

## CASE REPORT

### Esophageal and Gastric T-Cell Lymphoma: A Rare Entity

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#### Abstract:

*Background:* Primary gastrointestinal T-cell lymphomas are extremely rare entity and are much less common than B-Cell lymphomas.

*Case History:* A primary T-cell lymphoma was diagnosed in an octogenarian African American male with a history of diabetes mellitus type-II, remote history of prostate cancer, hypertension, obesity and hyperlipidemia. He had symptoms of dysphagia, early satiety, loss of appetite and loss of weight. He was *Helicobacter pylori* IgG antibody positive and on treatment. Result of first biopsy during endoscopy showed only heavy lymphoid infiltrate. But, due to high suspicion of malignancy, a second upper gastrointestinal endoscopy and biopsy was performed. This biopsy from the large deep 3cm friable ulcer with nodular base was taken which showed atypical lymphoid cells positive for CD<sub>3</sub> and CD<sub>7</sub>, and negative for CD<sub>5</sub>, CD<sub>4</sub>, CD<sub>8</sub> and CD<sub>56</sub>. The combination of the histological, immunohistological stain results and the gene rearrangement results confirmed T cell lymphoma. The patient died after 5 months after 5 cycles of chemotherapeutic agents of severe dehydration and complications from sepsis.

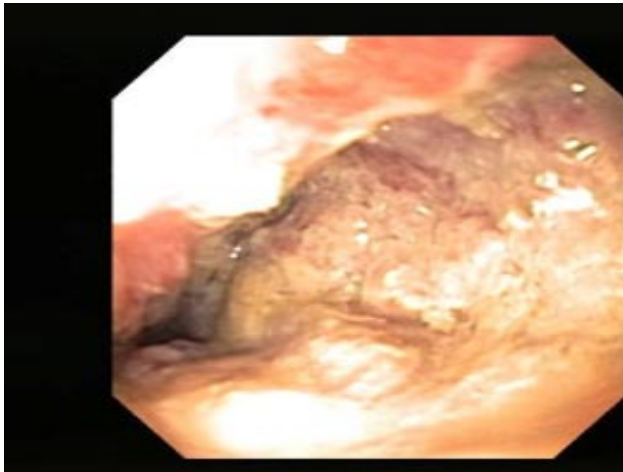
#### Introduction:

The stomach is a common extra nodal site for metastatic lymphomas. Primary gastric lymphomas, most commonly of B-cell origin account for less than 15% of gastric malignancies and less than 2% of all lymphomas [1]. We report a rare case of primary T-cell esophageal and gastric lymphoma and our treatment experience.

#### Case History:

An octogenarian African American male with a past medical history of diabetes mellitus type-II, remote prostate cancer, hypertension, obesity and hyperlipidemia was referred to the multispecialty endoscopy suite with complaints of dysphagia, early satiety, loss of appetite and weight loss for further evaluation. Laboratory tests showed hemoglobin of 11.3 g/dl, hematocrit 32.1%, and iron studies consistent with anemia of chronic disease, negative hemocults and a negative hemolytic workup. *Helicobacter pylori* IgG antibody was positive and patient was initiated on treatment. Upper gastrointestinal endoscopy revealed two areas with linear, raised, friable, erythematous lesions in the distal body and antrum of the stomach. Esophagus showed a large deep 3 cm ulcer with friable and nodular base and heaped

**Fig 1: Esophagus shows a large deep 3 cm ulcer with friable and nodular base and heaped up edges**



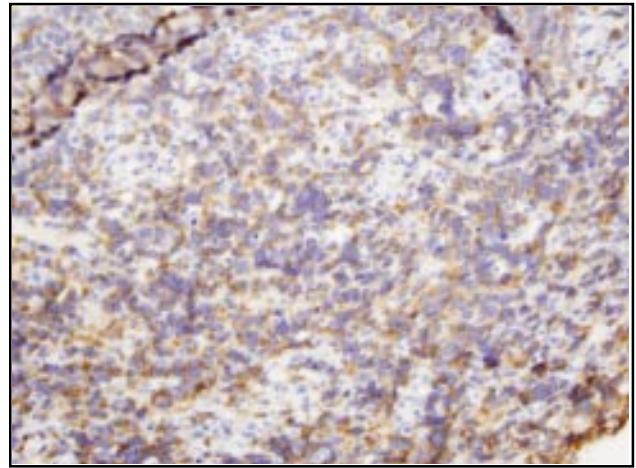
up edges, appearance consistent with malignancy (figure 1).

However, initial biopsy results showed heavy lymphoid infiltrate.

Due to high suspicion of malignancy, a second upper gastrointestinal endoscopy was performed. Repeat gastric and esophageal biopsies showed markedly atypical lymphoid infiltrate with ulceration and necrosis. Immunohistochemical stains showed the atypical lymphoid cells to be CD3 and CD7 positive (figure 2), CD5, CD4, CD8 and CD56 negative, consistent with an abnormal phenotype. PCR analysis revealed a T-cell receptor gamma gene rearrangement indicating a monoclonal T-cell population. The combination of the histological, immunohistochemical stain results and the gene rearrangement results confirmed T-cell lymphoma.

