

Case Report

Concomitant non-Hodgkin's lymphoma in colon and liver: report of a rare case and review of literature

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Abstract: A 58-year-old male patient was admitted with right upper abdominal pain. Initial hematologic evaluation revealed mildly elevated serum carcinoembryonic antigen and carbohydrate antigen (CA) 19-9 tests, while an abdominal CT-scan showed a circumferential mass along the distal ascending colon and the right flexure of colon, simultaneously a liver lesion in segment 8 is considered metastases from colorectal. colonoscopic examination revealed a circumferential growth tumor in the right flexure of colon and the colonoscopy can not reach the proximal of the tumor. We performed a right hemihepatectomy and a right hemicolectomy associated with loco-regional lymphadenectomy. Histological examination showed diffuse large B-cell lymphomas in resected right colon as well as liver tumors. The patient received six courses of chemotherapy with CHOP-based regimens. At 14-month follow-up before this report, the patient is still alive and free of disease.

Keywords: Non-Hodgkin's lymphoma, collision tumor, primary colonic lymphoma (PCLs), primary hepatic lymphoma (PHL)

Introduction

Primary colonic lymphoma (PCLs) is a rare malignancy accounting for 3% of all gastrointestinal lymphomas and 0.1-0.5% of all colorectal malignancies [1]. The clinical symptoms of PCLs are not specific and may be indistinguishable from those of other bowel benign and malignant tumors, which may result in missed diagnosis or misdiagnosis. The etiology of PCLs is unknown, but some risk factors and predisposing conditions have been identified such as immunodeficient conditions and inflammatory bowel diseases [2]. The optimal therapeutic methods for PCLs remain controversial. Surgery, chemotherapy and radiotherapy are currently used, alone or in combinations, for the treatment of PCLs [3]. Herein we present an extremely rare case of concomitant NO-Hodgkin's lymphoma in colon and liver.

Case presentation

A 58-year-old male patient was admitted to the hospital with right upper abdominal pain in the

last 2 weeks. The patient also complained of weight loss and melena. He had no history of illness. Physical examination revealed hepatomegaly, palpable 4 cm below the right costal margin, without lymphadenopathy or splenomegaly. The initial hematologic evaluation revealed the following values: hemoglobin, 126 g/l; hematocrit, 36.4%; mean corpuscular volume, 89.4 fl; mean corpuscular hemoglobin, 31 pg; white blood cell count, 8079/ μ l. The platelet count was $362 \times 10^3/\mu$ l; Serum carcinoembryonic antigen (CEA), 7.19 ng/ml; carbohydrate antigen (CA) 19-9, 41.34 U/ml; The remainder of the hematologic parameters was within the normal range.

A colonoscopic examination revealed a circumferential growth tumor on the right flexure of colon and the colonoscopy can not reach the proximal of the tumor (**Figure 1**). Abdominal computed tomography (CT) with intravenous contrast showed a 6 cm circumferential mass along the distal ascending colon and the right flexure of colon, with associated adenopathy of the ileo-colic pedicle and in the retroperitone-

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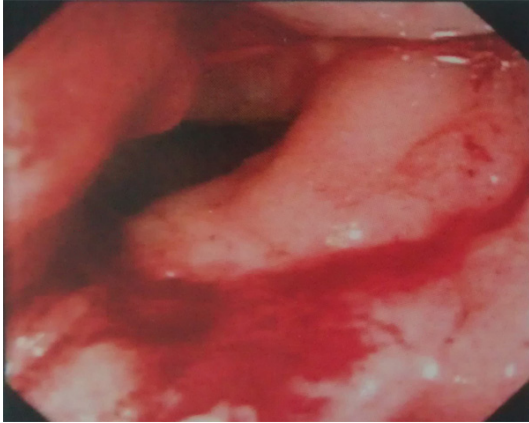


Figure 1. Colonoscopy revealed external swelling of right flexure of colon and tumor appears edematous with hemorrhagic ulcerations.

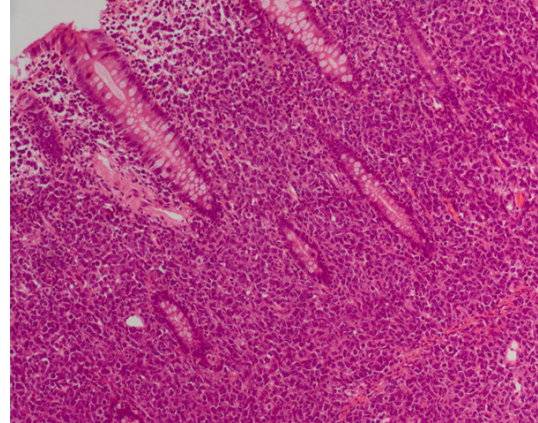


Figure 4. Effacement of normal colonic architecture diffusely infiltrated by medium-sized to large lymphoid cells with irregular nuclear membranes and prominent nucleoli.

