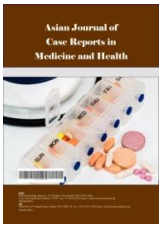

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A Case Report on Diffuse Large B-cell Lymphoma of the Stomach

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Authors' contributions

This work was carried out in collaboration among all authors. Author TA wrote the manuscript with input from all authors. Authors AG and AV performed the gastroenterological consulting. Author KH performed the radiological consulting. Author KH performed all the histological examinations of the stomach. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

The purpose of this paper is to present a rare case of a young female who was diagnosed with gastric diffuse large B-cell lymphoma (DLBCL) and was successfully treated with concomitant eradication therapy and immunochemotherapy.
The importance of Helicobacter pylori (HP)-eradication therapy in various histological forms of gastric DLBCL and the potential to replace the immunochemotherapy or to be combined with it in selected patients remain the matter of further research.

Keywords: Diffuse large B-cell lymphoma; stomach; Helicobacter pylori; immunochemotherapy; rituximab.

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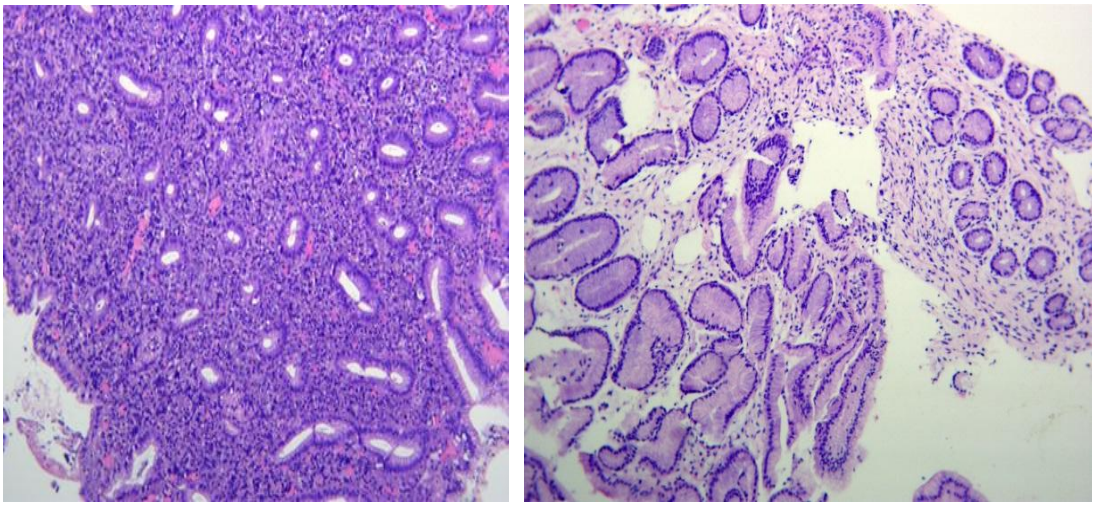
1. INTRODUCTION

Primary gastrointestinal lymphomas are not common amongst digestive system neoplasms but represent a challenge since their diagnosis and management are different from that of other extranodal lymphomas and other gastrointestinal tumors [1]. The purpose of this paper is to present a rare case of a young female who was diagnosed with gastric diffuse large B-cell lymphoma (DLBCL) and was successfully treated with concomitant eradication therapy and immunochemotherapy.

2. PRESENTATION OF CASE

A 26-year-old female was complaining of epigastric pain (not associated with the meal) for a week prior to seeking medical care. She denied anorexia, weight loss or night sweats. Her past medical history and family history were unremarkable. Gastroscopy revealed a mild hiatal hernia and a 15-mm benign-appearing ulcer in the pylorus. Histopathology of the biopsies from the ulcer crater and margins revealed gastric high-grade non-Hodgkin lymphoma (Fig. 1A). Further immunohisto-chemistry confirmed the diagnosis of DLBCL. Table 1 represents the panel of markers used to differentiate the type of lymphoma. Computed tomography scans revealed a thickening of the posterior antral wall up to 2 cm, without distant metastases, invasion of adjacent structures or enlargement of regional lymph nodes. The diagnosed disease was classified as stage I high-grade primary gastric DLBCL (PG-DLBCL) transformed from the lymphoma of mucosa-associated lymphoid tissue (MALT) with a Revised International Prognostic Index (R-IPI) score of 1/5 and 4-year Estimated Overall Survival of 79% [2-4].

