

Burkitt's lymphoma of stomach: Report of a case and literature review

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Introduction

Burkitt's lymphoma is endemic in central Africa (the lymphoma belt of Africa). This disease is a mature aggressive B-cell lymphoma, characterized by a high degree of proliferation of the neoplastic cells and deregulation of the c-MYC gene. It is a distinct entity that occurs sporadically worldwide, sometimes associated with immunodeficiency or immunosuppression, cases in immunocompetent people are well known. Epstein Barr virus and malaria have been recognized as important cofactors of endemic BL. It has been estimated that a combination of these two diseases seems to boost the incidence of endemic BL in the lymphoma belt by a factor of 100-150. But this disease can occur in the absence of both of these infections. It is postulated that arboviruses and plant tumor promoters are other possible local cofactors that result in Burkitt's Lymphoma. There are probably hitherto to unknown factors that trigger this neoplastic disease. The stomach is the most common site of extra nodal malignant lymphomas. The incidence of gastric BL is low as compared to other types of gastric lymphomas, although its true incidence remains unknown. Histologically BL displays a diffuse, monotonous infiltrate of medium-sized neoplastic lymphoid cells with round nuclei finely clumped and dispersed, with multiple basophilic nucleoli. The profoundly basophilic cytoplasm generally encloses multiple lipid vacuoles on Wright-Giemsa or Diff-Quick stained smears. Frequent mitotic figures and apoptotic bodies are encountered; the apoptotic body-containing tangible body macrophages impart the characteristic "starry sky" morphology. Like other types of BL, gastric BL is known to have a highly aggressive clinical course. However, prognosis was better in cases where the disease was localized.

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ABSTRACT

Primary gastrointestinal non-Hodgkin's lymphoma is a distinct clinico pathological entity. Non-endemic Burkitt's lymphoma (high-grade, small non-cleaved lymphocytic type) is rare in non-HIV adult population. A 54 year old male presented with vague fatigue, weight loss over a period of six weeks duration and on evaluation he was found to have Burkett's lymphoma. Burkett's lymphoma(BL) is a substantially aggressive mature B cell neoplasm mainly in children and young adults but cases in adults are well known. This entity has three recognized clinical variants: endemic form which is usually associated with EBV infection, sporadic variant where only about 30% of the cases are related to EBV infection, and immunodeficiency associated BL. Extra nodal disease is frequently observed but GI tract involvement varies among the three clinical subtypes, with the sporadic variant usually presenting as an abdominal mass, commonly in the terminal ileum. Burkett's lymphoma is rare in the stomach. Report of a case with a brief review is presented.

KEY WORDS:

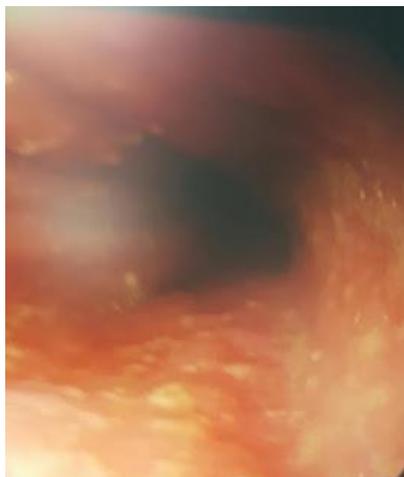
Burkitt's lymphoma

Clinical scenario

A 54 yr. old male was admitted with history of fatigue and generalized malaise of six weeks' duration. This was associated with weight loss of 3Kgs. He also complained of postprandial fullness and an episode of non-bilious vomiting. Patient denied history of fever and night sweats. Patient is a known case of Diabetes mellitus for the last 5 years on oral hypoglycemic agents. He denied any history of tuberculosis. Patient denied any high risk behavior, alcohol intake or smoking. On examination, he was conscious, oriented in time place and person with stable vitals. There was no icterus, pallor or lymphadenopathy abdominal examination showed a soft non tender abdomen. He had no organomegaly or free fluid. Systemic examination was normal. On evaluation, the blood tests revealed Hemoglobin of 11gm/dl WBC 9500 normal platelets. Bilirubin levels of 2.3mg. ALP 230 KA units ALT/AST 65/57. Kidney functions and electrolytes were normal. Serum Amylase and Lipase were normal too. HIV serology was negative. Patient underwent Upper GI examination which revealed thick

whitish patches in esophagus suggestive of candidiasis and brush biopsy later confirmed it to be candidiasis (Figure 1).

