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Clinicopathological Evaluation of Gastrointestinal Lymphoma in a Tertiary Care Hospital of Assam – A Two Years Retrospective Study.

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Abstract:
Background*: The purpose of this study was to evaluate the age & gender distribution, clinical presentation and basic immunohistochemistry finding of GIT lymphoma cases.*
Methods: It was a hospital based retrospective study conducted over a period of two years. Review of datas of cases diagnosed to be lymphoma by Histopathological examination was carried out in a tertiary care Hospital of Assam, India. The main symptom of presentation due to GIT lymphoma, age & sex distribution of the cases, their site of involvement, Histopathological diagnosis and basic immunohistochemical findings were observed.
Results: A total 09 cases were found to be gastrointestinal lymphoma and all were diagnosed to be Non Hodgkin lymphoma by Histopathological examination. All cases were found to be B cell Non Hodgkin lymphoma by immunohistochemical examination. Age group was ranged from 5 years to 75 years and males (66.7%) were more commonly affected than female (33.3%). The most common site involved was small intestine (77.8%) and most common clinical presentation was small intestinal perforation (44.4%). Out of total 04 cases of perforation; 03 cases were diagnosed as diffuse large B cell lymphoma morphologically.
Conclusions: It was concluded that the most common gastrointestinal lymphoma was Non Hodgkin lymphoma, B cell type and perforation was a common presentation in small intestine with diffuse large B cell lymphoma morphology.
Key Word*: GIT lymphoma, NHL, perforation, small intestine, DLBL.*

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I. Introduction

Gastrointestinal (GI) tract is the most common extranodal site involved by lymphoma and accounts for 30-40% of all cases, while it comprises only 1-4% of all GI malignancies[1-3]. The incidence of Non-Hodgkin lymphoma (NHL) and primary GI lymphoma (PGIL) has been increasing both in men and women around the world[1, 4-6]. Some possible risk factors such as immunosuppression, Helicobacter pylori infection, human T-cell leukemia/lymphoma virus type 1 (HTLV-1) infection, celiac disease, Epstein-Barr virus (EBV), exposure to environmental agents and occupational risks have been studied but are still pending[5].

The involvement of GIT by lymphomas can be primary or secondary, as a part of the dissemination. Primary GIT lymphomas (PGLs) have been defined as those in which involvement of the alimentary tract predominates or those with symptoms of GIT involvement on presentation[7]. The most common site of PGL in Western countries is the stomach (approximately 35–75%), followed by the small intestine (30%) and large intestine (10%)[8]. These proportions differ geographically and small intestinal lymphomas are more common than other PGL in the Middle East and North Africa[9].

The purpose of this study was to evaluate the age & gender distribution, clinical presentation, site of involvement and basic immunohistochemistry finding of GIT lymphoma cases diagnosed by Histopathological examination.

II. Material And Methods

This was a retrospective study carried out in Department of Pathology in a tertiary care Hospital of Assam, India covering a period of 02 years and included 09 patients with histopathological diagnosis of lymphoma involving the GIT. The main symptom of presentation due to lymphoma, age & sex distribution of the cases, their site of involvement, Histopathological diagnosis and basic immunohistochemical findings were observed. Immunohistochemistry (IHC) markers used were CD45, CD20 and CD3. All the datas were obtained from the Department of Pathology.

III. Result

A total 09 cases were found to be gastrointestinal lymphoma and all were diagnosed to be Non Hodgkin lymphoma by Histopathological examination. Age group was ranged from 5 years to 75 years with mean age of 39.4 years. Males (66.7%) were more commonly affected than female (33.3%) with a male to female ratio of 2:1. The most common site of GIT lymphoma in this study was small intestine (n=7, 77.8%) followed by stomach (n=1, 11.1%) and large intestine (n=1, 11.1%). Out of 07 cases in small intestine, 04 cases involved the ileum. (Table-1)

The most common clinical presentation was small intestinal perforation (44.4%) and mass lesion (44.4%). Regarding size of the GIT lymphoma; the largest tumour size was 11 cm in greatest dimension and presented as small intestinal perforation in a 10 years old boy. The smallest tumour size was 4.5 cm in greatest dimension and presented as small intestinal perforation in a 60 years old male. Mean size of tumour mass was 7.4 cm in greatest dimension. Cut sections of all tumour masses were solid homogenous white and diffuse involvement of gastrointestinal wall found in 05 cases (55.6%). (Table-2)

Histopathologically, all 09 cases were diagnosed as Non Hodgkin lymphoma and 03 cases were sub typed as diffuse large B cell lymphoma (DLBL). The gastric NHL case was sub typed as mucosa-associated lymphoid tissue lymphoma (MALToma). All diffuse large B cell lymphoma (DLBL) cases were found in small intestine and clinically presented as small intestinal perforation. On immunohistochemical (IHC) examination, all 09 cases had shown positivity for CD45, CD20 and negative for CD3. So, all 09 cases of gastrointestinal lymphoma were diagnosed as Non Hodgkin Lymphoma (NHL); B cell subtype. (Table-2)

Table-1: Showing age and sex distribution with clinical presentation of the GIT lymphoma cases

Serial No	Age	Sex	Clinical diagnosis	HPE Diagnosis
1	10 yrs	male	Small intestinal perforation under investigation	Non Hodgkin Lymphoma
2	75 yrs	male	Ileal perforation under investigation ?GIST ileo-caecal region	Non Hodgkin Lymphoma (DLBL)
3	50 yrs	female	Caecal mass under investigation	Non Hodgkin Lymphoma
4	60 yrs	male	Ileal perforation under investigation	Non Hodgkin Lymphoma (DLBL)
5	05 yrs	male	Lymphoma of small intestine, Mass lesion	Non Hodgkin Lymphoma
6	35 yrs	female	Ileal perforation under investigation	Non Hodgkin Lymphoma (DLBL)
7	07 yrs	female	Ileal lymphoma, mass lesion	Non Hodgkin Lymphoma
8	53 yrs	male	Small intestinal mass under investigation	Non Hodgkin Lymphoma
9	60 yrs	male	Gastric carcinoma	Non Hodgkin Lymphoma (MALToma)