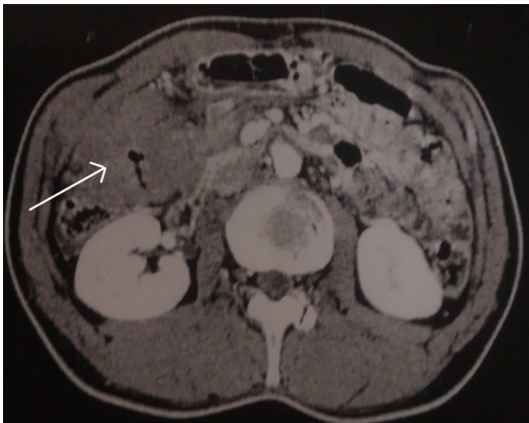


Figure 2. Abdominal CT scan showing a mucosa in the proximal ascending right colon, with associated adenopathy of the retroperitoneum.

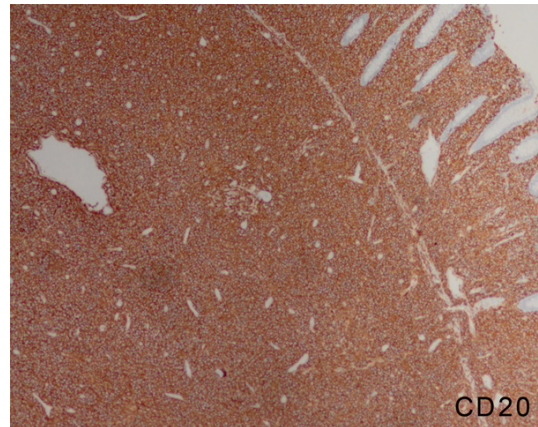


Figure 5. Immunohistochemistry shows the tumor cells to be positive for CD20, a pan B cell marker.

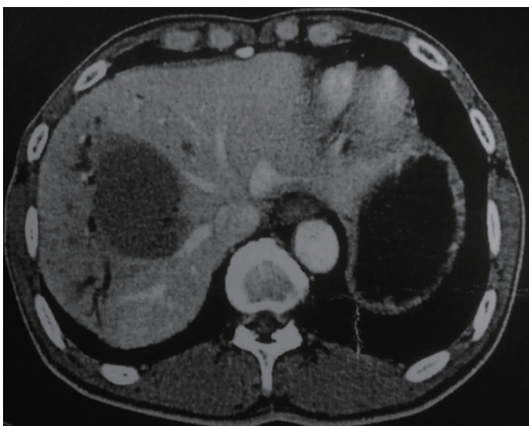


Figure 3. Hypovascular heterogeneous single lesion close to the middle hepatic vein suggestive for metastases from colorectal adenocarcinoma in segment 8 based on Couinaud's classification.

um (**Figure 2**). Hypovascular heterogeneous single lesion with diameters of 5.5 cm suggestive for metastases from colorectal adenocarcinoma was detected during the portal venous-phase of liver enhancement in segment 8 based on Couinaud's classification. The single liver lesion appears very close to the middle hepatic vein and no radiological signs suggestive of vascular infiltration were present (**Figure 3**). Ultrasonography-guide needle liver biopsies were not performed because of the patient's refusal. Account for the risk of hemorrhage and bowel obstruction, we performed a right hemihepatectomy and a right hemicolectomy associated with loco-regional lymphadenectomy.

Pathological specimen from right hemicolectomy demonstrated an ulcerative mass, measur-

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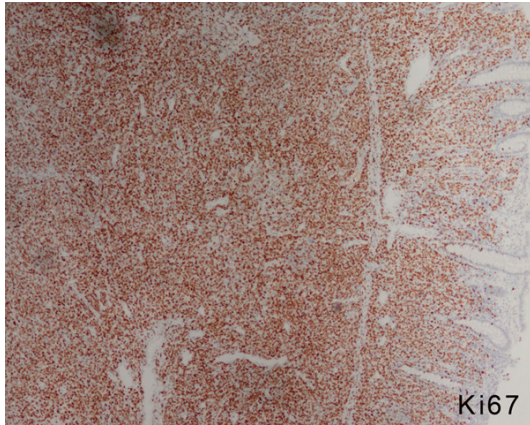


Figure 6. Immunohistochemistry shows the most of tumor cells are positive for Ki67.

ing 6.5 cm × 5.5 cm × 5 cm, in the proximal ascending colon with ileocecal valve involvement. The liver resected specimen revealed a metastasis of non-Hodgkin's lymphoma with central necrosis. Histological examination showed ulcerated tissue fragments diffusely infiltrated by medium-sized to large lymphoid cells with irregular nuclear membranes and prominent nucleoli (**Figure 4**). Liver biopsy showed heavy infiltration composed mainly of medium-sized round cells. Immunohistochemical staining showed that the tumor cells are CD20 (+), CD3 (-), CD5 (-), CD10 (-), CD21 (-), BCL-2 (+), BCL-2 (+) and Ki-67 was positive in 90% of tumor cells (**Figures 5, 6**). The diagnosis of diffuse large B-cell lymphoma was established. He was discharged home 12 days after his operation.