Helicobacter pylori (HP) eradication therapy and immunochemotherapy began concomitantly thereafter. The patient received lansoprazole, amoxicillin and clarithromycin for 14 days, and a total of four cycles of treatment with rituximab, cyclophosphamide, doxorubicin, vincristine and prednisolone (R-CHOP therapy) at 21-day intervals. Only mild leukopenia and no serious adverse events occurred. The 1-month follow-up endoscopy detected a 3-mm scar in the place of initial tumor. Remission was confirmed by histology of the scar tissue (Fig. 1B) and further positron emission tomography scan, which revealed no foci of metabolic activity. The patient was followed up for two years without any complaints. Repeated gastroscopy at 6-, 12- and 24-months follow-up showed no pathological changes of gastric mucosa and further shrinkage of the scar tissue.



(A) **(B)**

Fig. 1. Hematoxylin and eosin stained sample. A: Before treatment; B: After treatment (magnification x4)

Table 1. Results of immunohistochemical examination

Tumor marker	Results
AE1/3	Tumor cells −* / internal control epithelial cells +
CD3	Scattered mature reactive T-lymphocytes + / internal control epithelial cells +
CD5	+/− focal positive membrane reaction in scattered mature reactive T-lymphocytes and some of the tumor cells
CD10	+/− focal positive membrane reaction in some of the tumor cells
CD20	+ pronounced diffuse positive membrane reaction in all of the lymphoid tumor cells
CD23	− negative reaction in all of the cells
CD43	+/− positive membrane reaction in scattered mature reactive T-lymphocytes and some of the tumor cells
CD45	+ positive membrane reaction in all of the lymphoid cells
CD79a	+ positive membrane reaction in tumor cells
MUM1	−/+ positive nuclear reaction in some of the tumor cells
TDT	− negative reaction in all of the tumor cells
Cyclin D1	− negative reaction in all of the tumor cells, + positive nuclear reaction in some of the scattered cells
Ki67	70%
3q27 region abnormalities involving BCL6	30%
t(14;18), involving BCL2	20-30%
MYC rearrangement	10%

* *+ positive response, - negative response*

3. DISCUSSION

The gastrointestinal tract is the most common site for extranodal lymphomas, where they mainly affect the stomach. Gastric lymphoma reaches its peak in incidence between the ages of 50 and 60 years, with a slight male predominance. We presented a rare case of gastric DLBCL in a woman of younger age.

The two main histologic subtypes of gastric lymphomas are:

1. Extranodal marginal zone B-cell lymphoma (MZBL) of MALT (formerly called MALToma or MALT lymphoma)
2. Diffuse large B-cell lymphoma [1,5].

Diffuse large B-cell lymphomas are aggressive B-cell neoplasms that represent the most frequent type of non-Hodgkin lymphomas among adults, accounting for 30-40% of new cases. These are a heterogeneous group of B-cell lymphomas with several common features: malignant large B-cells with bulgy nuclei, abundant basophilic cytoplasm, diffuse-infiltrative growth to surrounding tissues and a high proliferative index. According to etiopathological classification, DLBCL can develop *de novo* or arise *via* the transformation of several types of small B-cell lymphomas, such as chronic lymphocytic leukemia (e.g., Richter's transformation), follicular lymphoma and MZBL of MALT type [5-7]. The differentiation of DLBCL being *de novo* or transformed is challenging and mainly based on a histological evidence of MALT lymphoma: dense infiltration of centrocyte-like cells in the *lamina propria*, and typical lymphoepithelial lesions. *De novo* or "pure" DLBCL contains only homogenous infiltration of large atypical B cells, while transformed DLBCL or DLBCL (MALT) contains accompanying foci of MALT lymphoma [8].

While the mainstay of treatment is R-CHOP therapy with good efficacy, several studies have shown that early-stage HP-positive DLBCL (MALT) patients achieve full remission through HP eradication therapy only and that high-grade transformation of MALToma may not be the point when the lymphoma grows into HP-independent form [9-13].