Table-2: Showing gross & IHC findings with Histopathological diagnosis of the GIT lymphoma cases

Serial No	Gross examination	HPE Diagnosis	IHC Finding
1	Small intestinal mass measuring (11x7x4) cm. C/S - solid homogenous white. Diffusely involved. Perforation site noted.	Non Hodgkin Lymphoma	CD 45 (+), CD20 (+), CD 3 (-)
2	Small intestinal mass measuring (5x5x4) cm. C/S - solid, homogenous white	Non Hodgkin Lymphoma (DLBL)	CD 45 (+), CD20 (+), CD 3 (-)
3	Cauliflower like lobulated mass measuring (7x6x3) cm. C/S - solid, homogenous white	Non Hodgkin Lymphoma	CD 45 (+), CD20 (+), CD 3 (-)
4	Small intestinal mass measuring (4.5x2.5x2) cm. C/S - solid, homogenous white	Non Hodgkin Lymphoma (DLBL)	CD 45 (+), CD20 (+), CD 3 (-)
5	Small intestinal mass measuring (10x7x3) cm. C/S - solid, homogenous white with diffuse involvement of the wall	Non Hodgkin Lymphoma	CD 45 (+), CD20 (+), CD 3 (-)
6	Small intestine with diffusely thickened wall measuring (5x3x1.5) cm. C/S - solid, homogenous white	Non Hodgkin Lymphoma (DLBL)	CD 45 (+), CD20 (+), CD 3 (-)
7	Small intestinal mass measuring (7x6x2) cm. C/S - solid, homogenous white	Non Hodgkin Lymphoma	CD 45 (+), CD20 (+), CD 3 (-)

8	Small intestinal mass measuring (7x5x4) cm. Diffusely involved. C/S - solid, homogenous white	Non Hodgkin Lymphoma	CD 45 (+), CD20 (+), CD 3 (-)
9	Diffuse tumour mass noted in the wall of stomach measuring 10 cm in length with maximum thickness 2.5 cm. Mucosa UR	Non Hodgkin Lymphoma (MALToma)	CD 45 (+), CD20 (+), CD 3 (-)

Note:- Same serial number in both the tables indicates same case.

IV. Discussion

In the present study; all 09 cases of gastrointestinal lymphoma were diagnosed as Non Hodgkin Lymphoma (NHL); B cell subtype. This observation was comparable to other studies like: Ding et al[10] had observed that out of 46 patients with PGI NHL; 43 cases were classified as NHL, B cell type (36 cases were classified as DLCBL, 4 as mucosa-associated lymphoid tissue lymphoma, 3 as follicular lymphoma) and 3 cases as T-cell derived NHL. Arora et al[11] had observed that all the lymphomas involving GIT were NHL except for one case of secondary involvement of GIT by Hodgkin lymphoma (HL). The predominant PGLs were B-cell lymphomas (n = 325; 96.73%). T-cell lymphomas were infrequent and constituted only 3.27 % (n = 11). Diffuse large B-cell lymphoma (DLBCL) was the commonest PGL subtype forming 66.71% of all lymphomas. Again, Huang et al[12] had observed that among 83 cases of gastric lymphoma; B cell NHL was 90.4% (n=75) and T cell NHL was 9.6% (n=8).

Again, age group was ranged from 5 years to 75 years with mean age of 39.4 years. Males (66.7%) were more commonly affected than female (33.3%) with a male to female ratio of 2:1. These observations were comparable to the mentioned studies: Khuroo et al[13] had studied 100 cases of GIT lymphoma, where mean age was 51.43 years with age range of 4.5-90 years and 60 were males and 40 were females with male to female ratio was 3:2. Raina et al[14] had studied 77 GI NHL cases with a median age of 32 years and age ranges were 9-80 years and male to female ratio was 2.2:1. Huang et al[12] had observed that Of the 83 patients of primary gastric NHL, 45 were male and 38 were female with a median age of 52 years (range 15-81 years). Arora et al[11] had observed that out of 336 PGL; 267 cases were males (79.64%) and 68 cases were female (20.24%), with a male:female ratio of 3.93:1 and peak incidence seen in the 6th decade with mean age of 45 years, age range of 3–88 years. Ding et al[10] study included 26 men and 20 women, with a mean age of 50 years (range, 21-81 years). The male:female ratio was 1.3:1. Minrui Li et al[15] had observed 216 cases of PGL with 160 (74.1%) males and 56 (25.9%) females. The male-to-female ratio was 2.9 and median age of diagnosis was 50 years old (age range: 2-80 years).

In this study, the most common site of GIT lymphoma in this study was small intestine (n=7, 77.8%) followed by stomach (n=1, 11.1%) and large intestine (n=1, 11.1%). But most of other studies like Arora et al[11], Koch et al[16], Radaszkiewicz et al[17], d' Amore et al[18] Raina et al[14] etc.; had shown stomach is the commonest site for GIT lymphoma. This may be due limited number of cases in the present study or may be special food habit of North East people. Minimal studies were available about GIT lymphoma from North-East India region. So, detailed and large studies may be helpful to comment on these observations in this region.

V. Conclusion

It was concluded that the most common gastrointestinal lymphoma was Non Hodgkin lymphoma, B cell subtype and perforation was a common presentation in small intestine with diffuse large B cell lymphoma morphology. However, detailed and larger studies are essential to conclude the observations in this region.

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