Four weeks after surgery, the patient underwent bone marrow biopsy for a further evaluation of the disease. Bone marrow biopsy demonstrated normal proliferation and maturation of all cell lines. The patient received six courses of combined chemotherapy (cyclophosphamide, doxorubicin, vincristine, and prednisone regimen with rituximab) against malignant lymphoma. At 14-month follow-up before this report; patient is still alive and free of disease

Discussion

Primary colonic lymphoma (PCLs) is a rare extranodal lymphoma and comprising 0.1-0.5% of all colorectal malignancies and 1.4% of all cases of NHL, while Primary hepatic lymphoma (PHL) is a very rare malignancy, accounting for

less than 0.4% of extranodal non-Hodgkin lymphomas and 0.016% of all non-Hodgkin lymphomas [2, 4]. Concomitant NO-Hodgkin's lymphoma in colon and hepatic is an extremely rare coincidence. Our case, to the best of our knowledge, is the second reported case of synchronous colon and hepatic lymphoma that is similar with colon carcinoma adenocarcinoma hepatic metastasis [5].

The etiology of PCLs is unknown, high frequency has been observed in conditions of immunosuppression such as inflammatory bowel disease ulcerative colitis, HIV infection and conditions following organ transplantation [6]. Men are affected twice as often as women with the mean age of diagnosis at 55 years [7]. The most common symptoms in more than half of patients are abdominal pain and weight loss or changing in bowel habits. Patients often present with vague and non-specific symptoms that lead to delayed diagnosis in 35-65% of patients when surgical treatment options are either urgent or emergent [8]. The diagnosis of PCLs was initially established in 1961 and included the following diagnostic five criteria: (1) no enlarged superficial lymph nodes when the patient is first seen; (2) chest radiographs without obvious enlargement of the mediastinal nodes; (3) the white blood cell counts, both total and differential, are within normal range and bone marrow biopsy is also normal; (4) at laparotomy only regional nodes are affected by disease; and (5) the liver and spleen seem free of tumor [9].

Our case met all these criteria preoperatively except for the liver lesion, but abdominal CT scan characteristics of this lesion were similar to those of liver metastases from colorectal cancer. CT images revealed one hypovascular space-occupying lesions with diameters of 5.5 cm with internal heterogeneity due to a relative lack of effect of the contrast medium in the liver. This suggested the presence of metastasis related to colon cancer.

Colonoscopy is valuable in the diagnosis of primary lymphoma of the colon but it is not always possible to determine this type of tumor due to an inadequate biopsy. In our case, colonic biopsies performed by our endoscopist were non-diagnostic and the diagnosis was made postoperatively after colonic resection. CT scan or other imaging modalities can be helpful in sug-

gesting the diagnosis and in describing tumor extension/staging, including determining extra-colonic involvement [10]. When CT appearance of extensive abdominal and/or pelvic lymphadenopathy, characteristic images such as location at the cecum, demarcation from the peri-colonic fat with no invasion of surrounding viscera and the presence of perforation in the absence of desmoplastic reaction, the diagnosis of colonic lymphoma could be considered [3].

The most common histological subtype of colorectal lymphoma is diffuse large B-cell lymphoma (DLBCL), and Others include follicular lymphoma, Burkitt lymphoma and Mantle cell lymphoma [7]. DLBCL cells generally express pan B cell markers such as CD20, CD19, CD22, CD45 and CD79a [11]; seventy percent of tumor cells express BCL-6 protein; CD10 is expressed in 30 to 60% of cases [12]. In our case, the tumor cells were strongly positive for CD20, Bcl-2 and Bcl-6, while CD10, CD22 is negative.

The treatment options for colorectal DLBCL usually involves chemotherapy, radiation, surgical treatment or a combination of these modalities. Although the optimal treatment is still debatable, chemotherapy with CHOP-based regimens (cyclophosphamide, doxorubicin, vincristine and prednisone) remains the first line therapy for all moderate and high-grade B-cell lymphomas [13]. Monoclonal antibodies like rituximab is approved effective for the treatment of DLBCL [14], the role of surgery is controversial [15, 16]. Some authors propose that early diagnosis and chemotherapy might avoid a surgical procedure. But in our opinion, surgery could prevent complications such as hemorrhage, obstruction and perforation, may offer a chance for cure with or without chemotherapy. In this case, account for the risk of hemorrhage, bowel obstruction and hepatic failure, we performed a right hemihepatoectomy and a right hemicolectomy associated with locoregional lymphadenectomy. The patient received six courses of CHOP chemotherapeutic regimen. At 14-month follow-up before this report, the patient is alive and free of disease.

Conclusion

Primary colonic lymphoma is a rare form of extranodal lymphomas and Primary hepatic lymphoma is a even rare malignancy. This case

illustrated that such collision tumors are very rare and difficult in diagnosis pre-operative. Clinicians and pathologists should be aware of such rare coincidence to make a correct diagnosis and reasonable treatment is very important to prognosis.

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Disclosure of conflict of interest

None.

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