4. CONCLUSION

A patient with PG-DLBCL achieved full remission after combined HP-eradication and immuno-chemotherapy. The importance of HP-eradication therapy in various histological forms of PG-DLBCL and the potential to replace the immunochemotherapy or to be combined with it in selected patients remain the matter of further research.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

Written and signed consent for publication has been obtained from the patient involved in the case report.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Swerdlow SH, Campo E, Harris NL, et al. WHO classification of tumours of haematopoietic and lymphoid tissues. IARC Press, Lyon, France; 2008. Available:https://doi.org/10.1182/blood-2011-01-2930502.
2. Sehn L, Berry B, Chhanabhai M, et al. The revised International Prognostic Index (R-IPI) is a better predictor of outcome than the standard IPI for patients with diffuse large B cell lymphoma treated with R-CHOP. Blood. 2007;109(5):1857-1861. Available:https://doi.org/10.1182/blood-2006-08-038257.
3. Jaffe ES, Harris NL, Stein H, Isaacson PG. Classification of lymphoid neoplasms: the microscope as a tool for disease discovery. Blood. 2008;112(12):4384-4399. DOI: 10.1182/blood-2008-07-077982.
4. Ollila TA, Olszewski AJ. Extranodal diffuse large B cell lymphoma: Molecular features, prognosis, and risk of central nervous system recurrence. Curr Treat Options Oncol. 2018;19(8):38. Published 2018;21. DOI: 10.1007/s11864-018-0555-8.
5. Xie Y, Pittaluga S, Jaffe ES. The histological classification of diffuse large B cell lymphomas. Semin Hematol. 2015; 52(2):57-66. DOI:10.1053/j.seminhematol.2015.01.006.
6. Yoshino T, Omonishi K, Kobayashi K, et al. Clinicopathological features of gastric Mucosa Associated Lymphoid Tissue (MALT) lymphomas: High grade transformation and comparison with diffuse large B cell lymphomas without MALT lymphoma features. J Clin Pathol. 2000; 53(3):187-190. DOI:10.1136/jcp.53.3.187.
7. Liu TY, Dei PH, Kuo SH, Lin CW. Early low-grade gastric MALToma rarely transforms into diffuse large cell lymphoma or progresses beyond the stomach and regional lymph nodes. J Formos Med Assoc. 2010;109(6):463-471. Available:https://doi.org/10.1016/S0929-6646(10)60078-2.
8. Paydas S. Helicobacter pylori eradication in gastric diffuse large B-cell lymphoma. World J Gastroenterol. 2015,7;21(13): 3773-6. DOI: 10.3748/wjg.v21.i13.3773. PMID: 25852262; PMCID: PMC4385524.
9. Kuo S, Yeh K, Wu M, et al. Helicobacter pylori eradication therapy is effective in the treatment of early-stage. Blood. 2012;119: 4838-4844. Available:https://doi.org/10.1182/blood-2012-01-404194.
10. Cavanna L, Pagani R, Seghini P, Zangrandi A, Paties C. High grade B cell gastric lymphoma with complete pathologic remission after eradication of Helicobacter pylori infection: Report of a case and review of the literature. World J Surg Oncol. 2008;6:35. Published 2008;19. DOI: 10.1186/1477-7819-6-35.
11. Ghosh G, Otaki F, Wan D (2017) Complete remission of late-stage Helicobacter pylori

-associated gastric diffuse large B cell lymphoma. Gastroenterol Hepatol Open Access 7(4): 00243.
DOI: 10.15406/ghoa.2017.07.00243.

12. Kuo SH, Chen LT, Yeh KH, et al. Nuclear expression of BCL10 or nuclear factor kappa B predicts Helicobacter pylori independent status of early-stage, high-grade gastric mucosa-associated lymphoid tissue lymphomas. J Clin Oncol. 2004; 22(17):3491-3497.
DOI: 10.1200/JCO.2004.10.087.

13. Saito M, Mori A, Ogasawara R, et al. Progression of primary gastric diffuse large B Cell lymphoma after Helicobacter pylori eradication. Case Rep Gastroenterol. 2020;14(3):534-539. Published 2020;28.
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