Figure 1. EGD showing candidiasis in Esophagus.



The stomach showed diffuse thickening of stomach folds and multiple biopsies were taken (Figure 2). D1 was normal and D2 showed diffuse thickening. Patient underwent CT scan abdomen which showed diffuse thickening in antral area (red arrow) Note was made of abdominal lymphadenopathy (Figure 3). The biopsy from stomach showed Aggressive Non-Hodgkin B cell Lymphoma consistent with Burkitt's lymphoma. Immunostains CD20++, CD79a++, CD 43+Ki-67++ Bcl-2 AIK1-+. Quick stain for *Helicobacter pylori* (was negative (Figure 4). The bone marrow biopsy was done to stage the disease. It showed hypercellularity due to infiltration of lymphocytes blue cytoplasm and vacuulations (starry sky appearance) around 35% Reduced erythropoiesis

Figure 2. EGD Showing diffuse thickened folds of stomach.



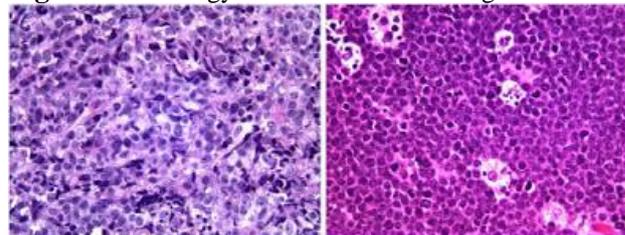
The biopsy was consistent with stage 4 Lymphoma. The patient received a third-generation chemotherapy Protocol

for NHL and is following our clinic for the last one year now.

Figure 3. CT scan abdomen .Red arrow points thickened anteropyloric region.



Figure 4. Histology of the stomach showing BL stomach.



Discussion

The incidence of extra nodal lymphomas has been reported as 17–48% in various studies from India and the west. The most common site of extra nodal lymphomas site involved is the stomach (48–63%) followed by the small intestine (20–40%) and the colon [1,2]. However, one data from the Middle East, showed that the small intestine constituted more than half of cases [3] while the Jordanian cancer registry data also shows stomach to be the commonest site of extra nodal lymphoma [4]. Korean data on extra nodular lymphoma suggested that the stomach (26.6 %) was the most common site, followed by the small and large intestines (25 %), bone marrow (23.4 %), genitourinary tract (21.9 %), and bones (18.8 %). In this study two patients (3.1 %) showed central nervous system (CNS) involvement. The authors further concluded that complete response rates