The patient was referred to Oncology for further evaluation and treatment. Bone marrow

**Fig 2: shows markedly atypical lymphoid infiltrate with ulceration and necrosis. Immunohistochemical stains showed the atypical lymphoid cells to be CD3 and CD7 positive**



biopsy revealed a hypocellular bone marrow with focal erythroid hyperplasia, focal eosinophilia and no histological evidence of lymphomatous involvement. Positron Emission Tomography (PET) scan for staging showed abnormal circumferential thickening of the distal esophagus extending into the gastric cardia and mildly prominent subcarinal lymph nodes. Our patient was treated with Cyclophosphamide, Adriamycin, Vincristine, and Prednisone (CHOP) and pegfilgastrim (Neulasta) prophylaxis. He was able to tolerate a total of five cycles. However he developed severe dehydration and complications from sepsis leading to his death in less than 5 months.

### **Discussion:**

The gastrointestinal tract is the most common site of primary extra nodal lymphomas which comprise about 10 % of all lymphomas [1]. The lymphomas are almost exclusively of non-Hodgkin's type, and primary gastrointestinal

Hodgkin's disease is rare. Primary gastrointestinal T-cell lymphomas are an extremely rare entity and are much less common than B-cell lymphomas [2].

Dawson et al have developed the following 5 criteria needed to identify a primary GI lymphoma (3):

1. No palpable superficial lymph nodes
2. Normal chest radiograph findings with no evidence of lymphadenopathy
3. Normal WBC count
4. Predominant lesion within the GI tract with lymph node involvement confined to the lymph node chain involved in drainage of that specific GI segment
5. No involvement of the liver or spleen.

In a series of 1467 cases of GI lymphoma, primary esophageal lymphoma has accounted for only 3 cases [4]. Infection with HIV and exposure to Epstein-Barr virus (EBV) are considered risk factors for primary esophageal lymphoma [5]. Esophageal involvement is via contiguous spread from the proximal stomach, adjacent mediastinal lymph nodes and/or cervical lymph nodes [4,5]. Esophageal lymphomas involving the distal esophagus represent extension from the proximal stomach. Lymphomas arising in the middle third of the esophagus may be secondary to mediastinal lymph node enlargement with involvement of the esophagus and lymphomas arising from proximal esophagus represent extension from adjacent cervical lymph nodes [5].

Patients usually present in their 5<sup>th</sup> decade with complaints of dysphagia, weight loss, hoarseness and in rare cases esophageal

perforation or tracheoesophageal fistula [7-10]. Endoscopically, they appear as ulcerated polypoid or circumferential lesions in proximal or distal esophagus [7-10]. Similar to our case multiple biopsies are needed to obtain sufficient material for histologic, immunophenotypic, and molecular analyses for accurate classification of these biologically diverse lesions [4].

Most reported primary esophageal lymphomas are large cell lymphomas of the B-cell origin [4]. No standard optimal treatment regimen exists for esophageal lymphomas, although radiation and chemotherapy with regimens including cyclophosphamide, doxorubicin, vincristine, and prednisone have been used. Patients have poor prognosis and it depends on the stage and subtype of lymphoma and its response to treatment [5]. Radiation therapy and surgery are other modalities of treatment and greatly depends on the stage of disease at the time of diagnosis and on the underlying medical condition of the patient.

Stomach serves as a common site for metastatic disease in nodal lymphomatous disease (approximately 68%). Primary gastric lymphomas (PGL) are extremely rare accounting for less than 15% of gastric malignancies and less than 2% of all lymphomas [1]. PGL are most commonly of B-cell origin and mucosa-associated lymphoid tissue (MALT) type [1]. The incidence of gastric T-Cell lymphoma is 1.5-4%, with a peak incidence between 50-60 years of age and a male predominance [11].

Gastric T-cell lymphoma cells are mainly derived from lamina propria and parafollicular

T cells of the stomach [11]. T cells can be grouped into two subsets alfa-beta and gamma-delta, based on the expression of T cell receptor alfa (TRA) and beta (TRB) chains, or gamma (TRG) and delta (TRD) chains respectively [12]. Patients present with symptoms of upper abdominal discomfort or pain [13]. Endoscopically they appear as a large ulcerated mass arising from the corpus to the antrum and histologically consists of anaplastic and pleomorphic cell types [13].

T-Cell leukemia type virus (HTLV-1) and helicobacter pylori infection have been associated with the development of gastric T-cell lymphoma [12]. HTLV-1 associated gastric lymphoma occurs in two thirds of cases and has a poor prognosis [12]. It is clinically characterized with the appearance of skin lesions, lymphadenopathy, and hepatosplenomegaly [14]. HTLV-1 associated gastric lymphomas stain positive for CD3, CD4 and negative for CD8 [13, 15].

Treatment options for gastric T-cell lymphoma are typically chemotherapy, radiation and/or surgery. Patients with T-cell lymphoma and anti-adult T-cell leukemia antigen have a much worse surgical prognosis and favours intense chemotherapy [16]. Gastrectomy helps in making the diagnosis, cure or debulking the tumor mass [13]. The 5 year survival rate for primary gastric T-cell lymphoma is zero as opposed to B-cell lymphoma which is 45% [16].

