tumor. Two years later, the patient remained disease-free.

Discussion

Lymphoma is the third most common malignancy in children after leukemia and brain tumors.⁵ NHL

accounts for 60% of all childhood lymphoma and Burkitt's lymphoma belongs to small non-cleaved cell NHL.⁶ The presenting signs and symptoms of NHL in children depend mainly on the extent and site of the tumor. It may present in a variety of ways, occasionally providing a major diagnostic dilemma because of protean manifestations of its presentation. Jaundice is a common consequence of NHL that can be caused by lymphomatous infiltration of the liver or biliary tree, tumor-related hemolysis, primary bile duct and hepatic lymphomas, intrahepatic cholestasis, and tumor compression.⁷⁻⁹ The tumor compression resulting in obstructive jaundice is uncommon and usually a late presentation.^{7,10} Kutluk et al reported obstructive jaundice as the presenting symptom in only 5 of 1270 cases (0.39%) of childhood NHL.¹¹ In this patient, Burkitt's lymphoma manifested primarily as obstructive jaundice due to encasement of the CBD by the tumor. Therefore, NHL should be included in the differential diagnosis of obstructive jaundice.

There are several locations in the biliary system where intra-abdominal NHL has often resulted in an obstruction. The porta hepatis and hepatopancreatico-duodenal region, where the bile ducts are less mobile, are particularly vulnerable to tumor compression.^{12,13} Ultrasound, CT and MRI are very sensitive in recognizing extrahepatic bile duct obstruction, but they are less specific in defining the exact nature of the obstructing lesion.^{14,15} In this patient, ultrasound and MRI revealed a tumor located in hepato-duodenal-pancreatic area, and compressed portal vein and CBD. It was impossible to identify the origin and nature of the tumor by clinical and radiological findings. Additional histological studies were necessary to establish the diagnosis. Fine needle aspirates or needle biopsies were not suggested in such cases, because they may provide insufficient material for appropriate histological classification^{16,17} and may be difficult and dangerous due to injury to the displaced neighboring vessel and biliary tree. Therefore, surgical biopsy seemed to be the only choice of diagnostic procedure in this patient.

Management of patients with obstructive jaundice due to lymphoma is controversial. Some advocate decompression of the biliary tract by surgical, radiological, or endoscopic methods before chemotherapy.^{1,2,10-12} In this case, the pediatric surgeon decided to excise the tumor in order to perform hepaticojejunostomy to relieve jaundice, because the CBD was encased by tumor. Chemotherapy was prepared for the patient postoperatively. Regretfully, his family refused to allow chemotherapy to be given. Obstructive jaundice reappeared 2 weeks later due to rapid recurrent tumor compressing the liver hilum. The image showed the tumor was larger than before.

Appropriate chemotherapy was then given without decompression beforehand. Obstructive jaundice subsided 6 days after the start of chemotherapy. Follow-up CT revealed total resolution of the tumor 1 year later.

These results suggest that chemotherapy alone can alleviate the obstruction without the absolute requirement for other drainage procedures. Our review of the literature found few reports about management of obstructive jaundice due to lymphoma in children. Watanabe et al³ showed that percutaneous transhepatic cholangial drainage for obstructive jaundice in lymphoma can result in complications and probably is unnecessary in children. Kutluk et al¹¹ reported chemotherapy with an initiating high dose of steroid is effective in the treatment of obstructive jaundice due to childhood NHL. Fidias et al¹ reported that in adults the rate of resolution of obstructive jaundice due to NHL by chemotherapy alone seems to be favorable compared to that with biliary decompression before chemotherapy. They also reported that surgical biliary diversion may delay potentially curative therapy and may decrease the ability of the patient to tolerate chemotherapy because of potential nutritional impairment.

Determining the nature of obstructive jaundice is important, because the origin and character of the tumor affect indications for treatment as well as prognosis. Particularly, if compression of the CBD by NHL is the main cause of obstructive jaundice, chemotherapy can produce rapid relief of obstruction by reduction of tumor mass without invasive procedures, such as surgical, radiological or endoscopic biliary decompression, and even excision of the tumor. By contrast, the use of invasive procedures may delay chemotherapy and even complicate the condition. Therefore, biopsy is critical to distinguish chemo-sensitive disease, such as NHL, from the more common neoplasms causing biliary tract obstruction, including pancreatic, gastric, and metastatic colon cancer, because the latter conditions require more intensive intervention while NHL is extremely sensitive to chemotherapy.

In conclusion, although NHL presenting as obstructive jaundice is uncommon in children, it should be included in the differential diagnosis. In addition, data on the management of obstructive jaundice caused by NHL is scarce, especially in children. This case emphasizes that appropriate chemotherapy alone may alleviate the obstructive jaundice caused by NHL without more aggressive therapy such as surgical, radiological, endoscopic biliary decompression or excision of the tumor, and also that chemotherapy provides an alternative treatment for NHL.

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