to chemotherapy were not related to sites of extra nodal involvement. BL presenting features of ovarian infiltration, peritoneal carcinomatosis showing nodular lesions in stomach (Krukenberg's tumor) has been reported as well [5,6]. The index case had predominantly stomach involvement and the lesions were seen in duodenum as well. A variety of symptoms have been described in BL. The index presented with anorexia and weight loss as the predominant symptoms. The symptoms may vary from each patient who may present with any or combination of any of the following: dyspepsia, epigastric pain, abdominal pain, nausea, vomiting, diarrhea, weight loss, malabsorption [7]. Hematochezia has been reported in some patients who were later diagnosed with rectal lymphoma. Conversely, a few patients were reportedly asymptomatic [8]. Endoscopic examination has increased the detection of these lesions. On endoscopy, lymphoma may be nodular similar to a reactive lymph node or manifest as mucosal ulceration, hyperplasia, polyp, or as an infiltrative lesion [9]. In rare occasion, lymphoma can present as incidental thickening of GI luminal wall on computed tomography (CT) [10]. The CT scan of the abdomen in the current case showed diffuse lesions extending to anteropyloric area (Figure 3). Biopsy is frequently performed on mucosal abnormalities as it is difficult to differentiate neoplastic lymphoid nodules from benign reactive follicles or mucosal polyps. The index case had diffuse thickening and nodularities extending to anteropyloric regions. A step further in the diagnosis has been made in the recent years with the advent of Endoscopic ultrasonography (EUS). Four types of patterns indicative of gastric lymphoma have been described: superficially spreading, diffusely infiltrating, mass forming and mixed. Low-grade MALT lymphoma characteristically appears as a superficially spreading or diffusely infiltrative lesion [11]. EUS is a valuable adjunct for initial GI lymphoma staging as well. It allows visualization of all layers of the gastric wall and thus, permits evaluation of tumor depth. Even role of EUS has come up in the disease follow-up after treatment [12]. However, a comparative study lymphoma sub classification by EUS-fine needle aspiration (FNA) and True-cut biopsy (TCB) was carried out by Ribeiro et al [13]. The authors showed lower accuracy (60% of cases) in distinguishing low-grade lymphomas in comparison to sub classifying high-grade DLBCLs (78% of

cases). The exact pathogenesis of this disease remains unknown. It is imperative to rule out *H. pylori* in all such suspicious lesions. Baumgaertner and colleagues reported a case of *H. pylori*-associated Burkitt's lymphoma with complete disease remission after *H. pylori* eradication therapy. This occurrence may imply probable role of *H. pylori* in BL [14]. The index case had no evidence of *H. pylori* hence no *H. pylori* treatment was given to him, instead he was given standard chemotherapy. In another report a 39-year old female who presented with a prominent ulcerated lesion of the antrum corresponding histologically to a Burkitt's lymphoma associated with *H. pylori* infection. The authors demonstrated ulcer healing and tumors regression with a complete histological response obtained 8 weeks after *H. pylori* eradication. Their case highlights the importance of searching for and eradicating the bacteria but complete chemotherapy protocols seem to be imperative taking into account the high risk of recurrence. In their case with combination of chemotherapy the authors demonstrated complete remission after two years of follow up [15]. Another infection to be ruled out in case of Burkitt's lymphoma is HIV. HIV increases the prevalence of Burkitt's lymphoma. In the setting of HIV infection, Burkitt's lymphoma may account for about 35–40% of all NHL patients [16] while as in non HIV patients only 1–2% of all adult NHL are of Burkitt's variety. Even though the index case denied any high risk behavior but keeping in view increased prevalence of Burkitt's lymphoma HIV serology was done after the biopsy results from stomach were obtained, which turned out to be negative. Concurrent presence of BL in stomach and rectum has been reported in 51 year old female presenting with weight loss and hematochezia highlighting that the pathogenesis may be diffuse and a vigil should be kept on a synchronous lesions as well BL is chemo sensitive and the advent of high intensity, multi-agent chemotherapeutic regimen has led to an astoundingly high remission rate [17]. The role of surgery is limited to cases of obstruction and bleeding. The combined chemotherapy and surgical modality was reported a 30-year-old male in whom Burkitt's lymphoma was established by endoscopic examination and biopsy of ulcero infiltrative lesion on the antral part of the stomach. The patient was in clinical stage IIE. After one cycle of chemotherapy according to protocol R-HyperCVAD, a subtotal distal gastrectomy and additional

three cycles of the same chemotherapeutic protocol a complete remission was achieved [18]. Long-term survival with various combination chemotherapy including third generation protocol currently is approximately 40–80% , however , clinicians need to be cautious during chemotherapy A case of primary gastric Burkitt's lymphoma with chemotherapy-induced perforation has been reported [19,20].

Conflict of Interest

The author declares that I have no conflict of interest.

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