### References:

1. Koch P, Francisco del Valle, Wolfgang E. Berdel, Normann A. Willich, Berthold Reers, Wolfgang Hiddemann, Bernward Grothaus-Pinke, Gabriele Reinartz, Jens Brockmann, Altfried Temmesfeld, Rudolf Schmitz, Christian Ru"be, Andreas Probst, Gert Jaenke, Heinrich Bodenstern, Arved Junker, Christiane Pott, Ju"rgen Schultze, Achim Heinecke, Primary gastrointestinal non-Hodgkin's lymphoma: Anatomic and histologic distribution, clinical features, and survival data of 371 patients registered in the German Multicenter Study GIT NHL 01/92. *J Clin Oncol* 2001, Sep 15; 19(18):3861-3873.
2. Daniel M. Knowles. Neoplastic hematopathology. Lippincott Williams & Wilkins. 2001.
3. Dawson IMP, Cornes JS, Morson BC. Primary malignant lymphoma of the intestinal tract. *British Journal of Surgery*. 1961; 49:80-9.
4. Ioannis V Kalogeropoulos, Athanasios N Chalazonitis, Sofia Tsolaki, Fotios Laspas, Nikolaos Ptohis, Ioannis Neofytou, Dimitra Rontogianni. A case of primary isolated non-Hodgkin's lymphoma of the esophagus in an immunocompetent patient. *World J Gastroenterol* 2009; 15 (15):1901-1903.
5. Dunphy RC, Bhutani MS, Katz J et al. Esophageal Lymphoma. Medscape. <http://emedicine.medscape.com/article/174662>.
6. Wagner PL, Tam W, Lau PY, Port JL, Paul S, Altorki NK, Lee PC. Primary esophageal large T-cell lymphoma mimicking esophageal carcinoma: A case report and literature review. *J Thorac Cardiovasc Surg* 2008 Apr; 135(4):957-8, 958.e1.

7. Chadha KS, Hernandez-Ilizaliturri FJ, Javle M. Primary esophageal lymphoma: case series and review of the literature. *Dig Dis Sci* 2006; 51:77-83.
8. Bolondi L, De Giorgio R, Santi V, Paparo GF, Pileri S, Di Febo G. Primary non-Hodgkin's T-cell lymphoma of the esophagus. A case with peculiar endoscopic ultrasonographic pattern. *Dig Dis Sci* 1990; 35:1426-1430.
9. Kirsch HL, Cronin DW, Stein GN, Latour F, Herrera AF. Esophageal perforation. An unusual presentation of esophageal lymphoma. *Dig Dis Sci* 1983; 28:371-374.
10. Williams MR, Chidambaram M, Salama FD, Ansell ID. Tracheo-oesophageal fistula due to primary lymphoma of the oesophagus. *J R Coll Surg Edinb* 1984; 29:60-61.
11. Kawamoto K, Nakamura S, Iwashita A, Watanabe J, Oshiro Y, Nakayama Y, Nimura S, Kimura N, Aoyagi K, Yao T, Kuramochi S, Matsuyama A, Kurihara K, Ohshima K, Takeshita M. Clinicopathological characteristics of primary gastric T-cell lymphoma. *Histopathology*. 2009 December; 55(6): 641-53.
12. Tomoko I, Hiroto M. et al. Primary Gastric T-cell Lymphoma accompanied by HTLV-1, HBV and *H. Pylori* Infection. *Diagnostic Diseases and Sciences*. 1999 September 44(9): 1823-36.
13. Horie R, Yatomi Y, Wakabayashi T, Ohno Y, Eriguchi M, Higashihara M, Nakahara K, Watanabe T. Primary gastric T-cell lymphomas: report of two cases and a review of the literature. *Jpn Journal of Clinical Oncology* 1999 Mar; 29(3):171-178.
14. Park, YH; Kim WS, Bang SM, Lee SI, Kang HJ, Na II, Yahg SH, Lee SS, Uhm JE, Kwon JM, Kim K, Jung CW, Park K, Ko YH, Ryoo BY. Primary gastric lymphoma of T-cell origin: clinicopathologic features and treatment outcome. *Leuk Res* 2006; 30 (10): 1253-1258.
15. B Hatano, K Ohshima, A Katoh, M Kanda, C Kawasaki, T Tsuchiya, K Shimazaki, S Haraoka, M Sugihara, J Suzumiya, M Kikuchi. Non-HTLV-1-associated primary gastric T-cell lymphomas show cytotoxic activity: clinicopathological, immunohistochemical characteristics and TIA-1 expression in 31 cases. *Histopathology*. 2002, November; 41 (5): 421-436.
16. Ishigami S, Natsugoe S, Tokuda K, Nakajo A, Che X, Iwashige H, Aridome K, Hokita S, Aikou T. Clinical and pathological features in T-cell gastric lymphoma associated with human T-cell leukemia virus type 1 (HTLV-1) in comparison with B-cell gastric lymphoma. *Hepatogastroenterology* 2002, Nov-Dec; 49(48): 1737-1741.

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